NAVIGANT CONSULTING

ACQUISITION STRATEGY TEAM SUPPORT

Y-12, PANTEX, AND SRS OPTION ANALYSIS

SUMMARY REPORT:
2009 Report Findings & 2010 Analysis Update

June 9, 2011

Prepared for:
U.S. Department of Energy

National Nuclear Security Administration

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I. Historical Cost and FTE Baseline

Since 1995, all NNSA sites have been required to submit annual Functional Cost Reports per Department of Energy guidance. In 2009, the Acquisition Strategy Team (AST) expanded on the Functional Cost Report to obtain and provide additional granularity into the cost profile reported by each site. Navigant Consulting, Inc (NCI) supported the AST in the development of a financial savings model and a historical cost database based on functional cost breakdowns (e.g. "2009 data call").

The Historical Cost and FTE Database (Database) provides a historical view of the NNSA's costs and employee (FTE) levels as defined by each site, from FY 1995 – FY 2008, and contains multiple levels of organizational, functional, and cost categories. In 2010, NCI supported the AST to update the Database with FY 2009 data (e.g. "2010 data call"). The information below represents the FY 2004 – FY 2009 cost and FTE data obtained in these efforts.

Table 1 - Reported Cost by Functional Category

Pantex, Y-12, and SRS Historical Cost by Functional Category ($000)						
Site / Functional Category	**FY2004**	**FY2005**	**FY2006**	**FY2007**	**FY2008**	**FY2009**
Pantex						
Mission Direct Operations	$137,355	$141,799	$131,459	$141,751	$141,779	$135,734
Mission Support	$225,266	$236,683	$235,298	$242,987	$266,112	$269,303
General Support	$49,619	$53,552	$51,405	$52,474	$59,128	$56,095
Site Specific	$26,554	$28,123	$29,918	$35,929	$34,648	$33,653
Capital Construction	$25,635	$31,469	$29,343	$19,792	$27,748	$21,367
Total Pantex	$464,429	$491,626	$477,423	$492,933	$529,415	$516,152
Y-12						
Mission Direct Operations	$222,579	$228,374	$240,870	$252,930	$294,441	$281,486
Mission Support	$319,970	$335,843	$340,191	$331,370	$357,880	$374,104
General Support	$96,766	$125,422	$116,349	$121,477	$146,143	$143,088
Site Specific	$24,702	$36,817	$36,634	$39,430	$68,001	$55,493
Capital Construction	$75,863	$97,529	$96,821	$138,092	$170,424	$104,614
Total Y-12	$739,880	$823,984	$830,865	$883,300	$1,036,888	$958,785
SRS						
Mission Direct Operations	$118,053	$122,596	$134,540	$124,382	$126,436	$115,030
Mission Support	$43,951	$58,352	$57,531	$59,418	$54,455	$60,161
General Support	$32,476	$30,685	$31,142	$29,856	$25,431	$24,026
Site Specific	$13,906	$10,578	$12,563	$27,780	$12,150	$7,990
Capital Construction	$75,896	$47,598	$53,433	$38,008	$26,334	$8,653
Total SRS	$284,282	$269,809	$289,210	$279,444	$244,805	$215,860
Grand Total	**$1,488,591**	**$1,585,419**	**$1,597,498**	**$1,655,677**	**$1,811,109**	**$1,690,797**

Table 2 includes a summary of individual site cost structures based upon the FY 2009 data.

Table 2. Site Cost by Cost Category

Category of Cost	Pantex	Y-12	SRS	Weighted Total
Capital Expense	2.4%	2.8%	0.1%	2.3%
Fringe	15.6%	10.4%	15.7%	12.7%
Labor	50.9%	28.8%	44.1%	37.5%
Leave Hours not Worked	0.0%	5.1%	0.8%	3.0%
Materials	7.7%	7.3%	4.3%	7.0%
Other Expenses	7.2%	22.2%	12.6%	16.4%
Services-Subcontractors	11.4%	14.4%	5.0%	12.3%
Staff Augmentation	0.7%	5.3%	0.0%	3.2%
Pension & Legacy	4.1%	3.7%	17.4%	5.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 3 includes a historic summary of FTE's by functional category (FY 2004 – FY 2009).

Table 3 - Reported FTEs by Functional Category

Pantex, Y-12, and SRS Historical FTEs by Functional Category						
Site / Functional Category	**FY2004**	**FY2005**	**FY2006**	**FY2007**	**FY2008**	**FY2009**
Pantex						
Mission Direct Operations	1,033	1,056	1,015	1,054	995	928
Mission Support	1,799	1,825	1,851	1,902	1,998	1,933
General Support	378	394	375	371	375	393
Site Specific	9	6	5	4	4	4
Capital Construction	30	14	60	22	18	12
Total Pantex	3,248	3,295	3,306	3,353	3,391	3,270
Y-12						
Mission Direct Operations	1,929	1,952	2,064	2,048	2,343	2,275
Mission Support	2,399	2,447	2,435	2,310	2,398	2,340
General Support	570	662	655	660	665	724
Site Specific	12	14	12	13	16	9
Capital Construction	368	315	213	413	206	166
Total Y-12	5,278	5,389	5,379	5,443	5,628	5,514
SRS						
Mission Direct Operations	1,073	907	920	897	992	726
Mission Support	349	416	394	356	406	274
General Support	135	117	117	88	102	114
Site Specific	0	0	0	1	3	0
Capital Construction	666	303	131	36	30	64
Total SRS	2,223	1,743	1,562	1,378	1,533	1,178
Grand Total	**10,750**	**10,427**	**10,246**	**10,175**	**10,552**	**9,962**

Site Cost Drivers

Development of the Database facilitated NNSA's ability to more rapidly analyze site cost profiles. A comparison of the largest costs drivers in terms of change in dollars for each of the top 3 increasing and decreasing categories between FY 2004 – FY 2009 is shown below.

Figure 1. Y-12 Costs Drivers

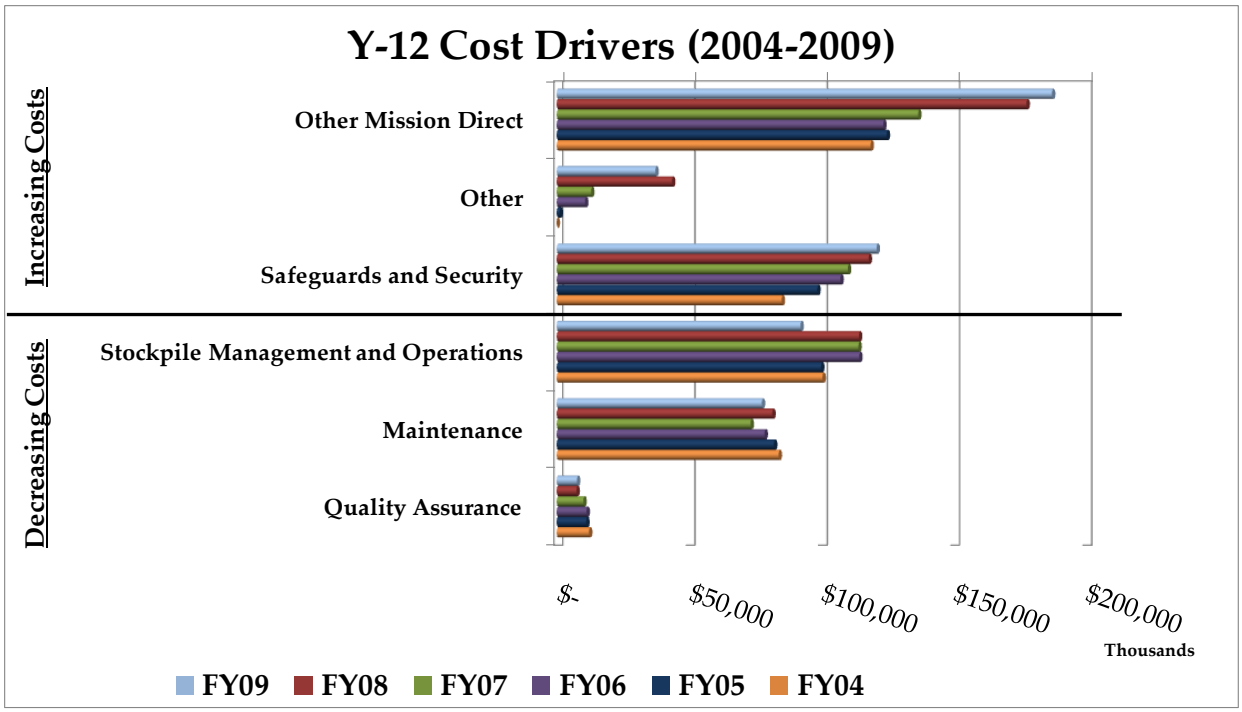


Figure 2. Pantex Cost Drivers

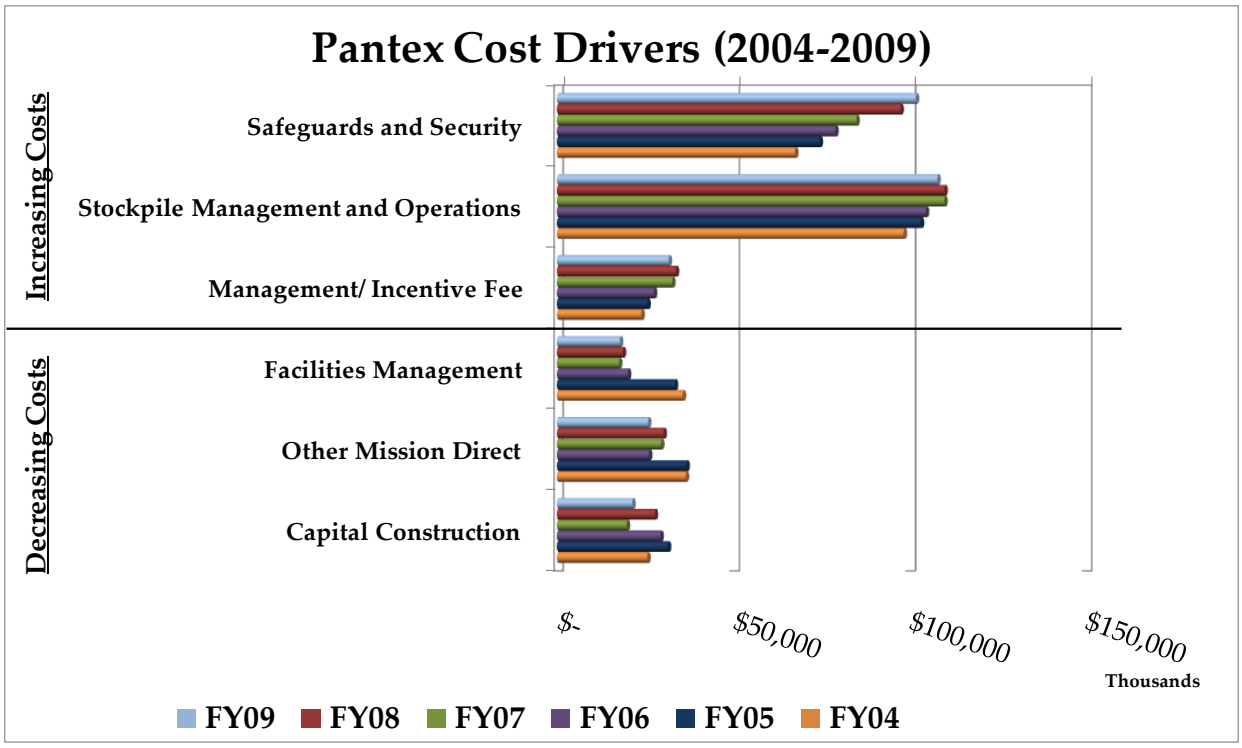
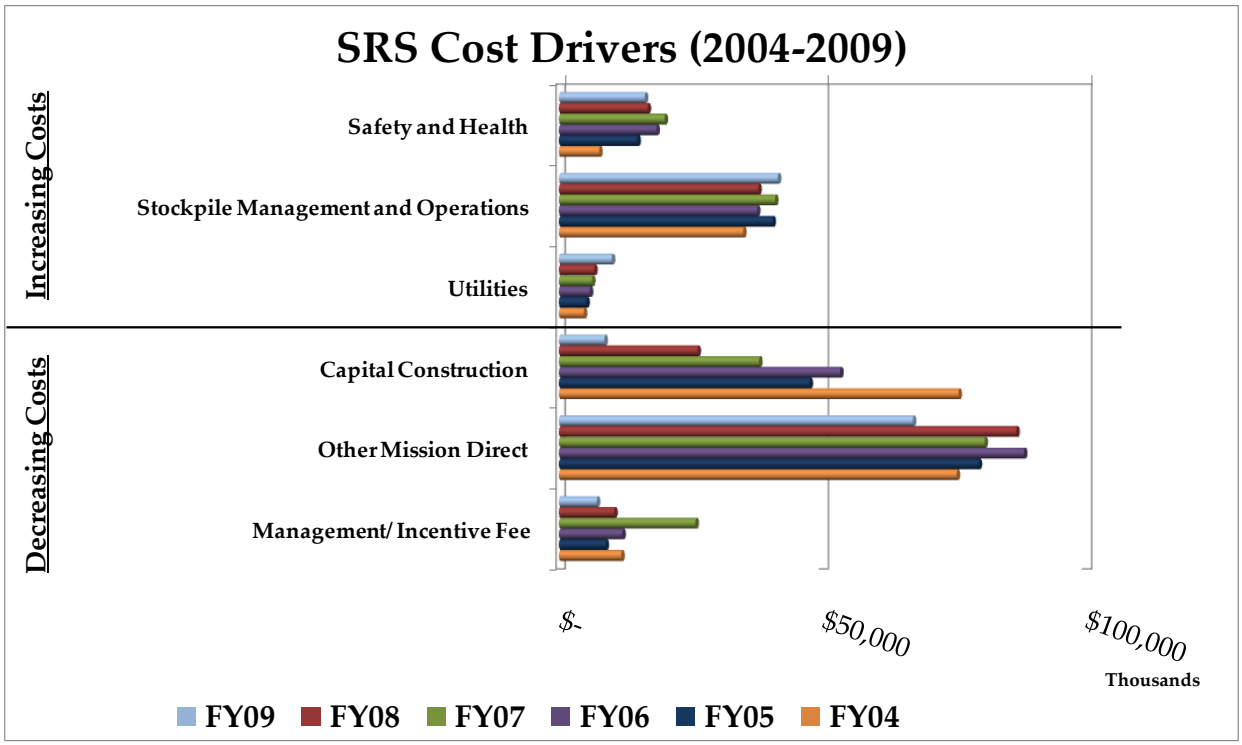


Figure 3. SRS Cost Drivers



II. Efficiency Analysis

NCI also worked with the AST Mission Team to estimate synergies from potential contract mergers across the spectrum of the NNSA functional areas. It has been NCI's experience that several types of efficiencies arise from the vertical and horizontal integration of organizations.

These include:

- Elimination of redundancies (*e.g.,* one financial manager instead of two)
- Economies of scope (*e.g.,* more productive use of variable resources such as one IT software engineer being responsible for several closely related applications)
- Economies of scale (*e.g.,* distribution of fixed activities - costs and people - across more assets such as having the same HR policies apply to multiple facilities)
- Best practices adoption (*i.e.,* adopting the best work scheduling practices from among different merged facilities)
- Synergies (*i.e.,* more efficient product flow if planned and scheduled by a single organization)

NCI believes that the current M&O contract structure creates a business environment that is similar to the business environments of regulated industries such as the regulated electric utility industry. Both have rates of return (fees) set by contracts (tariffs); both undergo prudency reviews to justify certain expenditures; and both have little financial incentive to reduce their ratebase (budget).

The process followed by the AST team is summarized in Figure 4, below.

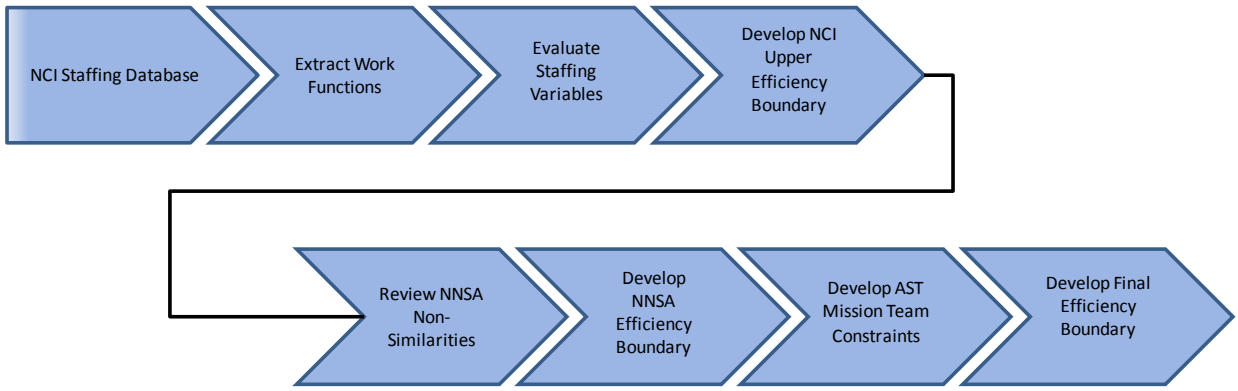


Figure 4. NCI AST Analysis Process

Projected FTE Savings Methodology

Based upon an analysis of efficiency gains that have been achieved in private industry through the application of standardized processes and procedures, the AST developed a range of expected efficiency savings metrics deemed reasonable for the combination of Pantex, Y-12, and SRS Tritium Operations contracts. Each of the 24 functional areas within NNSA sites was reviewed and efficiency factors were developed by function, after accounting for dissimilarities in NNSA organizational functions and private industry benchmarks. The efficiency factors estimate post-integration, target-level FTE staffing (as a percent of existing staffing levels at Pantex, Y-12, and SRS Tritium Operations). The efficiency factors used in the analysis are included at appendix A of this report.

Table 4 includes each of the NNSA functional areas, arranged by activity category.

Table 4. Functions Areas by Activity Category

Production & Maintenance	Technical Support	Admin Support
Capital Construction	Environmental	Central Admin Services
Facilities Management	Information Services	CFO
Maintenance	Laboratory/ Technical Support	Executive Direction
Other Mission Direct	LDRD/PDRD/SDRD	Human Resources
Program Management	Logistics Support	Information Outreach
Stockpile Management and Operations	Procurement	Legal
Utilities	Quality Assurance	Management/ Incentive Fee
	Research, Development Qualifications and Test	Other
	Safeguards and Security	Program/Project Control
	Safety and Health	

Because all efficiencies cannot be achieved immediately, different implementation phase-in assumptions were modeled based on each functions related activity category. The implementation phase-in assumptions for FTE savings are summarized in Table 5.

Table 5 Implementation Phase-In Assumptions for FTE Efficiencies

Implementation Phase-In Assumptions for FTE Efficiencies (by Year)										
Activity Categories	1	2	3	4	5	6	7	8	9	10
Production & Maintenance	10%	45%	30%	10%	5%	0%	0%	0%	0%	0%
Technical Support	20%	50%	20%	5%	5%	0%	0%	0%	0%	0%
Administrative Support	25%	60%	10%	5%	0%	0%	0%	0%	0%	0%

Total FTE savings is calculated as the difference between total current status quo staffing at the relevant sites, and that staffing number multiplied by the related consolidation efficiency factor (appendix A). The derived FTE staffing level is then multiplied by the applicable implementation phase-in assumption to determine the specific year each projected FTE is first considered saved (over the 10 year horizon shown in Table 5). Based on the data shown in Table 5, FTE levels are expected to reach projected target levels by year five of the phase-in period (e.g. "fully implemented"). Once an FTE is deemed saved, it is assumed saved for all remaining years of the contract. Based on this methodology, NCI was able to estimate the incremental FTE's saved each year of the contract for all options.

III. Cost Model

NCI developed a Lifecycle Cost Model (the "Model") to develop and project potential cost savings and efficiencies throughout the life of the proposed contract term. The Model integrated the historic data from the Database in order to establish baseline cost and FTE estimates used in this analysis. In order to project a status quo case, the AST utilized the NNSA approved budgets through FY2014.[1] In order to account for growth in DOE work, Work for Other (WFO), and NNSA work post budget (FY2015-FY2020), the AST applied escalation rates obtained from the DOE, weighted by assumed workload within each agency.

The 2009 escalation assumptions for FY 2010 – FY 2020 are provided in Table 6.

Table 6- Escalation Assumptions by Agency

Agency	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
NNSA	Budget	Budget	Budget	Budget	Budget	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
DOE	0.4%	2.4%	2.3%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
WFO	0.4%	2.4%	2.3%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%

After the status quo case was developed, NCI integrated the efficiency savings and investment assumptions in order to project estimated savings levels over the contract duration. This approach is described below.

Projected Costs Savings

After determining the timing and magnitude of potential FTE savings (See "Efficiency Analysis" section), NCI assigned related annual monetary values to each FTE saved over the contract period, to project gross cost savings under each option. This monetary value was derived based on the historical costs reported against each relevant FTE function in the Database. Because the Database and Model aligns reported costs by category with underlying FTEs in each function, it is possible to derive historic costs per FTE for each cost category. Based on these values, NCI was able to project gross cost reductions per FTE saved.

The cost categories reviewed at each site are included below:

- Employee Labor
- Employee Fringe
- Employee Leave (Hours Not Worked)
- Pension & Legacy
- Staff Augmentation
- Services/Subcontractors
- Materials
- Capital

Historically, several categories of costs are ultimately driven by the number of FTEs at the site; however, certain costs are more variable than others. For example, if a particular FTE was to leave a site, there are certain costs that may disappear completely (100%), others that may decrease by a certain percentage

[1] Budgets assumptions were derived from the annual "Presidential Budget Request" and the annual "Administrators Final Recommendation".

(1% - 99%), and yet others that may not change at all (0%). Based on discussions with the AST and site representatives, it was determined that employee costs related to three of the above listed costs categories would likely be completely eliminated if a related FTE was to leave the site. These cost categories are: "Employee Labor"; "Employee Fringe"; and "Employee Leave (Hours Not Worked)".

While the 2009 data call provided a high level of cost granularity, the AST was not able to completely isolate "Employee Fringe" and "Employee Leave (Hours Not Worked)" costs. As such, NCI and the AST team determined that the most conservative approach was to only include projected reductions in "Employee Labor" costs to determination projected costs savings for each option.

Projected Investment

As part of the analysis, NCI recognized that certain cost increases may be associated with the reductions in FTE described above. Specifically, three types of cost increases (e.g. "investments") were considered in this analysis:

1. Variable Investment – Severance
2. Variable Investment – Non-Severance
3. Fixed Investment

Variable Investment – Severance: For each employee FTE that is deemed saved as part of this analysis, it was assumed 75% will be eligible for severance. This is an average based on analysis of the average complex worker, in the categories subject to savings. The average severance cost per FTE at each respective site was factored into the analysis.

Variable Investment – Non-Severance: Non-severance variable costs are driven by changes in the structure of the organization, and in this case are deemed to increase with the number of FTE's saved. These costs include relocation charges for remaining employees (when applicable), additional training required for new workloads and assignments of remaining employees, the cost of lost time due to training that may need to be made up as overtime, and other similar costs.

Fixed Investment: It is assumed that there is a fixed cost associated with undertaking any of the merger options. Fixed costs are driven by changes in the business environment. While it is assumed to be quite small relative to the overall savings, it cannot be ignored.

Net Savings Projected in 2009 AST Analysis

As part of the 2009 AST report, the AST and NCI assumed any contract permutation would go into effect January 1, 2011. As such, the 10 year contract horizon for savings analysis was deemed to be 2011-2020. Potential savings measured against the status quo scenario resulted in the following savings reported as part of the 2009 AST effort.

Table 7. Potential Contract Savings – 2009 AST Report

Potential Savings (TY $000)	Potential Savings (NPV $2009)	Description
$894,705	**$634,335**	Consolidate Pantex, Y-12 and Savannah River Site (SRS) Tritium operations under a single contract. Implement Pantex & Y-12 Merger in 2011, SRS Tritium Operations in 2012.

Figure 5. Net Cost Savings (TY $000) – 2009 AST Report

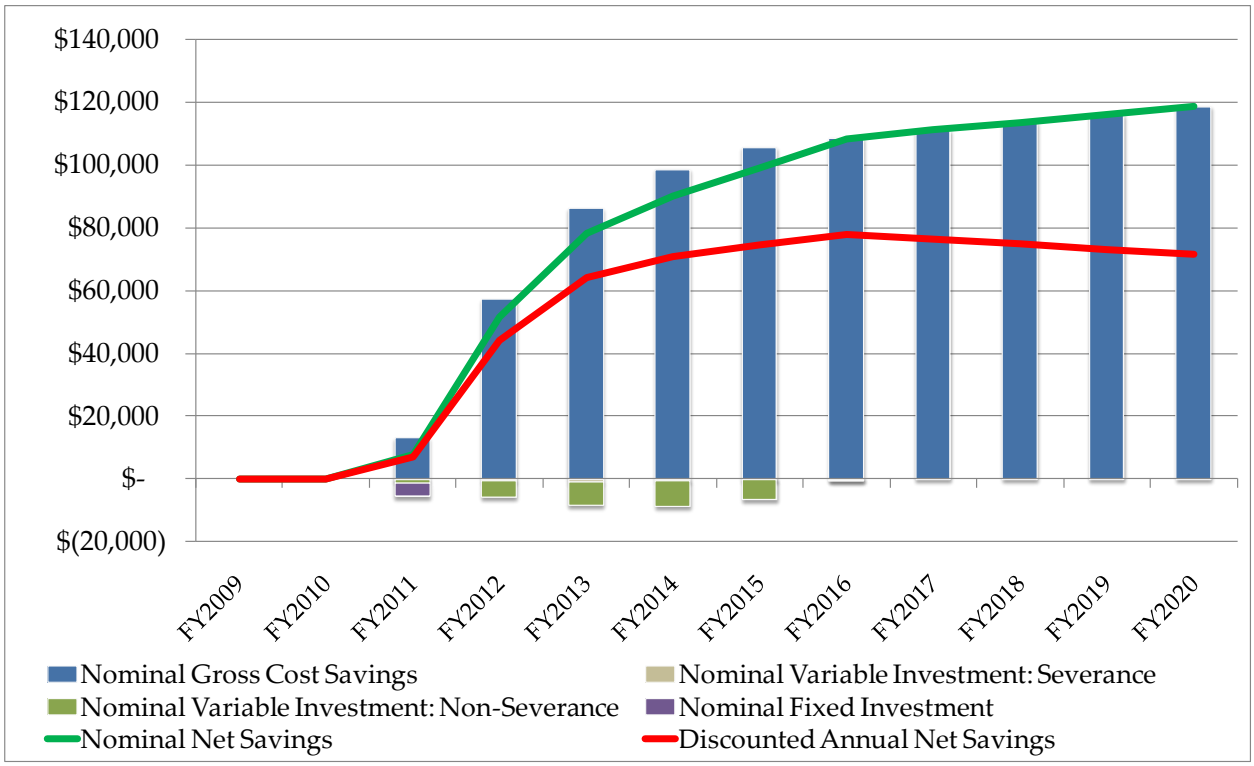
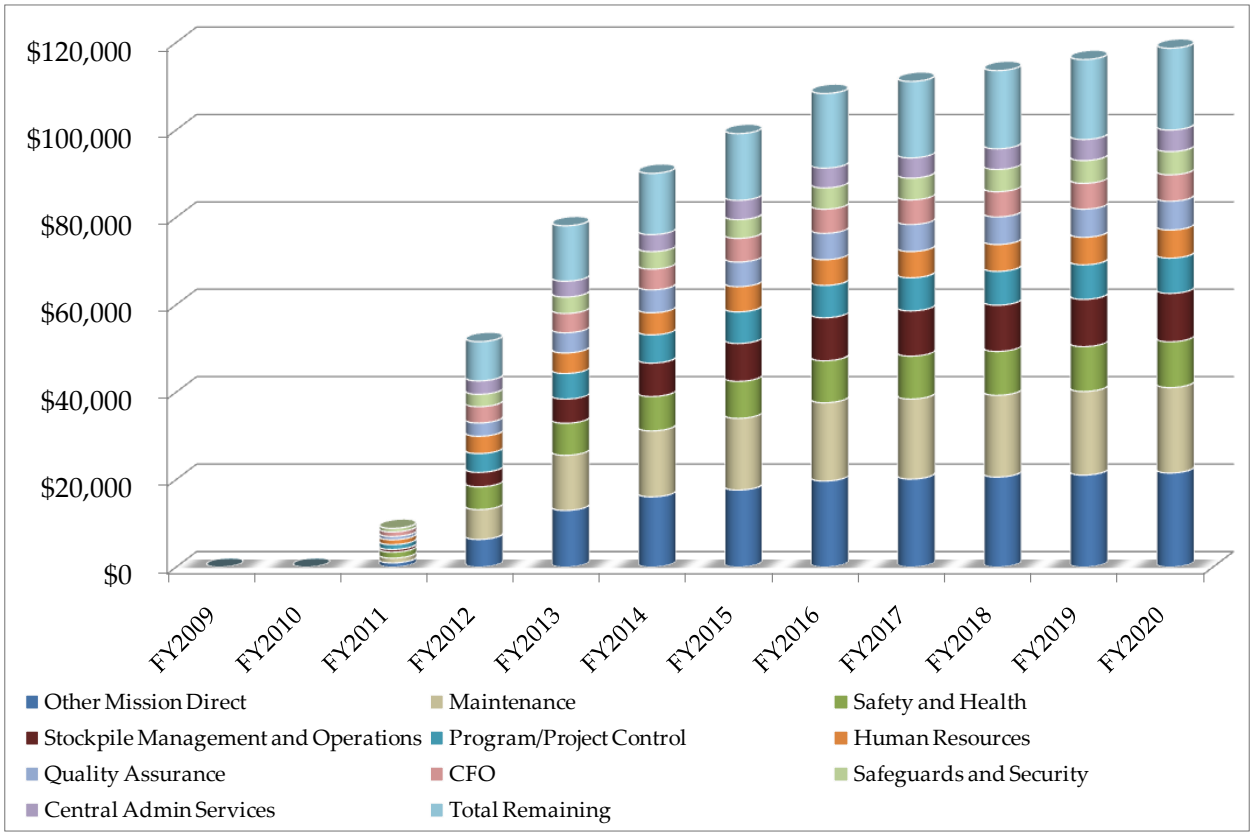


Figure 6. Net Savings by Top 10 Functional Activity Groupings (TY $000) – 2009 AST Report



Contract Option Sensitivity Analysis

Due to the relatively small fixed investment expected, the contract options are shielded from a significant amount of cost risk. Based on AST sensitivity analyses, reducing expected FTE savings up to 50% still projects a positive net present value for the contract merger.

Additional Savings to Consider

In addition to NCI's efficiency analysis, the AST engaged the services of two additional independent contractors to analyze process improvement recommendations and retirement and healthcare savings.

Process improvement recommendations were developed by an independent contractor with extensive experience and database information on world class business performance in specific functional areas. The contractor reported that if "World Class" performance was achieved in the specific functional areas, additional savings beyond those calculated by Navigant could be achieved over a ten year period at Pantex, Y-12 and SRS.

Additionally, an independent specialist in Retirement and Health Care plans found if current plan benefits and administrative practices were brought in line with those of private industry at Pantex, Y-12 and SRS, further savings could be recognized over a ten year period.

While neither of these recommendations was included in the AST estimate of projected contract savings, each includes savings opportunities that are important to consider.

IV. 2010 Cost Model Update

As previously noted, the AST followed-up the initial 2009 effort with a 2010 data call to obtain FY 2009 cost and FTE data from the sites. In addition, the data call included enhanced granularity in order to isolate both "Employee Fringe" and "Employee Leave (Hours Not Worked)" costs, which was not previously possible. As such, the 2010 estimate of potential contract savings includes gross savings driven from FTEs reductions related to both "Employee Fringe" and "Employee Leave (Hours Not Worked)" costs, in addition to savings from "Employee Labor" costs.

For consistency purposes, the 2010 updated AST analysis still assumed contract consolidation would go into effect January 1, 2011. The 10 year contract horizon for savings analysis was 2011-2020. Updated potential contract savings are included in Table 8.

Table 8. Potential Contract Savings – 2010 Updated AST Analysis

Potential Savings (TY $000)	Potential Savings (NPV $2009)	Description
$1,152,250	**$852,684**	Consolidate Pantex, Y-12 and Savannah River Site (SRS) Tritium operations under a single contract. Implement Pantex & Y-12 Merger in 2011, SRS Tritium Operations in 2012.

It is important to note that while combined reported FTEs at Pantex, Y-12, and SRS declined from 10,552 in FY2008 to 9,962 in FY 2009 (see Table 3), overall projected contract savings increased from that reported in the 2009 AST report. In comparison to the 2009 AST report, expected savings has increased over $250 million (TY dollars) due to the inclusion of savings related to both "Employee Fringe" and "Employee Leave (Hours Not Worked)" costs.

V. Appendix A Efficiency Factors

Table 9. Pantex, Y-12 and SRS Tritium Operations Consolidation Efficiency Factors

Function	Activity Categories	Pantex	Y12	SRS
Capital Construction	Production & Maintenance	82%	82%	82%
Central Admin Services	Admin Support	73%	73%	100%
CFO	Admin Support	53%	53%	100%
Environmental	Technical Support	94%	94%	100%
Executive Direction	Admin Support	97%	97%	97%
Facilities Management	Production & Maintenance	94%	94%	100%
Human Resources	Admin Support	56%	56%	100%
Information Outreach	Admin Support	98%	98%	100%
Information Services	Technical Support	70%	70%	100%
Laboratory/ Technical Support	Technical Support	86%	86%	100%
LDRD/PDRD/SDRD	Technical Support	100%	100%	100%
Legal	Admin Support	81%	81%	100%
Logistics Support	Technical Support	94%	94%	100%
Maintenance	Production & Maintenance	83%	83%	84%
Management/ Incentive Fee	Admin Support	53%	53%	53%
Other	Admin Support	67%	67%	100%
Other Mission Direct	Production & Maintenance	90%	90%	90%
Procurement	Technical Support	71%	71%	100%
Program Management	Production & Maintenance	97%	97%	97%
Program/Project Control	Admin Support	73%	73%	73%
Quality Assurance	Technical Support	73%	73%	73%
Research, Development Qualifications and Test	Technical Support	84%	84%	84%
Safeguards and Security	Technical Support	94%	94%	100%
Safety and Health	Technical Support	87%	87%	100%
Stockpile Management and Operations	Production & Maintenance	95%	95%	95%
Utilities	Production & Maintenance	94%	94%	100%