

NAS Briefing NNSA and DOE O 413.3B

May 6, 2020

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Why an Office of Acquisition and Project Management?

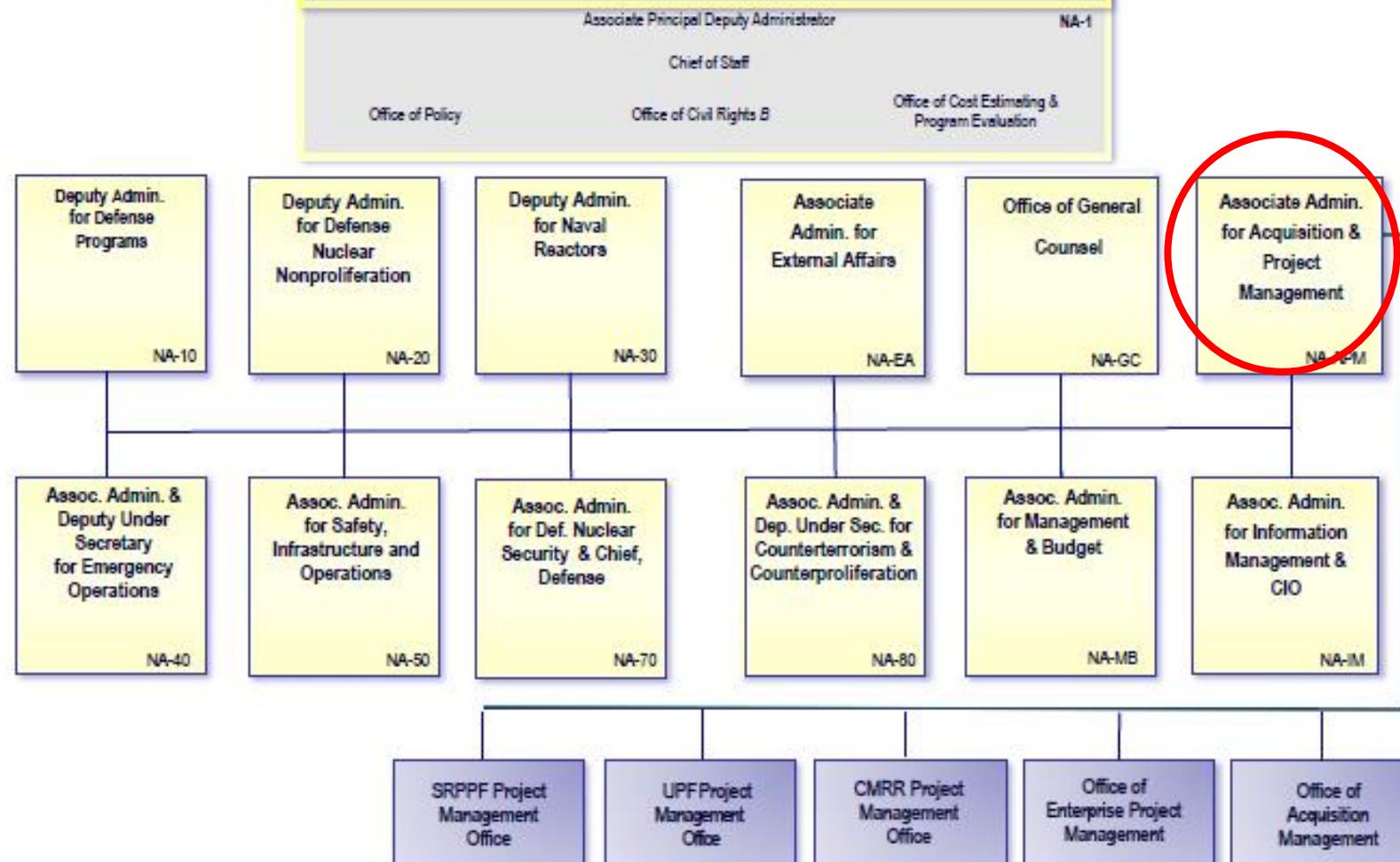
- Historical, institutional inability to deliver capital asset acquisition projects on budget and schedule
 - Contract and project management not integrated
 - Insufficient resources, numbers and skills, in construction contract management
 - Unclear requirement generation and scope management
 - No independent cost estimating capability
 - Anecdotal successes not institutionalized for Enterprise success
- APM addresses these deficiencies by:
 - Core competencies as acquisition and construction project management professionals
 - ECMS and Interagency Agreement to support federal staff
 - Independent cost estimating capability
 - Enterprise-wide policy and execution team
 - Bright line between government/contractor requirements generation
- Supports the One NNSA Vision – Partnership across the enterprise



Under Secretary for Nuclear Security & Administrator, NNSA



Principal Deputy Administrator



2020

Mission, Vision and Principles

Mission:

- Deliver projects and services through an integrated acquisition and project management team.

Vision:

- To be a world class acquisition and project management organization that strengthens mission execution and provides best overall value for NNSA's programs and the American public.

NA-APM Operating Philosophies and Guiding Principles:

- Promotes a culture of safety
- Provides cost effective solutions; allowing contract and project savings to be redirected to mission accomplishment
- Delivers quality projects, on-time and on-budget
- Develops a highly skilled workforce and plans for workforce replacement/reconstitution
- Takes ownership and is accountable for results
- Functions in high performing integrated teams
- Fosters collaborative relationships
- Adopts best practices, technologies and techniques
- Manages projects through the contract, not the contractor

Key Aspects of the NA-APM Concept

- **Integrated acquisition and project management**; FPD and CO work together for NA-APM to manage projects
- **Professional core competencies** in acquisition and project management dedicated to successful project execution
- Ensures appropriate **federal oversight of projects** supplemented with contract capabilities – ECMS as needed
- **Program Office maintains overall project requirements**, budget control, and baseline decision maker
- **Early independent cost estimating** and scope integrity management
- Pursue **alternative execution/acquisition strategies** (fixed price design/construction options) for **“best value” project execution**
- **Program office can focus on the mission.** All costs avoided in project execution are available for mission investments
- **Built-in checks & balances** as NA-APM works to achieve Program objectives and established project baselines

NNSA's Project Improvement Strategy

- Best-in-class contractors compete for:
 - Enterprise construction management services for front end planning, alternative analysis, and field support during project execution (ECMS*)
 - Separate design and construction contracts (direct federal contracts)
 - Improved acquisition planning and strategies
- M&O contractors focus on what they do best:
 - Management and Operations of facilities
 - NNSA mission support, research and analysis
 - Capital Construction where it makes sense
- Change the existing Contract and Project Management Culture
 - Broader universe of options
 - Instill PM discipline within the M&O when they are used

New Acquisition Strategies

- Establish and maintain a sound, integrated project team with strong leadership from Federal Project Directors and Contracting Officers;
- APM lead for all upcoming projects > \$20M.
- Utilize new acquisition processes, to include:
 - Improving requirements definition;
 - Seeking additional opportunities for FP contracting;
 - Improving change control oversight; and
 - Leveraging contract provisions to benefit the government.
 - Tailoring contracts to each project's complexity;
 - Considering all potential sources, including USACE; and
 - Ensuring the Government and M&O contractors share risk where possible.

4Ps

Policy

- Departmental Policies
 - Rolled into updated DOE Order 413 DOE O 1189
 - Strengthened ESAAB & established PMRC

Process

- We have codified the policies and procedures to INSTITUTIONALIZE them going forward
- Project Management BOP, Peer Review BOP, Analysis of Alternatives BOP, Work Authorization NAP, Corporate Performance Evaluation Process
- When we assign and assess work, we do so through the lens of who is aligned in policies and processes and who provides the best value:
 - Standard commercial vs high hazard nuclear work
 - External partnerships (i.e., USACE, ECMS, TVA)

4 Ps

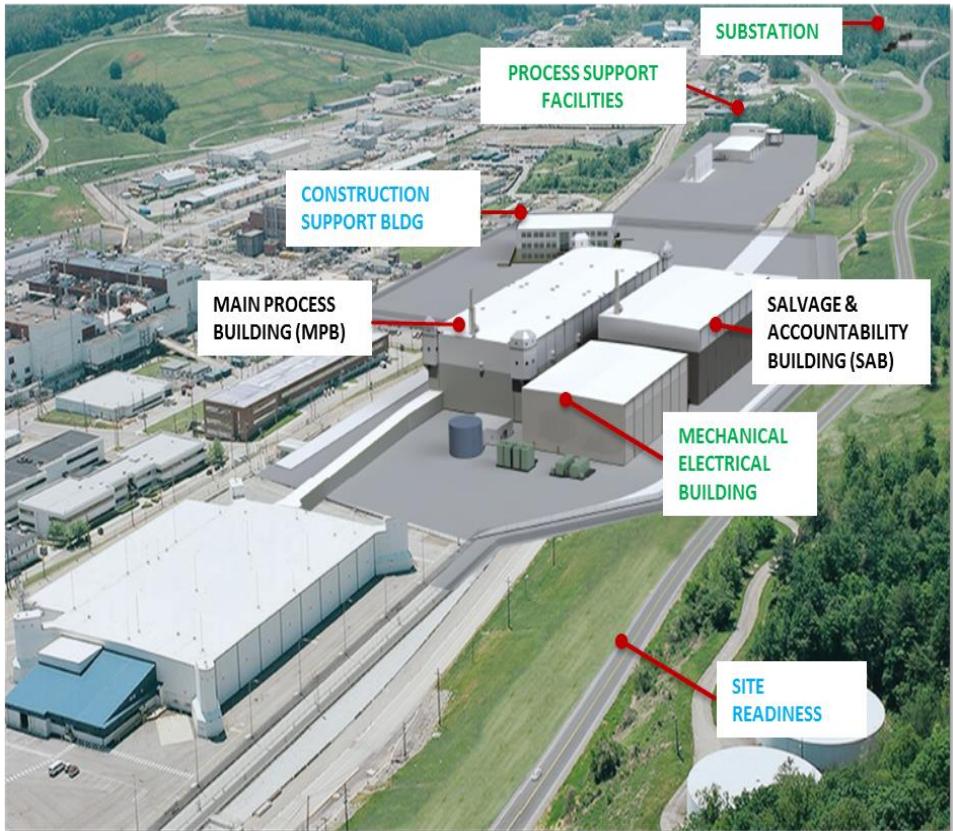
People

- It's all about getting the right people on the team from the start and focusing them so they can unleash their potential
- NNSA's complex nuclear projects demand the private sector's best talent; there's no such thing as an easy nuclear job
- People must be supported to thrive and succeed
- We are committed to training, hiring and supporting our staff – both acquisition professionals and project managers
- FPDs and COs at the appropriate certification levels

Performance

- Policy, process, people are all inputs to performance
- Overall, we are focused on delivering results and have been doing just that
- Delivered \$2.0B project portfolio, 2% under budget
- Unprecedented competition on our M&O contracts
- Positive GAO and Congressional acknowledgement

A Case Study: Uranium Processing Facility (UPF)



Original plan based on a single nuclear facility.

- Process HEU for defense program, nonproliferation, and Navy nuclear reactor missions
- Significantly underestimated
- Design maturity identified cost increase

UPF is executing as a series of 7 subprojects:

- 3 completed under budget
- 4 are under construction

Key attributes of UPF:

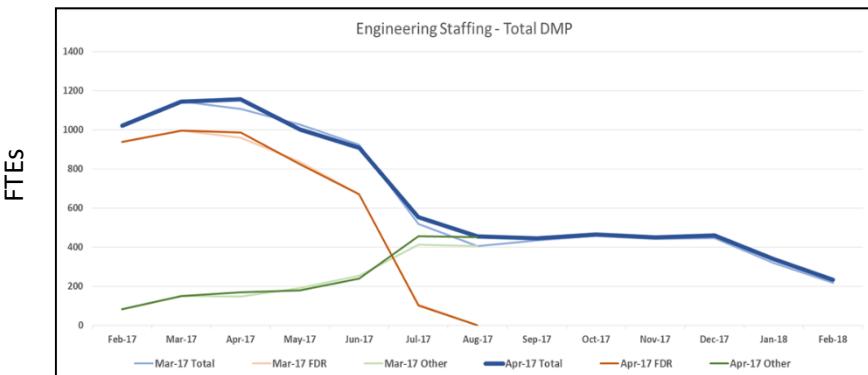
- Designed to hazard & security requirements appropriate for each facility
- Two nuclear facilities (MPB / SAB)
- Independent cost estimates for all subprojects
- 90% design for final cost estimate
- Technology Readiness Level 7 achieved for all technologies: Microwave Casting; Calcination; Bulk Metal Oxidation
- Contract Incentives

UPF Execution Schedule

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Design Engineering				◆								
Safety Basis				◆	SER Approved							
Site Readiness (SR)	◆	CD-4										
Site Infrastructure and Services (SIS)	CD-2/3	◆		◆	CD-4				Completed			
Site Preparation/Long-Lead (SP/LL)	CD-3A	◆		◆								
Substation		CD-2/3	◆			◆	CD-4					
Long-Lead Gloveboxes, Skids, and Select Procurements (LL/GSSP)		CD-3B	◆			◆						
Mechanical Electrical Building (MEB) Construction		CD-2/3	◆			◆	CD-4					
Process Support Facilities (PSF) Construction			CD-2/3	◆		◆						
Salvage & Accountability Building (SAB) Construction			CD-2/3	◆		◆						
Main Process Building (MPB) Construction			CD-2/3	◆		◆						
Testing, Procedures, Operational Readiness Review, Contingency				◆						CD-4		

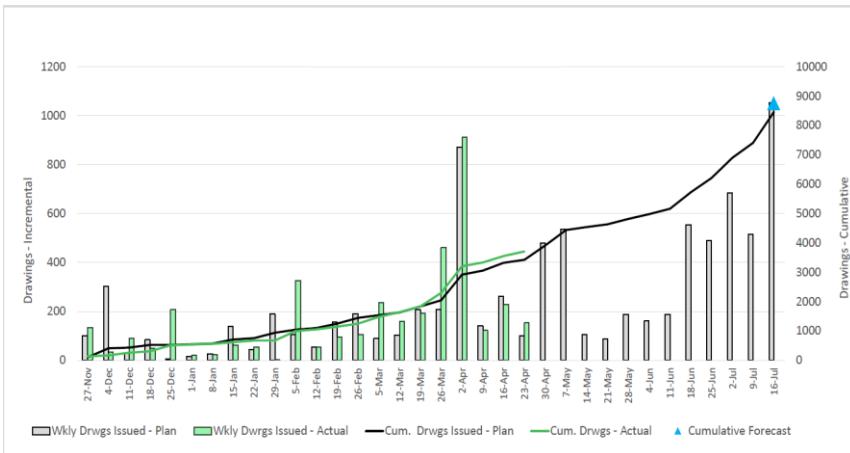
Design Management Plan

DMP Engineering Staffing Chart (FTEs)

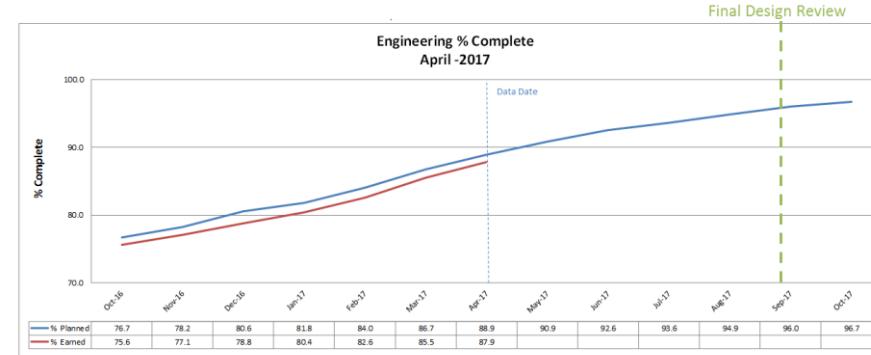


The changes in the Engineering staffing curve are the result of earning more than forecasted in April for FDR and the incorporation of April trends for both FDR and other.

Total Drawing Production (Weekly)

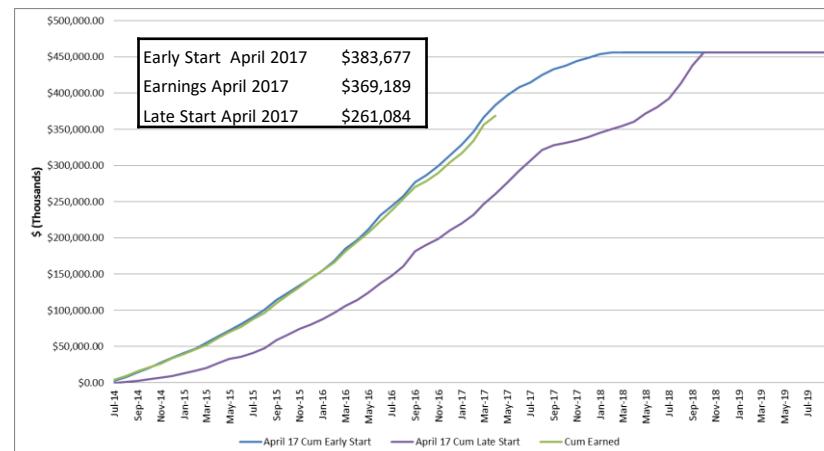


Engineering Percent Design Complete



- DMP go to hours were increased by 7,484 via BCPs in April, which revised the monthly percent complete plan for the months of May to July. The rate of earned progress was 2.4% in April, which closed the cumulative gap from 1.2% to 1.0% behind plan.

CNS DMP Planned vs. Earned (Discrete)



Technology Readiness

- Minimizes Technology Budget Uncertainty
- Improves Operational Readiness

Microwave Casting:

- Full scale prototype
- \$32M
- 3 years

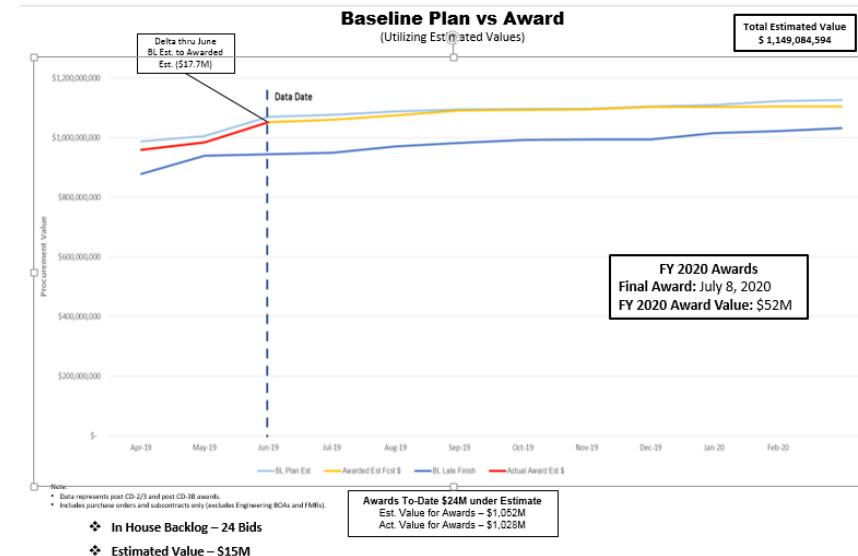
Calciner:

- Full scale prototype
- \$3.5M
- 2 years

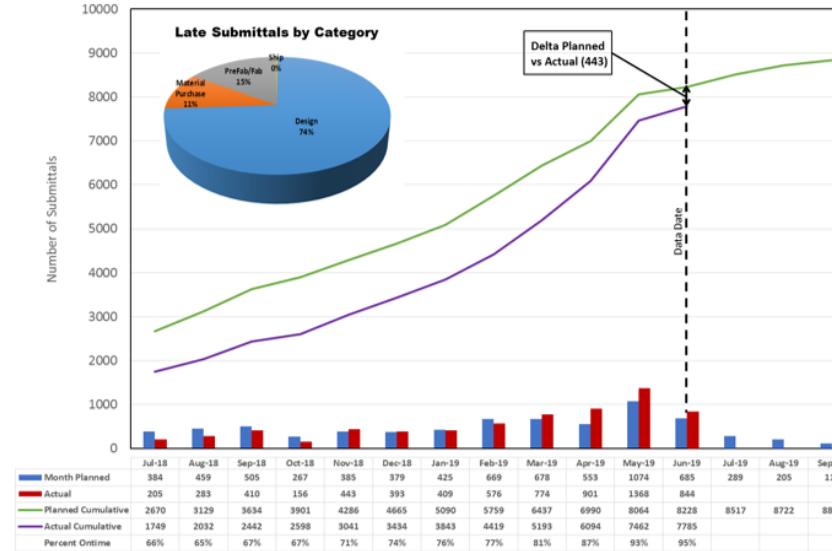


Construction Management Metrics

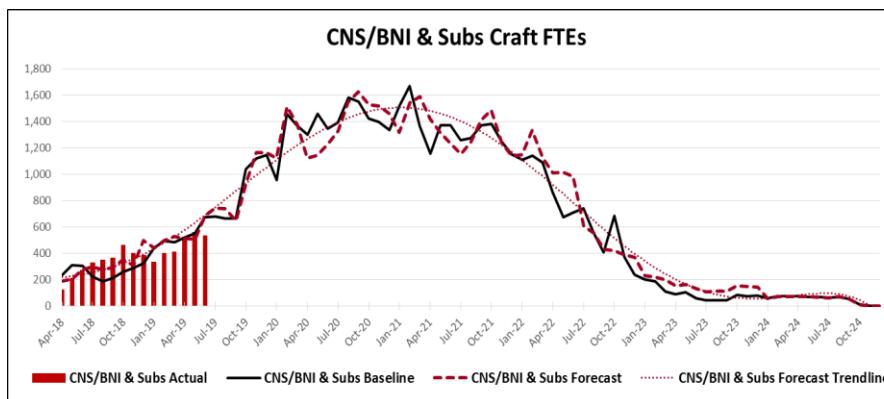
Procurement – Total Project



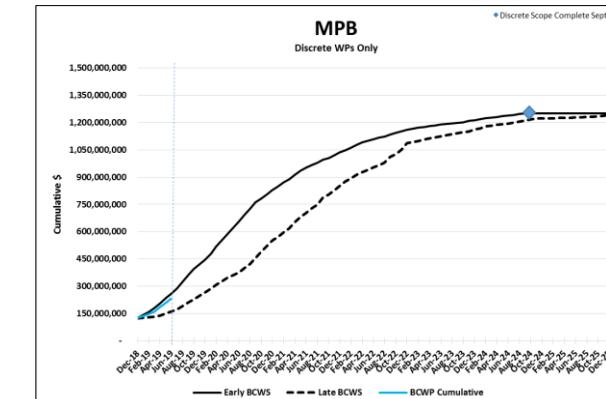
Submittals – Total Project



Project Summary Level Craft FTEs



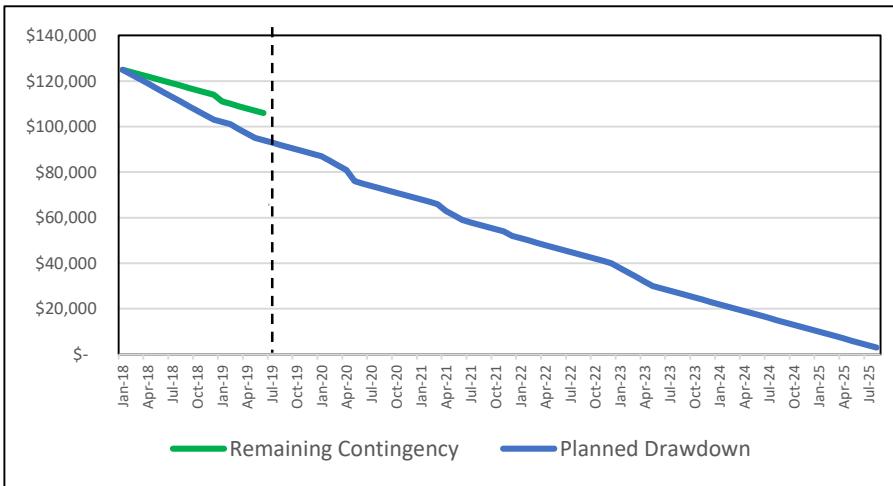
MPB Discrete Baseline vs. Earned - MPB



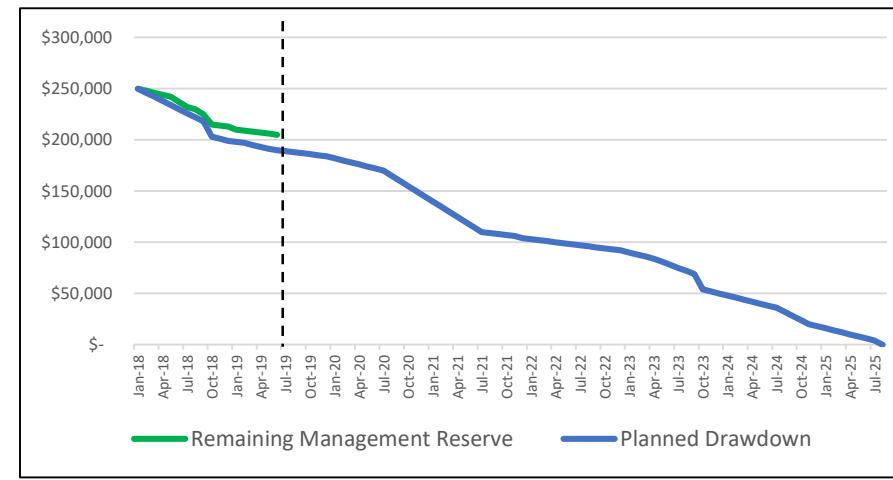
% Complete Baseline (Early Start): 20.8% % Complete Earned: 18.5%

Risk Management

Contingency Drawdown Curve



Management Reserve Drawdown Curve



Trends

Approved Trends

Trend #	Trend Title	Expected Approval Level	Age (Days)	Date Identified	Date Approved	Performance (\$K)	Scope (\$K)	Last Approved	
								Aug	Sept
FY 2018 Total Performance Trends Approved Through July 2018									
18-114	Transfer Glass Phase Separators Procurement Scope to Sight Glass and Process Skid Vendor Packages	CNS	111	4/18/2018	8/7/2018	\$127	\$188		
18-171	Safeguards Transporter Pad Relocation	CNS	26	7/12/2018	8/7/2018	\$937			
18-175	Vendor Skid Packages VEN-P4-0458 and VEN-P6-0617	CNS	18	7/20/2018	8/7/2018	\$757			
18-176	Replan and Add New Scope for Mechanical Process Vendor Packages	CNS	15	7/23/2018	8/7/2018	\$65			
18-180	Canned Motor Pump Conformance	CNS	7	7/31/2018	8/7/2018	\$71			
18-181	Engineering to Conform Design to Vendor-Specified Manual Valve Lengths	CNS	7	7/31/2018	8/7/2018	\$41			
18-182	Inline Pipe Strainer Procurement Conformance	CNS	7	7/31/2018	8/7/2018	\$22			
18-183	Redistribution of Process DAC Confirmation	CNS	7	7/31/2018	8/7/2018	\$33			
18-184	Change MEXHI, MEXLO and OMP Sintering Glovebox Environment from Room Air to Instrument Air	CNS	6	8/1/2018	8/7/2018	\$148			
18-186	Distribution Transformers Award vs. Estimate Value (VEN-F4-7236)	CNS	6	8/1/2018	8/7/2018	\$242			
18-190	Change Cable Trays from Galvanize to Stainless Steel in High Liquid Process Room Areas	CNS	8	8/13/2018	8/21/2018	\$63			
18-192	MPB and SAB HVAC Design Changes for NCS Controls	CNS	7	8/14/2018	8/21/2018	\$177			
18-195	Pipe Hangers (Standard and Engineered) Award vs. Estimate Value (VEN-F6-5003/VEN-F6-5006)	CNS	6	8/15/2018	8/21/2018	\$742			
Total Trends Approved in August 2018						\$1,161	\$435		
Total Performance Trends Approved Through August 2018						\$1,288			

BCPs

Approved BCPs

BCP #	BCP Title	Approval	Month Approved	BCP Value (\$K)	Trend #	Age	Total BCPs Approved through July 2018	
							FY 2018	\$8,256
18P233	Equipment Mockup Testing	CNS	Aug-18	\$879	18-067	176		
18P288	Sintered Metal Filter HDV Alignment	CNS	Aug-18	\$0		64		
18P292	System Structure Component Interface Control Document and Start-Up Alignment	CNS	Aug-18	\$8		64		
18P295	Modulating Control Valve Physicalization	CNS	Aug-18	\$7	18-131	99		
18P320	Centrifugal Pump Alignment	CNS	Aug-18	\$53	18-172	34		
18P324	MPB Heat Load	CNS	Aug-18	\$955	18-174	43		
18P326	Charge Code Corrections	CNS	Aug-18	\$0		37		
18P328	Furnace Backup Nitrogen to Air	CNS	Aug-18	\$640	18-151	48		
18P332	August Planning Package to Work Package Conversions	CNS	Aug-18	\$3,450		37		
18P333	Engineering Schedule Replan	CNS	Aug-18	\$703		36		
18P336	Pipe Casing for Fire and Potable Water Lines	CNS	Aug-18	\$146	18-126	89		
18P340	Critical Safety Funnels	CNS	Aug-18	\$1	18-159	75		
18P341	Long Lead Procurement Re-Plan	CNS	Aug-18	\$927		23		
18P348	Cooling Towers Re-Plan	CNS	Aug-18	\$0		28		
18P364	August Schedule Health	CNS	Aug-18	\$0		11		
18P363	August BCP Stacking Variance Reconciliation	CNS	Aug-18	\$2		7		
Subtotal BCPs Approved in August 2018								\$855
Total BCPs Approved through August 2018								\$7,401

Take Aways

- Improved Federal Ownership and Oversight
- Enterprise approach to Acquisition Planning
- Best-in-Class systems, processes, procedures and support throughout all project phases
- Utilize a variety of contracting methods for optimal acquisition strategies for capital construction projects
- Assign top talent – Federal and contractor