

**Integrated Planning:  
Consolidating Annual Facility Planning – More Time for Execution - 11562**

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**BACKGROUND/INTRODUCTION**

Previously, annual planning for Readiness in Technical Base and Facilities (RTBF) at the Nevada National Security Site (NNSS) was fragmented, disconnected, circular, and occurred constantly throughout the fiscal year (FY) comprising 9 of the 12 months, reducing the focus on implementation and execution. This required constant “looking back” instead of “looking forward.” In FY 2009, annual planning was consolidated into one comprehensive integrated plan (IP) for each facility/project, which comprised annual task planning/outyear budgeting, AMPs, and investment planning (i.e., TYIP). In FY 2010, the Risk Management Plans were added to the IPs.

The integrated planning process achieved the following: 1) Eliminated fragmented, circular, planning and moved the plan to be more forward-looking; 2) Achieved a 90% reduction in schedule planning timeframe from 40 weeks (9 months) to 6 weeks; 3) Achieved an 80% reduction in cost from just under \$1.0M to just over \$200K, for a cost savings of nearly \$800K (reduced combined effort from over 200 person-weeks to less than 40); 4) Reduced the number of plans generated from 21 plans (1 per facility per plan) per year to 8 plans per year (1 per facility plus 1 program-level IP); 5) Eliminated redundancy in common content between plans and improved consistency and overall quality; 6) Reduced the preparation time and cost of the FY 2010 SEP by 50% due to information provided in the IP; 7) Met the requirements for annual task planning, annual maintenance planning, ten-year investment planning, and risk management plans.

**BACKGROUND/INTRODUCTION**

In previous fiscal years (FY), different plans were developed to meet program- and facility-specific needs and requirements of the U.S. Department of Energy, National Nuclear Security Administration (NNSA) Readiness in Technical Base and Facilities (RTBF) Program at the Nevada National Security Site (NNSS—formally known as the Nevada Test Site or NTS). The mission of the RTBF Program is to provide support to the National Weapons Laboratories to maintain the facilities in warm-standby mode, ready to support experiments in support of the Stockpile Stewardship Program. The RTBF Program at the NNSS consists of eight facilities and programs that together account for more than 80 nuclear, high hazard buildings and a combined annual budget in excess of \$100 million.

The previous annual planning was fragmented, circular, and disconnected. Each planning phase (i.e., document) took approximately 3 months to perform. Planning efforts occurred at different times of the year to meet specific needs; however, this led to plans being misaligned with the

planning that occurred almost continuously, 9 out of 12 months, leaving 3 months for uninterrupted execution and implementation. Values (cost performance, project estimates, and FY and outyear budgets) were different in each document depending on the time the document was prepared. Basic information, such as program description, mission, vision, goals, requirements, and facility descriptions, was repeated in all documents, and was often inconsistent. The plans required constant planning effort throughout the FY, which promulgated a constant planning focus, but significantly reduced the efforts and focus on implementation and execution of the plan resulting in continuous re-planning. Significant technical editing was performed on each document throughout the year. A total of 21 plans were developed.

The results were that planning efforts for the current year were not integrated or in-sync with outyear/ long-term planning. Maintenance planning was not an integral part of the total facility planning for the FY nor was risk management. Ultimately, this required a constant “looking back” at previous documents and plans to be consistent instead of looking forward.

## **PREVIOUS YEARS’ PLANNING CYCLE**

In previous years, each facility and/or project prepared annual task plans (ATPs), which included current FY and outyear budget estimates and planning. Each facility and/or project also developed annual maintenance plans (AMPs), and ten-year investment plans (TYIPs). No specific format or template existed for each plan; however they were designed to communicate site- or facility-specific execution strategies and to provide key data needed for the Planning, Programming, Budget, and Evaluation and Future Years Nuclear Security Program (FYNSP) budgets for the next 5 years, as well as the current FY budget baseline.

ATPs consisted of developing detailed scope, requirements, assumptions, basis of estimates, and resource estimates for each element of the national work breakdown structure (WBS). This was due by late August so that the next FY baseline could be established.

Starting in October, AMPs were developed in order to document maintenance processes, develop maintenance strategies, and report maintenance performance and established maintenance budgets, based on requirements and drivers of the RTBF Maintenance Program Plan. The AMPs provided input into the site-level Maintenance Plan, which was developed in December each year.

In late March/early April, the FYNSP Committee would meet to establish budgets for the next 5 years. In order to obtain the information to support outyear budgeting, RTBF developed TYIPs, which provided the input for the FYNSP meeting.

In the midst of the individual planning cycles, the RTBF Site Execution Plan (SEP) was developed starting in August and ending in September. The SEP was revised again in April/May once the site split, continuing resolution ended, and the final allocations were established and communicated to the sites. Revision 1 of the SEP was due 15 days after the splits are established. Figure 1 provides the previous annual planning cycle timeline.

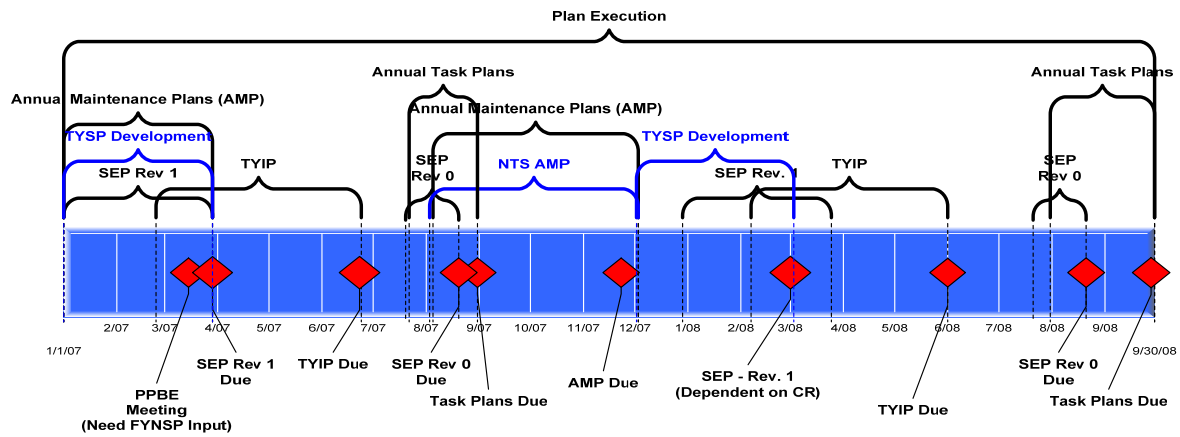


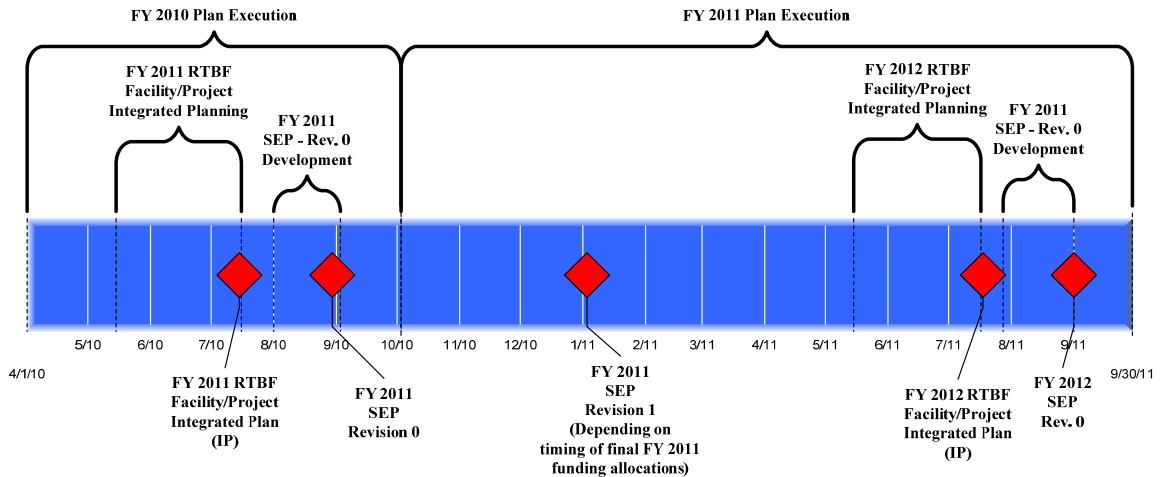
Fig.1. Previous Annual Planning Cycle Timeline

## REALIGNMENT

With shrinking facility budgets, disconnects between plans, and the extensive efforts required to produce these plans, it became clear that a more integrated approach was needed. There was also an initiative to reduce the quantity of reports and plans that are developed, while still meeting U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) and NNSA Headquarters (HQ) requirements for planning and reporting documentation. Consolidating the plans into a more comprehensive document seemed to be the answer; however, this would require dramatic steps to reduce the documentation from 21 plans to 8 (1 integrated plan [IP] for each facility/project and 1 RTBF Program Summary IP), to effect a significant reduction in cost and time, without sacrificing the necessary planning or quality.

The existing planning documents (ATP, AMP, and TYIP), templates, and outlines were reviewed, combined, and consolidated into one master document; their content was preserved in sections titled by the previous document names, to provide a transition for personnel in developing the IPs for their facility.

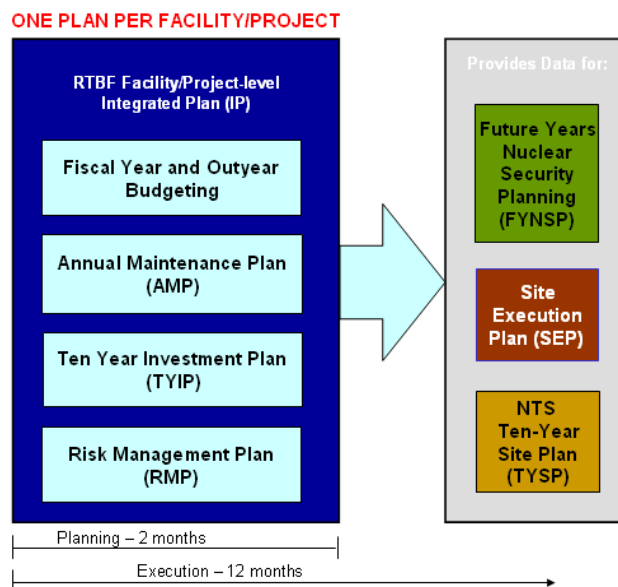
Beginning with the prior year's (or the most current) plans provided a head start, providing boiler-plate text for updating. Standard performance reporting metrics, graphs, and charts were established to ensure consistency between the new IPs. The following timeline (Figure 2) provides how the IP is developed in relationship to the annual RTBF Program FY planning efforts:



**Fig.2. New Integrated Annual Planning Cycle Timeline**

**IP CONCEPT**

In FY 2009, annual planning was consolidated into one comprehensive IP (Figure 3) for each facility/project, which comprised annual task planning/outyear budgeting, AMPs, and investment planning (i.e., TYIP). In FY 2010, Risk Management Plans were added. This fostered the concept that when the annual planning is conducted, outyear planning is automatically being performed by default, as decisions for the current/next year have a significant impact on future years.



**Fig.3. Integrated Planning Concept**

A format, outline, and template (including instructions and guidance for each section) were developed for the IP along with a data analysis worksheet, which provided a common report format between plans, performance reporting, and specific instructions for each section. Data needed for site-level plans (SEP and Ten-Year Site Plan [TYSP]) were identified and gathered during the integrated planning process. The timeframe to develop the IPs was aligned with the

NNSA HQ requirements and end-of-FY budget requirements, which necessitated an accelerated and compressed planning cycle.

## **PURPOSE & OBJECTIVES**

IPs were designed to meet the following objectives:

- Integrate planning of near-term and long-term budgeting strategies and implementation
- Synchronize all plans and budgets with the annual RTBF SEP
- Establish a platform for documenting and communicating a common vision for the facility/project in line with the NNSS, RTBF Program, and Defense Facilities and Nuclear Operations strategic objectives and requirements.
- Provide data for the FYNSP, SEP, and the NNSS TYSP
- Address/link performance to key requirements and milestones, including facility availability, mission critical and mission dependent not critical facility condition index.
- Communicate scope, roles and responsibilities, and execution strategy, including risk management
- Significantly reduce time required for current and outyear planning and document preparation, leaving more time for execution and performance of the work, while improving consistency, quality, and reducing cost.

## **IP DEVELOPMENT PROCESS**

The integrated planning process and success began with the consolidation of previous FY individual plans and content into a rough draft of the IP as a starting point, keeping the identity of the previous plans for familiarity. A common maintenance budget worksheet provided the framework for consistent performance reporting and analysis of where maintenance funding was being spent. Early analysis and use of custom maintenance budget analysis tools provided ease of evaluation and determination of areas to be addressed. Facilitated working sessions were conducted with each facility manager and selected management staff. Input into the plan was incorporated in real-time, maintenance budget data analysis reviewed, and investment projects identified and prioritized. Smaller, more focused follow-up sessions were conducted to review key areas where gaps existed. FY scope and budgeting was performed by a dedicated team concurrently during the process and integrated with the planning during the last few weeks of the process. Technical editing was performed every step of the way. Using this process a common team created consistency in individual plans; independent reviews of other facility plans minimized the impact to daily operations by holding focus sessions with facility management. Previously, facility management was intensely involved in the preparation of the plan. Early preparation and analysis allowed the facility management to focus on the bigger picture during the integrated planning process.

## **IP ORGANIZATION AND CONTENT**

The following sections provide an outline of the organization and content of each section of the IP. Volume I contains the following sections:

## **SCOPE**

The Scope section helps to provide the framework of the IP and discusses how the facility/project is managed. The mission/vision, requirements, milestones, goals, accomplishments, and facility descriptions were typically repeated in each of the RTBF documents, so it is presented here, once, in consolidated fashion.

This section of the IP provides the following:

- Introduction (to integrated planning)
- Mission and Vision (of the facility/project)
- Accomplishments (in the preceding year)
- Requirements, Milestones, and Goals
- Facility (description)
- Stakeholders and Management
- Issues and Impacts

## **MAINTENANCE PLAN**

Annual maintenance planning is one of the main support components to the RTBF program, maintaining the program-related facilities and infrastructure in a mission-capable state, thereby ensuring experimental operations occur in a safe, secure, reliable, and cost-effective manner. The RTBF Program provides direct funding for management and maintenance oversight for the facilities, including planning, scheduling, training, qualification and personnel certification, and preventive, predictive, and corrective maintenance on facility and facility equipment. Facility-level AMPs have been expanded to achieve a more comprehensive “business plan” for each RTBF project to meet NNSA goals. AMPs include an extensive, detailed, item-by-item review of the deferred maintenance for each facility to identify and plan the funding for repair or replacement of the deficiencies and also to work towards the facility condition goals.

The purpose of this section of the IP is to document an AMP for the facility. It describes the existing site specific processes and maintenance plans, establishes an awareness of NNSA HQ and NNSA/NSO goals for maintenance programs, and develops a focus for meeting those goals with specific strategies and plans. The AMP section is based on complying with the following U.S. Department of Energy (DOE) orders, directives, and expectations:

- DOE O 430.1B, Change 1, February 2008, “Real Property Asset Management<sup>1</sup>”
- DOE O 433.1B, April 2010, “Program and Project Management for the Acquisition of Capital Assets<sup>2</sup>”
- DOE NA-10 memorandum (Memo), “Maintenance Expectations and Annual Maintenance Plan<sup>3</sup>,” dated April 2, 2004.
- Letter, “NA-10 Expectations and Minimum Standards<sup>4</sup>,” dated July 18, 2005

Sections of the AMP include:

- Maintenance Program
- Maintenance Performance
- Maintenance Process

- Facility Availability
- Maintain Facilities in Good Condition
- Deferred Maintenance
- Sustainment

## **BUDGET**

This section of the IP provides information from the ATP. This section consists of:

- Process and Methodology – how the budget was developed
- Outyear Budget – a 10-year budget forecast (including current year)
- Investments

An activity-based cost (ABC) budgeting method is followed, within the framework of the RTBF National WBS, to estimate the budget required for each facility in the RTBF Program. The ABC budgeting process is a requirements-based foundation for budgeting, planning, and measuring performance for the outyears. Detailed scope, basis, assumptions, resources (hours and dollars), and durations were developed for each activity, including any requirements and deliverables, for current FY, for each RTBF Level 3 National WBS element. Based on the mission and operations schedule for the facility, this solid budget baseline was applied and escalated to the remaining outyears. Specific investments and/or recapitalization projects were then included based on the investment strategy in this plan. Current year budgets are based on requirements and do not represent actual funding levels.

The process for developing the ABC budget estimates is as follows:

- 1) Populate budget worksheets (i.e., Work Package Detail Report), by RTBF National WBS element with the current outyear annual planning budget baseline information, previously developed for the prior year budget as the life-cycle baseline file.
- 2) Re-organize scope and corresponding resources, if necessary; re-align with the RTBF National WBS.
- 3) Develop detailed ABC budget estimates, developing and/or strengthening the basis of estimates and any other information necessary for a defensible budget for current FY budget.
- 4) Review budget estimates and supporting information with cognizant project control engineers (PCEs) and facility/project managers.
- 5) Identify open issues, areas for further refinement, areas for more detailed activity information, and any known increases and/or decreases to the base FY budget for 10 outyears.
- 6) Perform final review with facility managers and PCEs for final drafts of IP.
- 7) Compile and present budget data of the IP.

Prior to finalizing the budget, the budget data are imported into a new, custom RTBF Outyear Budgeting Tool (OBTool), developed specifically to assist facility managers, cost account managers, and PCEs to develop ABC budget estimates for the outyears. It provides the ability to maintain a baseline budget and quickly analyze different funding scenarios for different FYs. It also provides the ability to roll up budget estimates by WBS element and maintain budget estimates consistent with the national RTBF WBS. It documents the scope, basis of estimate,

assumptions, and requirements for each activity, using the current resource rates. The scope of current FY budget baselines was finalized using the RTBF OBTool and then used as an outyear and budget scenario planning tool.

The detailed scopes, assumptions, basis of estimate, and resources for each WBS element according to the national RTBF WBS are contained in Volume II of the IP (discussed later).

This investment discussion provides a prioritized list of proposed investment projects for the next 10 years designed to mitigate specific risks and/or improve existing infrastructure to support current and future missions.

## **RISK MANAGEMENT**

A component of the IP effort is the inclusion of an annual Risk Management Plan (RMP) that defines a strategy to manage program related risks. This RMP follows DOE Order 413.3B, “Program and Project Management for the Acquisition of Capital Assets,” and its associated guidance on program and project management principles. Facility-specific risk sections are incorporated into the IPs. This section of the IP contains the analysis from the current facility-level RMPs consisting of:

- Risk Identification and Analysis
- Risk Mitigation

Risks are identified for most scope areas (i.e. risk categories) during facilitated risk workshops. The risk event, probability, consequence, impacts (cost and schedule), and mitigation strategies are also captured. Probability and facility consequence are based upon matrices developed prior to the workshops to promote consistency. Risk Owners and due dates are assigned for all mitigation strategies. In follow-up sessions and reviews improvement projects are identified and linked to specific risks they mitigate.

Due to the amount of data to be collected, analysis to be performed, and reports to be generated, a Risk Assessment/Management Tool (RAMtool) database was developed.

Using the data obtained during risk identification, the RAMtool database determines facility risk factors. The RAMtool database was developed and designed to assist in the capturing and analysis of the key elements of risk: probability, consequence, and impact. The RAMtool calculates risk factors to enable a side-by-side comparison to see where the facility manager and program manager should focus their risk reduction efforts and funding. This enables them to make solid decisions on priorities and funding to maximize the risk reduction.

Each IP contains a summary of the results of the facility-level risk assessment and number of risks identified broken down by:

- Risk Category and Risk Factor
- Schedule Impact
- Cost Impact

The IP further presents an analysis of potential risk reduction through the application of identified risk mitigation efforts and a listing of mitigations categorized as continuous improvement opportunities. Mitigations categorized as improvement projects are included in the IP as part of the Budget discussion. The Program Level IP further includes a program-level risk analysis.



## **VOLUME II: SUPPORTING DETAIL**

Initially, the individual plans had increased in size and inclusion of detail throughout the years; this is somewhat natural to provide additional substance and content; however, the document/plan can become bulky and require significant additional technical editing and increases the likelihood for consistency errors.

Therefore, a key decision was made to put core supporting detail as appendices in Volume II, which allowed for inclusion of Unclassified Controlled Nuclear Information (UCNI) information, if appropriate, without making the entire document classified as UCNI. Supporting detail in Volume II includes:

- Detailed National WBS budget worksheets
- Investment project data sheets/estimates
- Risk Registers
- Detailed Deferred Maintenance buydown strategies

Because the supporting detail is in a separate volume, this information can be updated at any time throughout the FY, in preparation for the next annual planning cycle, without revising the entire IP.

## **BENEFITS**

The integrated planning process yielded the following benefits:

- Eliminated fragmented, circular planning and became forward-looking.
- Promoted facility life-cycle planning in the current and near-term, resulting in outyear planning decisions being strongly considered when planning the next year.
- Standardization of the plans prior to development using a common IP template ensured consistency and commonality in reporting in all IPs.
- Compiled existing component plans for each facility in the new IP format prior to starting development; the facilities/projects had a >50% jump start on development.
- Reduced the number of plans generated from 21 plans (1 per facility per plan) per year to 8 plans per year (1 per facility plus 1 program-level IP).
- Consolidated all plans for a facility/project into one document.
- Achieved a 90% reduction in schedule planning timeframe from 40 weeks (9 months) to 6 weeks.
- Achieved an 80% reduction in cost from just under \$1.0M to just over \$200K, for a cost savings of nearly \$800K (reduced combined effort from over 200 person weeks to less than 40).
- IPs provided content to the SEP, which in turn reduced the preparation time and cost of the SEP by 50%.
- Eliminated redundancy and duplication in common content between plans, and improved consistency and overall quality.
- Communicated all aspects of facility and program management, operations, maintenance, budget, and investments clearly and concisely in one plan.

- Met requirements for annual task planning, annual maintenance planning, and ten-year investment planning.
- Developed database tools specifically to provide day-to-day management and reporting to provide the data needed for the plans, with minimal research and manipulation.

## **CONTINUOUS IMPROVEMENT**

At the conclusion of the integrated planning process, the team captured the following lessons learned and feedback from the facilities:

- Early generation/consolidation of content from previous plans to make an initial rough draft of the IP prior to the facilitated session provided a critical jump start to development.
- Early maintenance cost/budget analysis assisted in evaluation and development of maintenance plan section.
- Document configuration management reduced re-work.
- Facilitated sessions focused key facility personnel on integrated planning and provided key input using minimal facility resource time, reducing impact to daily operations.
- Dedicated technical editors allowed facility and technical personnel to focus on the technical content.
- Consistent format in main sections provided parallelism when working with multiple documents.
- Consistency in reporting provided the ability for quick comparisons.
- Two additional weeks would have allowed for more in-depth risk analysis/assessment and investment planning/options.
- Integrated Planning allows for flexibility in format and content to meet site- or client-specific areas or interest, different levels of focus, and/or depth of discussion on key elements—easily tailored to the site/project.

## **REFERENCES**

<sup>1</sup>DOE O 430.1B, Change 1, February 2008, “Real Property Asset Management”

<sup>2</sup>DOE Order 413.3B, “Program and Project Management for the Acquisition of Capital Assets,”

<sup>3</sup>DOE NA-10 memorandum (Memo), “Maintenance Expectations and Annual Maintenance Plan,” dated April 2, 2004.

<sup>4</sup>Letter, “NA-10 Expectations and Minimum Standards,” dated July 18, 2005

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