

Olmsted Locks & Dam

Inland Waterway Users Board

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Great Lakes and Ohio River Division
12 August 2015



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US Army Corps of Engineers
BUILDING STRONG®



Agenda

- Status
 - ▶ Project Overview/BLUF
 - ▶ Dam 2015 Plan to Complete
 - ▶ Dam 2015 LWS Milestone Identification
 - ▶ 2015 LWS Images
 - ▶ Project Scorecard
 - ▶ Risk & Capability
 - ▶ Special Interes
 - ▶ L&D Nos. 52/53 Demo

- Discussion



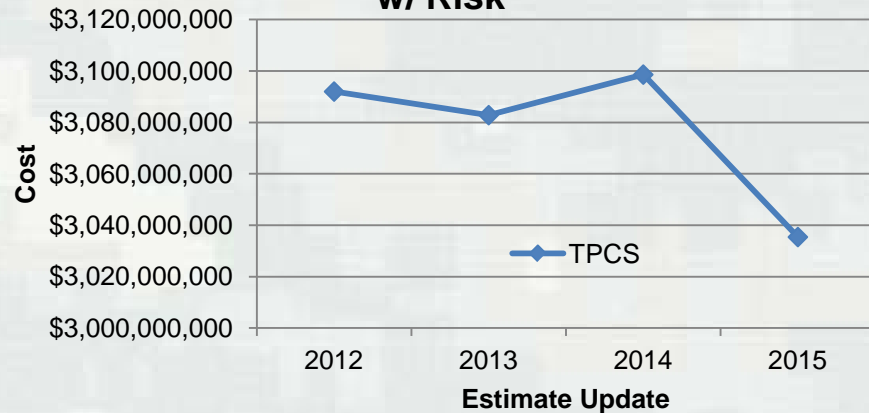
BLUF

- Bottom Line Up Front
 - ▶ Project cost at completion is \$65M under the fully funded \$3.1B PACR Baseline
 - ▶ Project completion schedule is 2 years ahead of the PACR baseline schedule, 2022 in lieu of 2024
 - ▶ Capability funding allows the team to actively mitigate risk aka buy down cost and reducing schedule.

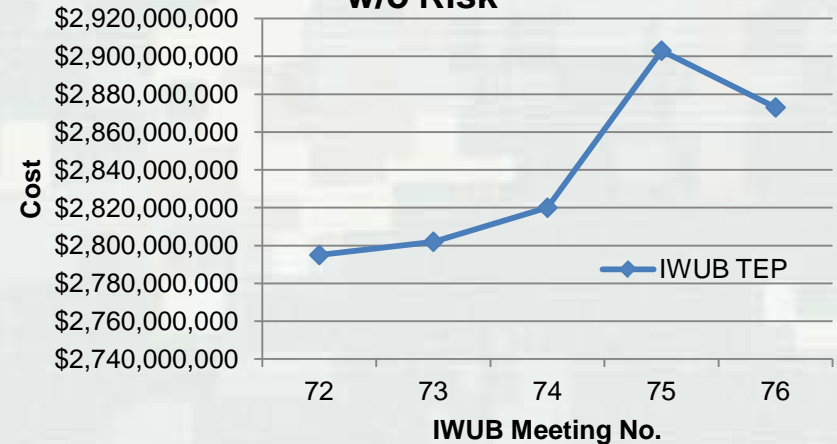


BLUF Analytics

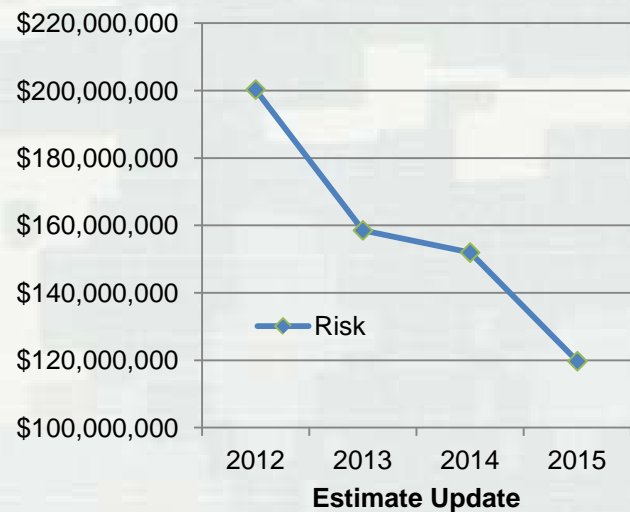
**Corps 80% confidence TPCS
w/ Risk**



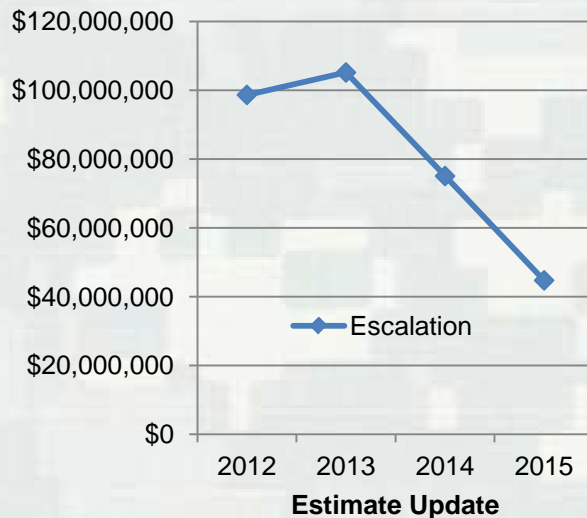
**Contractor projected TEP
w/o Risk**



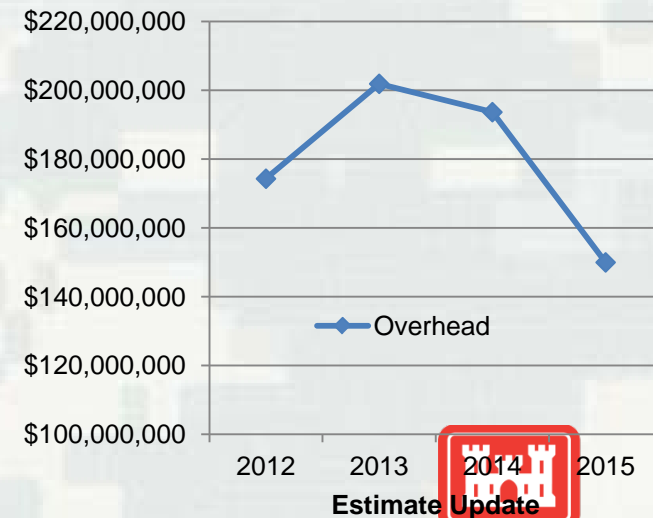
Risk (Dam)



Escalation (Dam)



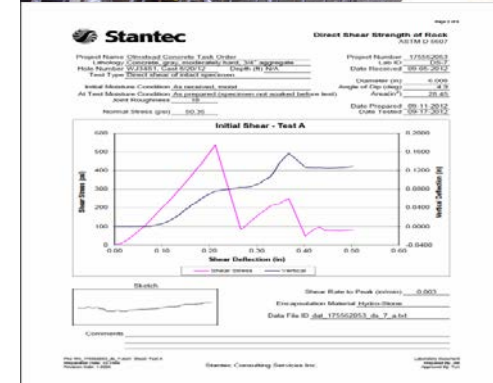
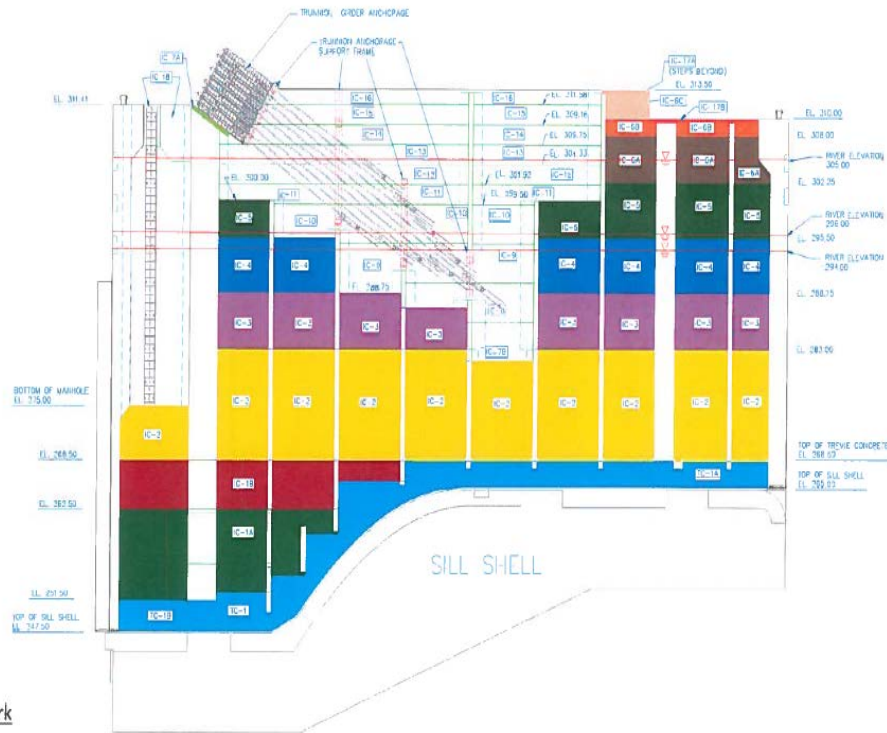
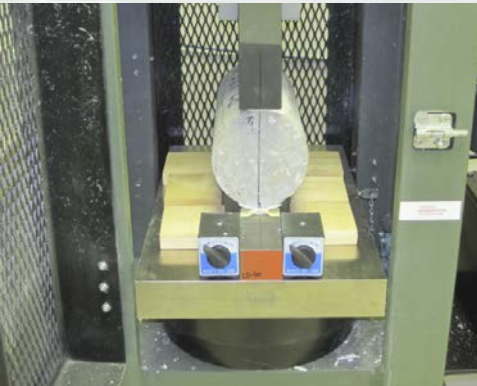
Overhead (Dam)



Risk Mitigation

one example

2015 USACE Innovation of the Year Award Self-Consolidating Concrete



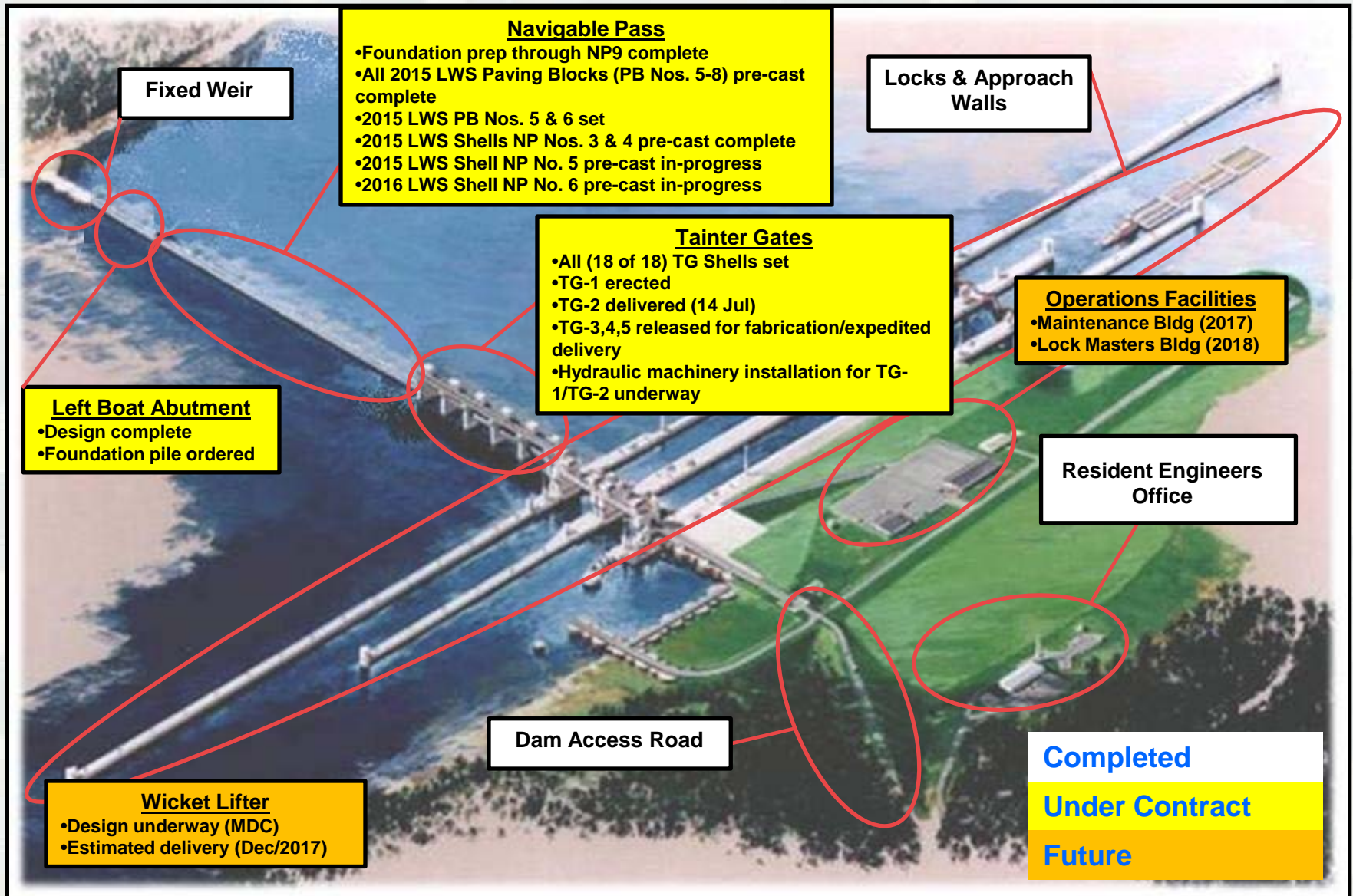
Direct Savings = \$5.5M

Indirect Savings = \$30M



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Olmsted Project Overview



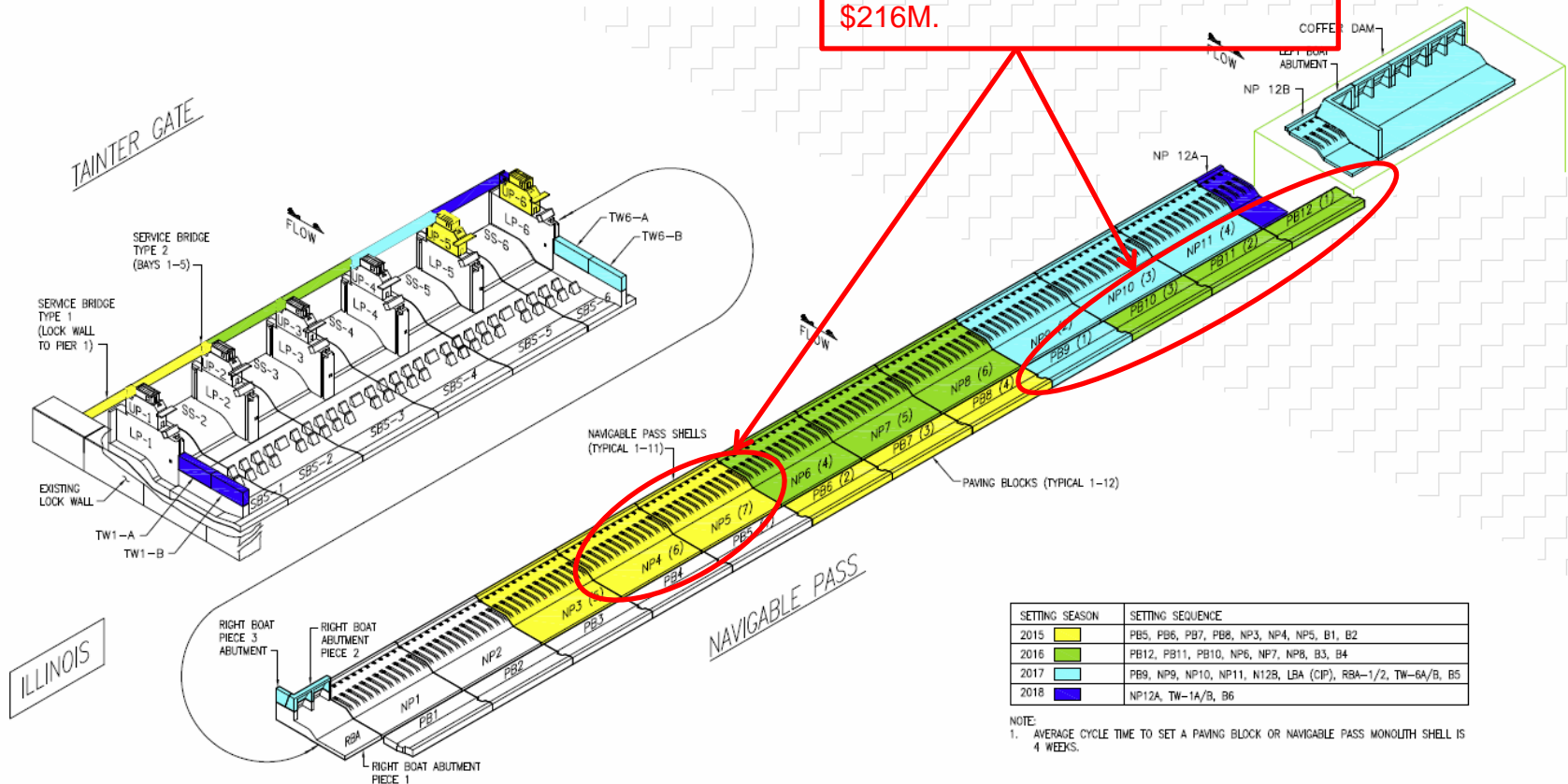
2015 Plan to Complete

RINGER BARGE PLACEMENTS	
SHELL	WEIGHT (TONS)
RBA PIECE 2	372
RBA PIECE 3	81.5
TW1-A	347
TW1-B	302
TW6-A	308
TW6-B	316
SERVICE BRIDGE TYPE 1	118
SERVICE BRIDGE TYPE 2	283
12 REMAINING RINGER PLACEMENTS	

CAT BARGE PLACEMENTS	
SHELL	WEIGHT (TONS)
NP 3-11	4955
NP 12A	(4785.7) 1/2
PAVING BLOCKS 5-12	2562
18 REMAINING CAT BARGE PLACEMENTS	

ACRONYM LEGEND	
LP	LOWER PIER
TG	TANTER GATE
SB	SERVICE BRIDGE
GM	GROUT MAT
FP	FOUNDATION PILE
M/SP	MASTER/SHEET PILE
RBA	RIGHT BOAT ABUTMENT
PB	PAVING BLOCK
NP	NAVIGABLE PASS (MONOLITH)
UP	UPPER PIER

Setting of LWS 2015 Baseline Milestones (NP4 and NP5) and Stretch Goals (PB Nos. 9 -12) will not complete this LWS at an FY15 capability funding level less than \$216M.



* Nine shells set in LWS 2014 including two shells set outside historical LWS limits (15 Jun – 30 Nov)

2015 LWS Milestones

■ Scheduled Milestones

- ~~Set NP #3-5 (of 12)~~ NP #3
- Set PB #5-8 (of 12)
- Erect TG #2 (of 5)

■ Preparatory Milestones

- Install Grout Mat (thru NP #12/LBA)
- Drive Foundation Pile (~~thru NP #6~~) (thru NP #3)
- Drive M/S Pile (thru NP #6 U/S, ~~NP #12 D/S~~)

■ ~~Stretch Goal Milestones~~

- ~~Set NP #6 (of 12)~~

or

- ~~Set PB #9-12 (of 12)~~

- ~~Drive Left Boat Abutment (LBA) Foundation Piling~~

* Strike through indicates revision based upon FY15 funding impact

	<u>BASELINE</u> (\$235M)	<u>CURRENT</u> (\$207M)
PB-5	15 Jun	10 Jun
PB-6	29 Jun	29 Jul
PB-7	14 Jul	14 Aug
PB-8	28 Jul	31 Aug
NP-3	14 Sep	12 Nov
NP-4	08 Oct	LWS 16
NP-5	26 Nov	LWS 16
TG-2	11 Sep	15 Oct

* **Milestone complete**

* **Milestone slippage due to High Water Event**

* **Milestone slippage due to Capability Shortfall**

Legend

LP – Lower Pier
TG – Tainter Gate
SB – Service Bridge
GM – Grout Mat
FP – Foundation Pile
M/S – Master/Sheet
RBA – Right Boat Abutment
LBA – Left Boat Abutment
PB – Paving Block
NP – Nav Pass Shell (Monolith)

2015 LWS Images

1



2



3



4



5



6



1. Early season dredging (Hurley) 2. TG-1/PB-5 setting 3. Admiral Zukunft visit
4. Wicket installation NP-4 5. PB-6 moving down skid way 6. TG-2 arrives on site



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Olmsted Project

Time and Cost Scorecard – May 2015

Expenditures

Planned (BCWS)	\$1.946B
Earned (BCWP)	\$1.945B
Actual (ACWP)	\$1.953B

BCWP: Reports the value (based on % complete) of the work performed to date.

Target:

Actual as compared to Planned: (<1% = Green) (>1% and <3% = Yellow) and (>3% = Red)

Schedule

(PACR)/(Current)

Project Complete	Sep 2024/Mar 2022
Dam Operational	Sep 2020/Oct 2018

Measures: Planned project completion and Dam contract operational dates

Target:

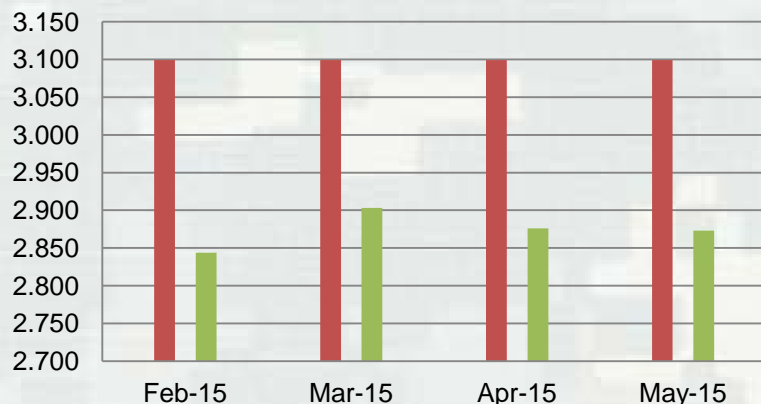
Green: Current = PACR-12 months

Yellow: Current = PACR-11 months to PACR-7 months

Red: Current = PACR-6 months to after PACR date

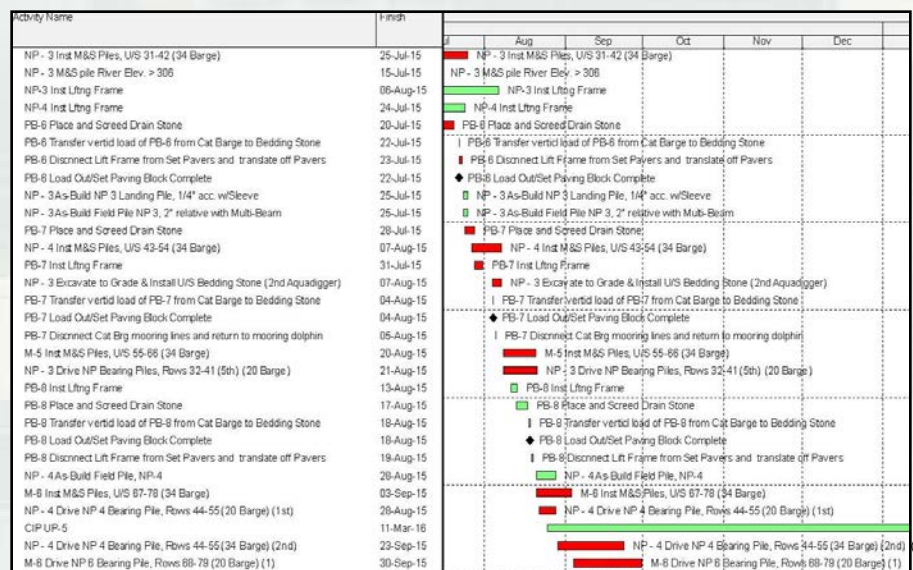
Olmsted Project TEP Trend

TEP in Billions



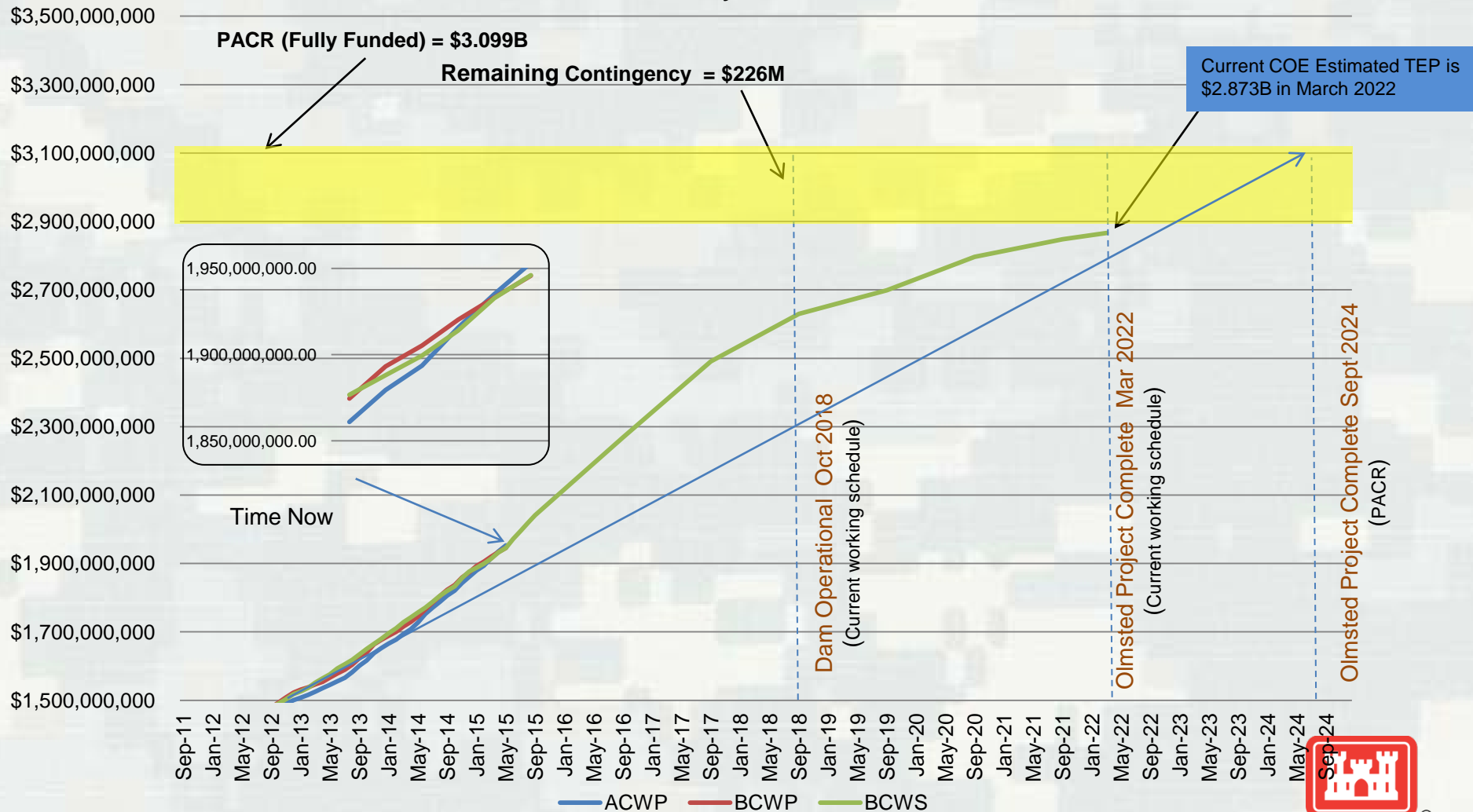
	Feb-15	Mar-15	Apr-15	May-15
PACR w/risk	3.099	3.099	3.099	3.099
COE TEP	2.844	2.903	2.876	2.873

Major Activity Schedule

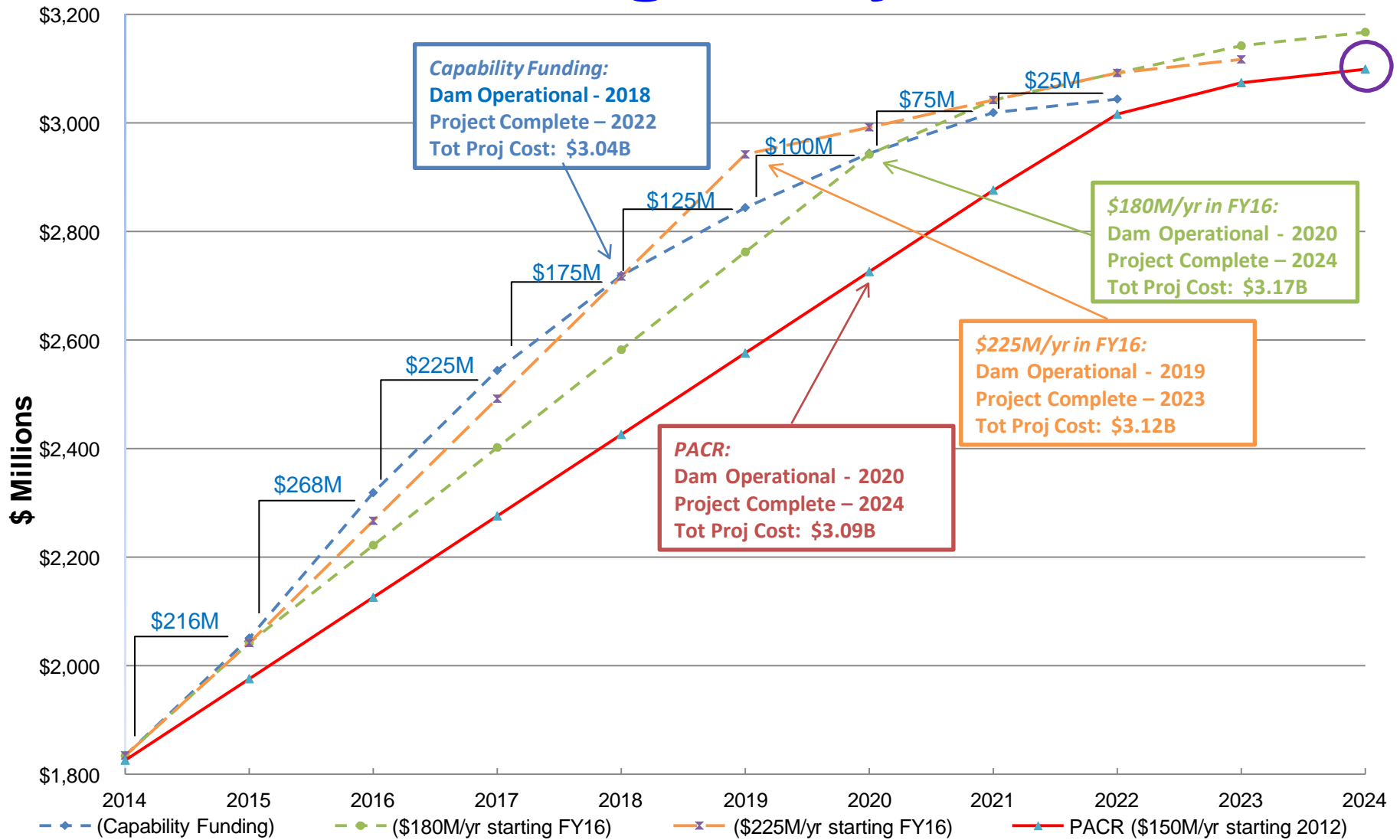


Olmsted L&D Project Earned Value Analysis (Based on DOD Gold Card)

May 2015



Funding Analysis



L&D Nos. 52/53 Demo

- Marine Demolition majority of demolition costs.
 - L&D No. 52 - \$67.5M; L&D No. 53 - \$47.7M
- USACE Jan '15 meeting with USCG and Industry
 - Received input regarding demolition preferences. **Safety**, navigation and legacy maintenance impacts highlighted.
- USACE next step - engineering analysis
 - Numerical modeling and expert elicitation input
 - Configure final elevations of weir sections and sediment impacts
- Refine Land disposition scope during Real Estate excess property process; includes SHPO coordination & MOA



L&D-53 Allision 08/07/2015



A tow transporting replacement 300 Ton turbines for TVA struck and is currently resting/lying on top of L&D 53 river chamber guide wall

Crews utilizing water pumps supplied by the Olmsted project, attempt to dewater ruptured barge chambers.

Chambers have been successfully temporarily patched.



In Summary

- ▶ Project cost at completion is \$65M under the fully funded \$3.1B PACR Baseline
- ▶ Project completion schedule is 2 years ahead of the PACR baseline schedule, 2022 in lieu of 2024
- ▶ Capability funding allows the team to actively mitigate risk aka buy down cost and reducing schedule.



Discussion



**Olmsted Locks and Dam
Wicket Lifter Barge**



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Actualized Risk Events

1. 2015 LWS High Water

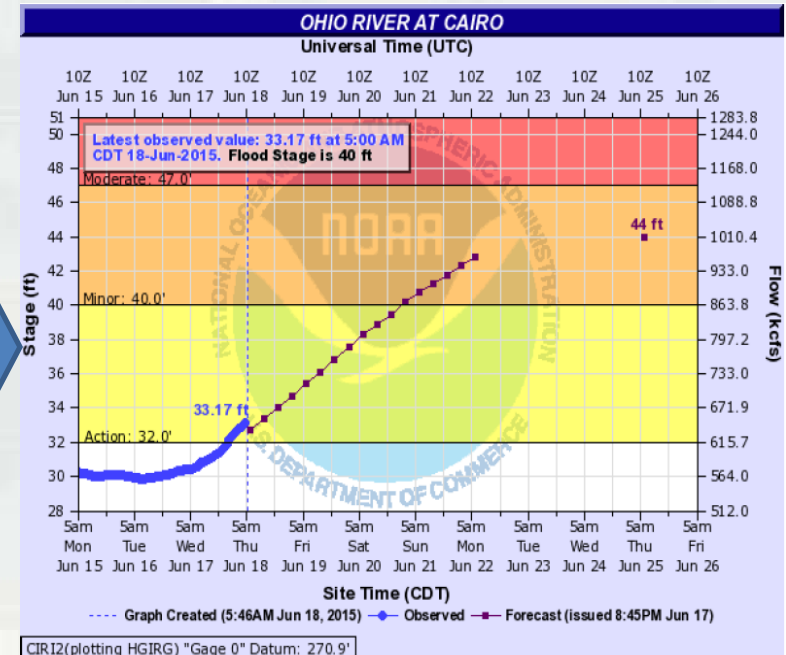
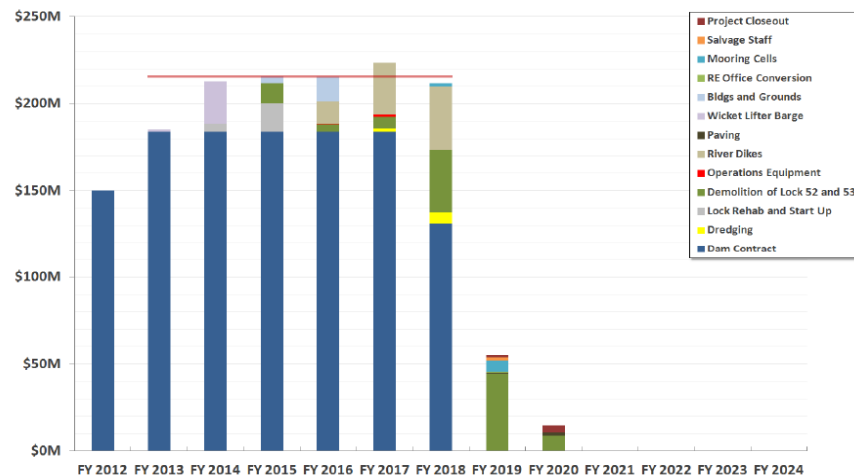
- Start: 18 Jun 2015
- End: 25 Jul 2015 (37 days)
- Critical Elevation = 306 feet
- Critical Velocity = 4 fps

Mitigation Strategy

- Work outside contractual LWS before and after
- Use capability funding to increase premium time/scheduling
- Increase production efficiency (means/methods)

Impacts

- Increased costs
- Increased uncertainty (2018 operational milestone)
- However, no schedule slippage currently to 2018 operational milestone



2. FY15 Capability Funding

- Initial Capability Request = \$205M
- Pres Bud = \$160M/Funding Pot = \$45M
- Increased FY15 Capability = \$235M
- Current Capability = \$216M(min)/\$227M(max)
- Actual Funding to Date = \$207M

Mitigation Strategy

- Constrain activities to fit prog. spend plan
- Improve Communication (Oper. Env.)

Impacts

- Increased cost and schedule exposure

Capability Funding

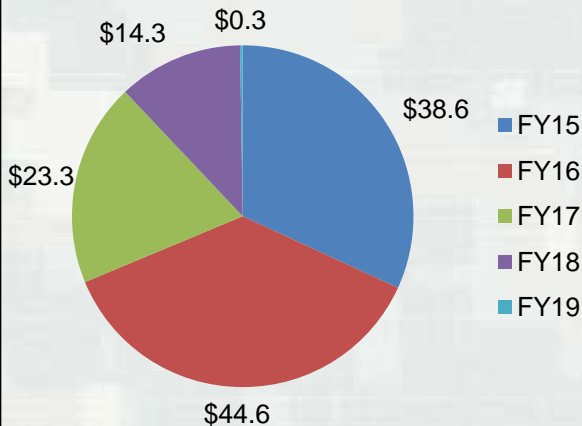
- Funding Stream
 - Sep/2020 Dam Operational Milestone
 - Minimum of \$150M/year (PACR)
 - **Oct/2018 Dam Operational Milestone**
 - Minimum of \$215M/year (PACR) or
 - **Variable Capability Level (currently \$89M behind \$215M/year pace)**
 - *Current Estimated Capability **\$227M (FY15)** and **\$268M (FY16)**
 - Current Expected FY15 Funding = \$216M **(min. req. to maintain critical path)**
 - **FY Capability Funding is variable and formally re-assessed by the PDT twice per fiscal year (2nd QTR and 4th QTR) based upon production tempo, hydraulic conditions, and schedule risk mitigation**

* High water event (18 Jun – 29 Jul) decreased max. FY15 capability from \$235M to \$227M

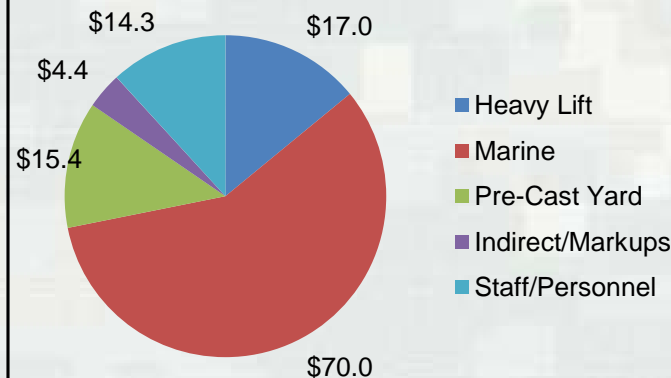


TEP (Dec/2014 – Mar/2015 Increase)

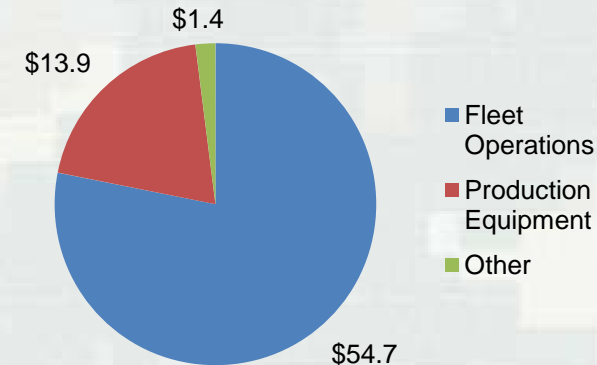
**TEP Increase (\$M)
by Fiscal Year**



**TEP Increase (\$M) by
Cost Account**



**TEP Increase (\$M) by
Marine Sub-Category**



- TEP is a required EVMS leading indicator and independently calculated/owned by the Contractor
- The Corps reviews and formally recognizes additional budget, when appropriate, via the PCN process and subsequently memorialized by contract modification
- The individual cost accounts are continuously reviewed by their respective Cost Account Managers (CAM) and adjustments (plus/minus) made real time
- At the current TEP value, the Olmsted project would use only \$18M (or 7%) of the \$244M in contingency allowance calculated in the PACR documentation and remains below authorization (\$45M)



Special Interest

- TEP Review (Dec/2014 – Mar/2015 Increase)
 - FY19 (\$350K) Review Complete - Approx. \$100K in question
 - FY18 (\$14M) Review Complete - Approx. \$7.5M in question
 - FY17 (\$23M) Review Underway
 - Production rate evaluation impacted by “abnormal” seasonal conditions
- Equipment Salvage Project Credit
 - Inventory: $CAP = \$138M / GFP = \$17M$
 - CAP estimated salvage credit (**\$25M**) memorialized in schedule
 - Proof of concept 300 Ton Truck Crane (GFP) sold on GSAXCESS site
- 2015 LWS Navigation Impacts
 - “Scheduled” timeframes for “open” chamber lockage
 - Notional schedule disseminated
 - Protocol published/stakeholder coordination ongoing

