



DRAFT

Extended Power Upgrades Project Update Turkey Point

July 25, 2009

Agenda

- Overview
- Area Summary & Line by Line
- Implementation
- Risk and Mitigation
- NRC Schedule
- Lessons learned



I. Overview

Current Plans and Targets

	PROFORMA		FORECAST	
	U-3	U-4	U-3	U-4
1 LAR Submittal	9/01/09	9/01/09	6/30/10 ⁵	6/30/10 ⁵
2 1 st Outage	9/26/2010	4/25/2011	9/26/2010	3/14/2011
3 Duration				
4				
5 2 nd Outage	3/5/2012	10/22/2012	2/27/2012	10/22/2012
6 Duration				
7 In Service Date	April 2012	October 2012	May 2012	December 2012
8 MWE	104	104	118 ⁴	118 ⁴

Notes

All Outage durations to be reviewed & approved by CNO upon completion of Scope definition

¹ Outage durations driven by Generator rewind currently in the approved Outage schedule

² Outage duration driven by HP Turbine and MSR replacements

³ Target goal for Six Sigma Team rewind outage durations

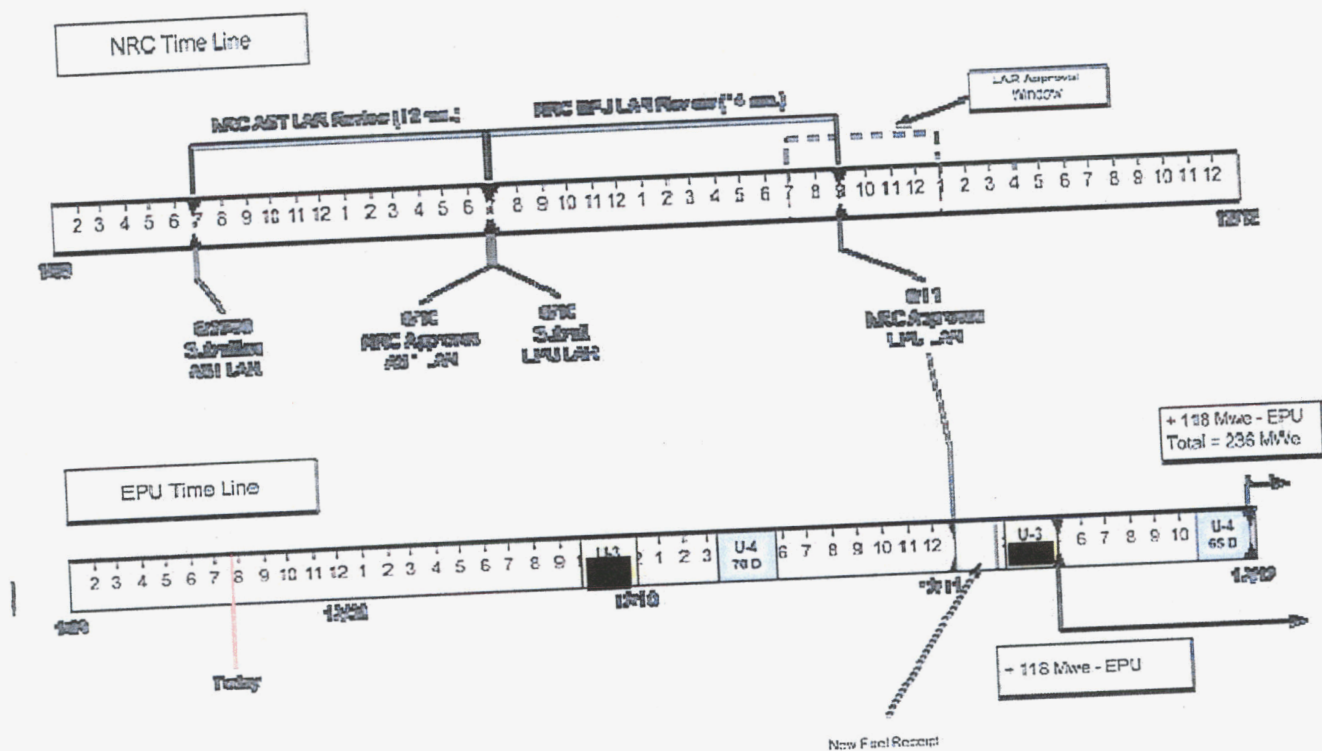
⁴ MWe based on Siemens heat balance (contract target)

⁵ AST LAR must be approved prior to submittal of EPU LAR

Longer duration Outages have been included in the business model

I. Overview

Turkey Point Timeline



I. Overview

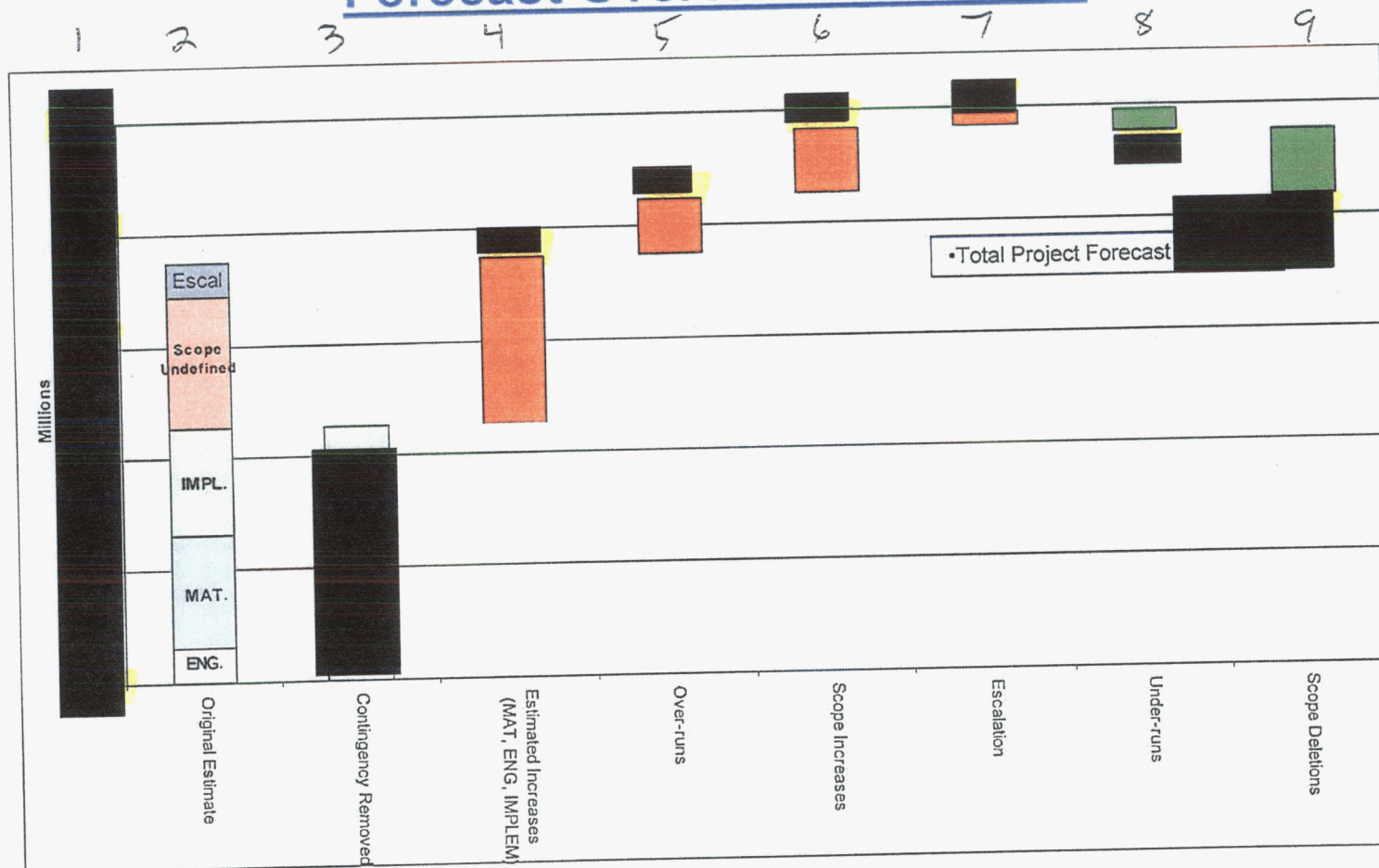
Cost Overview

	ORIGINAL ESTIMATE	CURRENT ESTIMATE	ESTIMATE DIFFERENCE	ACTUAL/ ACCRUALS	AMOUNT TO GO
1	LAR	\$28,672,000			
2	ENGINEERING	\$18,466,810			
3	MATERIALS	\$201,036,700			
4	IMPLEMENTATION	\$192,033,500			
5	SCOPE UNDEFINED	\$245,889,870			
6	ESCALATION	\$63,082,230			
7	TOTAL	\$749,181,110			



I. Overview

Forecast Overview Walk-Thru



II. Area Summary and Line by Line



II. Area Summary

1 Current Budget of [REDACTED] increased
2 to [REDACTED] (Current Forecast*)

- **The causes for the increase were primarily due to the following:**
 - Initial Shaw feasibility estimates were based on conceptual scope
 - Scope Growth driven by – LAR and Design Evolution
 - Bechtel Field Non-manual (FNM) and Indirect costs for the EPC contract are higher than expected
 - Material costs significantly higher than Shaw original estimates

*excludes scope undefined

II. Area Summary

Licensing Cost

1 • **Licensing Engineering costs were higher than planned**
2 by [REDACTED] due to:

- Base contract costs higher than anticipated
- EPU analysis significantly more extensive and intrusive than stretch power uprate like Seabrook
- New analysis methodologies required to achieve acceptable results
- NRC regulatory guidance issued expanding scope/ complexity of LAR
- Fast Track schedule caused work to be performed with draft inputs and re-worked later
- Core LAR staff owner's functions largely contracted

II. Line by Line - LAR

Licensing Engineering costs were higher than planned

DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION / NOTES
NSSS Analysis and Engineering				
WEC NSSS and Fuel Analysis	\$20,000,000			Base Scope
Areva Replacement Components Analysis				Base Scope
Contract Incentives				Base Scope
RAI Support				Base Scope
SFP Criticality Analysis				Base Scope
Decay Heat Analysis				Transferred from Shaw Base Scope
PRA Analysis				ACRS now requires showing EPU is risk beneficial
Reconstitute BMI Stress Analysis				No existing analysis of record
TRACE Inputs - NRC Confirmatory Analysis				New NRC req't to perform confirmatory LOCA analyses
EAF Scoping/Pressurizer Impact				Prior methodology for EAF no longer accepted by NRC
Unresolved WEC Scope Changes				Analysis areas requiring more work than originally estimated by WEC due to unacceptable results
Mid Process Scope Review Changes				#1 - 4 FWH, Cond Pumps, SGFPs
Additional Analyses				Analyses from review cycle, unacceptable results, LTC/BA precipitation
SUBTOTAL	\$20,000,000	\$33,603,830	-\$13,603,830	

1 2 3 4 5

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II. Line By Line – LAR

LAR Walk-thru

DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION / NOTES
BOP Analysis and Engineering				
Shaw BOP Analyses	\$6,000,000			Base Scope
Contract Incentives				Base Scope
RAI Support				Base Scope
Shaw scope adjustments				Base Scope
MSN/MSCV Disk Qualifications				Industry OE of failed disks
Mid Process Review				#1 - 4 FWH, Cond Pumps, SGFPs
Additional Analyses				Analyses from review cycle, unacceptable results
FPL LAR Engineering				
FPL MOD Engineering Support for LAR				
SUBTOTAL	\$6,000,000			
Grid Stability Risk Study	\$250,000			
Other Contracts				
Third Party Review s	\$222,000			Owners Support and independent reviews
Environmentally Assisted Fatigue Reanalysis				Prior methodology for EAF no longer accepted by NRC
AST Dose Analysis				New dose analysis needed to support acceptable results at EPU conditions and address control room habitability conditions
Cameron Testing Services for MUR				Validates power uncertainty for determining RTP value for uprate
Integrated LAR Compilation				Compile LAR in E-form for submittal
Other RAI Support				
SUBTOTAL	\$222,000	\$7,226,563	-\$7,004,563	
NRC Review Fees	\$2,200,000	\$3,385,864	-\$1,185,864	AST, EPU and Confirmatory Analyses
SubTotal	\$2,200,000	\$3,385,864	-\$1,185,864	
Total without Escalation and Contingency	\$28,672,000	\$62,648,935	-\$33,976,935	

1

2

3

4

5

II. Area Summary

Engineering Costs

- | • **Modification Engineering costs increased by [REDACTED] due to:**
 - Original Shaw Estimates conceptual vs. detail
 - Number of Modifications increased due to Scope Growth and LAR Analysis
 - Bechtel increases in Home Office and Overhead costs

II. Line by Line - Engineering

This table represents the variance in Engineering costs between the original budget and the current forecast. The significant differences are shown.

SCOPE	ORIGINAL	FORECAST	VARIANCE	EXPLANATIONS / NOTES
OVERRUNS	ENG.	ENG.	ENG.	
Condenser Replacement/Amertap	\$500,000			Amertap and cathodic protection system replacements vs. upgrades. Scope increase
Simulator	\$50,000			Reactor core model vs. entire EPU parameter change model. Scope increase.
New Turbine Controls DEH/VEHC	\$500,000			Engineering underestimated
Replace FAC-Identified Piping	\$100,000			Configuration verification and stress analysis required
Allowance for Additional Cooling Mods to TPCW/ICW	\$200,000			Existing heat exchangers can not be modified for EPU conditions
Install Condensate Pumps - Replace Internals	\$200,000			Rewound motors adequate, new pumps required with motor filter modifications. Scope increase
Modify The Isolated Phase Bus Duct Cooling System	\$200,000			Coolers acceptable. IPBD not adequate for load. Scope increase.
Allowance for MSR replacement	\$1,300,000			Install drain tanks and modify crossover piping. Scope increase.
Add New Fast closing FW Isolation Valves Outside Containment	\$1,080,000			MOVs cannot meet design requirements AOVs must be used.
Main Steam Piping Support Mods And / Or New Supports	\$300,000			Potential for more extensive modification with additions
Sub - Total	\$4,430,000	\$21,378,000	-\$16,948,000	
OVERRUNS \$1M				
Implement LEFM Check Plus MUR	\$500,000			Based on detailed mod package estimates.
Steam Dump Valves/piping Modifications	\$120,000			Actuators, positioners and new cabling from control room vs. local valve work only
Replace 2 HP FW Htrs - #5 (4 Sub - Total For 2 Units)	\$300,000			Scope increase; larger heaters, stress analysis plus stranded costs
Replace 2 HP FW Htrs - #6 (4 Sub - Total For 2 Units)	\$345,000			Scope increase; larger heaters, stress analysis plus stranded costs
Alternate SFP Cooling System	\$200,000			Scope increase, increased analysis manhours and job complexity
Allowance For Replacement Of Gravity Drain Piping - #5 Heater	\$200,000			Scope increase; longer pipe section replacement and stress analysis issues.
FW Regulating Valve (FRV) Trim Replacement	\$200,000			Scope increase; actuator and solenoid replacements with additional stress analysis
BOP Instrumentation & Control Setpoint, Rescaling & Hardware Mod	\$450,000			Larger BOP instrument & Control setpoint chances. Scope increase.
Replace The Main Transformers	\$350,000			Engineering evaluation eliminated transformer replacement in lieu of cooler upgrade. Scope increase.
Increase Aux FW Pump Capacity & CST Volume	\$100,000			Minor valve modifications in lieu of pump modifications. Scope increase.
Sub - Total	\$2,765,000			

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II. Line by Line- Engineering

1	2	3	4	5
SCOPE	ORIGINAL	FORECAST	VARIANCE	EXPLANATIONS / NOTES
UNDERRUNS				
Add FW Htr # 5 & # 6 Digital Level Controls	\$2,450,000			Eliminated due to scope reduction (1-4 feedwater heaters no longer being replaced)
Emergency Containment Filter Removal	\$724,000			Abandon in place vs. complete removal.
Station Electrical Load Study (ETAP)	\$400,000			Reduction due to single ETAP analysis per outage vs. by mod.
Sub - Total	\$3,574,000	\$2,010,000	\$1,564,000	
SCOPE INCREASES				
Heater Drain Tank Alternate Drains				Existing valves undersized for EPU conditions
Modifications for AST	\$100,000			Extensive emergency control room ventilation and NaTB baskets vs. chemical injection
HVAC CBUS Switchgear (Actuals)				Actuals for 30% design. Mod not required for existings heat loads.
Turbine TAPS	\$0			Needed for data collection for HP turbine design
Sub - Total	\$100,000	\$3,245,000	-\$3,145,000	
SCOPE DELETIONS				
Rx Vessel Upper Head Temp Conver. (DHEHC) CRDM Anal.	\$1,000,000			Not required per engineering evaluation
24 Month Fuel Cycle	\$1,000,000			Not being pursued.
Pressurizer Loop Seal Removal	\$1,000,000			Removal not required, setpoint change only.
Addition of Trim Coolers to Exciter	\$400,000			Trim cooler not required. Existing cooler being replaced with larger capacity
Replace 2 LP FW Htrs - #3 (4 Sub - Total For 2 Units)	\$300,000			Not required due to 3 condensate pump option.
Replace 2 LP FW Htrs - #4 (4 Sub - Total For 2 Units)	\$300,000			Not required due to 3 condensate pump option.
FW Pump Thrust Bearings	\$250,000			FM pump modifications not required due to 3 condensate pump option.
Cooler Replacement to Support Gen Hydrogen Cooling	\$200,000			Hydrogen cooler engineering cost included in Siemens generator upgrade
Allowance For New Jet Impingement Shields And / Or Pipe Whip F	\$150,000			Scope combined with main steam pipe supports and whip restraints
Current Transformers & Bushings Replacement	\$20,000			Scope combined with Siemens generator upgrade cost
Containment Cooling Mods - Chilled Water (NCC's)	\$650,000			Replacing NCCs only. Not adding chilled water.
Sub - Total	\$5,270,000			
TOTAL	\$16,139,000			

*Totals do not represent all Engineering items



FPL

II. Scope Reductions

Major Scope Reduction Items

	1	2	3	4	5	6
	DESCRIPTION	EST.	PROs	CONs	RISK	MITIGATION
1	Reactor Vessel Upper Head Temperature Conversion		Cost Savings	Potential CRDM temperature issues	Medium	AREVA to perform CRDM Thermal Analysis
2	Replace the Main Transformers		Cost Savings	None	Low	Increased cooling capacity for existing transformers
3	Feedwater Heaters #1 thru #4 deletion		Cost Savings	Increased inspections required	Medium	Increased inspection cycles. Potential flow accelerated corrosion and internal vibration issues. May require some upgrades after EPU based on inspection results.
4	Addition of Trim Coolers to Exciter		Cost Savings	Potential reduced life cycle	Low	Siemens analysis/Project Management reviews
5	Alternate Spent Fuel Pool Cooling Sys		Cost Savings	During outages, intake and component cooling water will not be able to be removed from service	Medium	Additional Spent Fuel Pool Heat Exchanger
6	24 Month Fuel Cycle		Cost Savings	Not technically feasible	Low	Keep existing Fuel Cycle
7	Cooler Repl to support Gen H2 Cooling		Cost Savings	Potential reduced life cycle	Low	Additional monitoring
8	Use of Existing Feed Water Pumps		Cost Savings	Pumps will be operating the limit of their capability. Potentially increased maintenance	Medium	Performing field testing and dynamic analysis of secondary performance. Upgrading control instrumentation.
9	Containment Cooling Mods (NCCs)		Cost Savings, less equip to maintain	None	Low	Normal Containment Coolers are being replaced instead of a new, supplemental cooling system installed on the plant Aux. Bldg. roof.
10	Exciter Re-Wind		Cost Savings	Exciters are forty years old	Low	Exciters are inspected on a preventive maintenance program and the fleet has a spare.
11	Balance of Scope Reductions					
12	Total					



II. Scope Additions

Major Scope Additions & Increases

	1	2	3	4
	DESCRIPTION	REQUIREMENT	RISK OF NOT DOING	TOTAL VARIANCE
1	Condenser Replacement/Amertap	Results in increased MW's and increased plant reliability	MW Loss	
2	Allowance for MSR Replacement	Results in increased MW's and increased plant reliability	MW Loss	
3	HP Internal & Rotor/Generator Rewind/Rotor Hi Lift	Results in increased MW's	Can not perform upgrade	
4	License Amendment Request Support Activities	NRC Required	LAR activities required to up-rate units	
5	Project Support - FPL Project Management Services	Appropriate contract and project administration	Reduced Contract Oversight can result in an unwanted plant event and budget/schedule over-runs.	
6	Steam Generator Moisture Carry Over	Reduce moisture of steam to turbine	Potential turbine damage	
7	Plant Craft Support	Various work scopes such as disposal costs, transportation, supplemental services	Significant to Station	
8	Replace FAC -Identified piping	Higher Flows	Additional inspection of and maintenance cost	
9	Outage Extension	Support Plant during extended outage	Required Plant Support not available	
10	New Turbine Controls DH/EHC	New HP Turbine Upgrade	MW Loss; EPU not achieved	
11	Add'l Cooling Mods to TPCW/ICW	Additional cooling required for generator components	Limit unit load during Summer (MW loss)	
12	Isophase Bus Duct Cooling Sys	Upgrade requires replacement of Isophase Bus Duct system rather than increased cooling capacity	MW Loss	
13	License Amendment request - AST Mod's	Alternate Source Term LAR required modifications	Control Room Emergency Ventilation and Accident mitigation - NaTB Baskets	
14	Balance of Scope Increases			
15	Total			



II. Area Summary

Material Costs

1. • Major equipment estimates increased by [REDACTED] due to
 2. changes in fabrication costs and scope increases.
- Original estimates based on best known price of materials at the time. Condenser material cost ~ 75% higher than original Shaw estimate
 - Moisture Separator Reheater scope increased due to raising elevation and adding condensate drain tanks. Material increase ~ 32%.
 - Other large components exceeded estimates-Feedwater Isolation Valves, IsoPhase Bus, Turbine Digital Controls, Turbine Plant Cooling Water Heat Exchangers.
 - Field procured material costs are higher than assumed in the original estimates

II. Line by Line - Material

This table represents the major variance in material costs between the original budget and the current forecast. The significant material cost differences are shown.

	DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
	OVER-RUNS				
1	Condenser Replacement	\$ 30,000,000	\$ [REDACTED]		Raw material price, Amertap, Cathodic protection
2	New Turbine Controls DBH / BHC	\$ 4,600,000	\$ [REDACTED]		Scope increase, replace capital spares
3	Add FW HTR #5 & #6 Digital Level Controls	\$ 459,200	\$ [REDACTED]		Based on Preliminary estimate, Forecast based on recent PTN installations
4	Add new fast closing FW isolation valves	\$ 1,500,000	\$ [REDACTED]		Current contract exceeds original budget
5	FW Regulating Valve Trim Replacement	\$ 330,000	\$ [REDACTED]		Current contract exceeds original budget
6				\$ -	
7	TOTAL	\$ 36,889,200	\$ 69,656,214	-\$32,767,014	
	UNDER-RUNS				
8	Replace HP FWH # 6	\$ 6,000,000	\$ [REDACTED]		
9	Alternate SFP Cooling System	\$ 3,900,000	\$ [REDACTED]		Reduced cooling capacity for incremental heat load (Risk item)
10	Allowance for replacement of gravity dr. piping	\$ 250,000	\$ [REDACTED]		Based on Preliminary estimate
11					
12	TOTAL	\$ 10,150,000	\$ 5,223,873	\$ 4,926,127	
	SCOPE INCREASES				
14	MSR Replacement	\$ 24,200,000	\$ [REDACTED]		Unanticipated drain tanks, piping and valve size changes
15	Additional Cooling Mods to TPCW / ICW	\$ 2,000,000	\$ [REDACTED]		Heat Exchanger Costs, Original Scope - Valve installation
16					
17	Modify the Iso-Phase Bus Duct Cooling System	\$ 450,000	\$ [REDACTED]		Scope change from Cooling to replace entire Isophase bus
18	Implement LEFM Check Plus MUR	\$ 2,400,000	\$ [REDACTED]		Current contract exceeds original budget
19	Control Room Emergency Ventilation	\$ -	\$ [REDACTED]		AST driven additional scope
20	TOTAL	\$ 29,050,000	\$ 47,179,442	-\$18,129,442	
	SCOPE DELETIONS				
21	Replace The Main Transformer	\$ 16,000,000	\$ [REDACTED]		Upgrade vs. Replacement
22	Replace LP FWH #1	\$ 4,000,000	\$ [REDACTED]		Not required for 3 Condensate Pump option
23	Replace LP FWH #2	\$ 3,000,000	\$ [REDACTED]		Not required for 3 Condensate Pump option
24	Replace LP FWH #3	\$ 3,000,000	\$ [REDACTED]		Not required for 3 Condensate Pump option
25	Replace LP FWH #4	\$ 3,000,000	\$ [REDACTED]		Not required for 3 Condensate Pump option
26	Feedwater Pump Thrust Bearings	\$ 800,000	\$ [REDACTED]		Mid Cycle scope review reductions (Risk item)
27	Main Steam Piping support Mods	\$ 200,000	\$ [REDACTED]		Based on Preliminary estimate
28	Increase Aux FW Pump Capacity & CST volume	\$ 100,000	\$ [REDACTED]		Engineering Evaluation (Risk item)
29					
30	TOTAL	\$ 30,100,000	\$ [REDACTED]		
31	GRAND TOTAL	\$ 106,189,200	\$ [REDACTED]		

*Totals do not represent all Material items



III. Implementation



III. Implementation

Project Implementation

- Original Project Organization structure contemplated in 2007 was with seconded (contract) staffing overseeing the EPU effort
 - Original Structure
 - Self Perform model (FPL + Contractors)
 - Contracted staffing was approximately 88+ for PTN
 - Fast track for large component purchase with licensing and design in parallel
 - Early 2008 Decision to utilize EPC Contractor
 - Project Organization structure changed based on contract award to Bechtel EPC Provider
 - FPL Management stationed at PTN 01/01/2009
 - Oversight reduced to 52 FTE including Engineering, Project Management and Project Controls

III. Implementation

Summary of all implementation costs

① Cost Center	② Original Budget	③ Forecast at Completion	④ Vs. Current Budget	⑤ To Go
Implementation	\$192,033,500			
EPC Construction	\$94,740,700			
EPC - Bechtel Indirect Constr.	\$0			
Siemens Labor	\$19,380,000			
Siemens Alliance Open/Close	\$0			
Outage Extension Costs	\$18,000,000			
Project Support - FPL Home Office	\$4,368,000			
FPL Project Management	\$19,624,800			
Plant Craft Support	\$0			
Start-Up	\$0			
Training & Procedures	\$0			
RX Vessel Upper Head Temp. Conv.	\$12,500,000			
Steam Gen. Moisture Carry Over	\$21,000,000			
Pressurizer Loop Seal	\$2,420,000			
MSR - Crossover Piping / Valve	\$0			
Misc. Non-EPC Work	\$0			

III. Implementation

1 Current forecast to complete scope is
2 \$439M vs. the current budget of [REDACTED]

- Capacity of organization does not support self perform. EPC construction costs will be higher. Risk of outage schedule impacts are reduced.
- Lack of Constructability reviews of the Original Estimates
- Increased Scope in original modifications
- Increased number of required modifications
- Bechtel Field Non-manual, Home Office and Indirects

III. Implementation Line by Line

Original implementation estimates based on limited field information. Costs for EPC contractors are higher than anticipated.

	DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
	OVER-RUNS				
1	Condenser Replacement/Amertap	23,500,000			Increased work scope definition: heavy haul, handling. Increased scope, Amertap, cathodic protection, Bechtel indirects
2	Project Support - FPL Project Management Services	19,624,800			Original estimate based on preliminary staffing plan (5.5% of total cost) 62 FTEs
3	HP Turbine Siemens Alliance - Open/Close Cost	0			Not included in turbine scope estimate
4	Generator - Rotor Replace Open and Close	7,000,000			Not included in generator rew ind dollars
5	Project Support - 5 FPL Home Office	4,368,000			Original estimate based on preliminary implementation staffing plan, forecast is combined support
6	Generator - Stator Rew ind	7,000,000			Add'l individual Siemens tasks w rapped into one project (H2 cooler, CT's, bushings, rew ind)
7	Replace 2 HP FW Htrs - #6 (4 Total For 2 Units)	1,650,000			Increased work based on detailed scope, Bechtel indirects
8	Replace 2 HP FW Htrs - #5 (4 Total For 2 Units)	1,650,000			Increased work based on detailed scope, Bechtel indirects
9	Install Condensate Pumps - Replace Internals	1,800,000			Mid Course Scope Review - Added additional work for 3-pump operation.
10	Allow ance for Additional Cooling Mods to TPCW/ICW	1,500,000			Scope grow th - Hx Rplcmt vs isolation valves
11	BOP Instrumentation & Control Setpoint, Rescaling & Hardw are Mo	210,000			Increased work scope due to better scope definition
12	Allow ance For Replacement Of Gravity Drain Piping - #5 Heater	1,162,400			Increased work based on detailed field w alkdow ns
13	Main Steam Piping Support Mods And / Or New Supports	350,000			Increased scope due to added supports
14	Add New Fast closing FW Isolation Valves Outside Containment	6,000,000			Scope changed due to different valve type
15	Add FW Htr # 5 & # 6 Digital Level Controls	2,640,000			Mid Course Scope Review - Scope reduced but per unit estimate increased
16	Implement LEFM Check Plus MUR	3,100,000			Increased work based on detailed field w alkdow ns
17	Upgrade MSIV Internals	150,000			Implementation costs
18	TOTAL	\$ 81,705,200	\$ 255,056,832	-\$170,359,632	
	UNDER-RUNS				
19	Containment Cooling Mods - Chilled Water (NCC's)	5,500,000			Allocated to other Mods
20	Main Steam Safety Valve / Piping Modification	700,000			Conservative original estimate based on worst case scope
21	Alternate Spent Fuel Cooling System	3,900,000			
22	TOTAL	10,100,000			



III. Implementation - Line by Line

	DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
	SCOPE INCREASES				
1	Allowance for MSR replacement	6,860,000			Increased work due to drain tank additions, height elevation change and large bore pipe
2	Replace FAC-identified Piping	2,200,000			Low original estimate based on Shaw recommended scope, Bechtel indirects
3	Training & Procedures	0			Specific item not included in Shaw's base scope
4	Modify The Iso Phase Bus Duct Cooling System	390,000			Scope evolution and increased cost to implement duct replacement vs. coolers
5	Replace The Main Transformers	2,044,200			Total contracted cost for cooler replacement
6	O&M	0			Anticipated material write-offs
7	Heater Drain Tank Alternate Drains	0			Additional work required
8	General Conditions (Env. Permitting, Other)	0			Scope evolution
9	Turbine Gantry Crane scoping study	0			New scope for mission critical
10	Turbine TAPS	0			New scope for turbine performance testing
11	Steam Dump Valves/piping Modifications	80,000			Increased work due to better scope definition
12	Modifications for AST	700,000			New LAR scope: Control room ventilation, NaTB Baskets (vs. Chemical injection)
13	Replace normal and emergency heater drain valves	650,100			Implementation costs
14	New turbine control DEH/EHC	5,380,000			Implementation costs: includes capital spare replacement components not in base scope
15	Outage Extension cost	18,000,000			Trued up for actual outage duration
16	FW Regulating Valve (FRV) Trim Replacement	150,000			Implementation cost
17	Steam Generator Moisture Carry over (erosion / corrosion degraded)	21,000,000			Bechtel support of Westinghouse
18	TOTAL	\$57,454,300	\$144,987,559	-\$87,533,259	
	SCOPE DELETIONS				
19	24 Month Fuel Cycle	2,000,000			Scope decrease based on evaluation
20	Replace 2 LP FW Htrs - #3 (4 Total For 2 Units)	1,650,000			Mid Cycle scope review reductions
21	Replace 2 LP FW Htrs - #4 (4 Total For 2 Units)	1,650,000			Mid Cycle scope review reductions
22	Pressurizer Loop Seal Removal	2,420,000			Scope decrease based on evaluation
23	Addition of Trim Coolers to Exciter	1,600,000			Scope evolution and distribution into other mod
24	Replace 2 LP FW Htrs - #1 (4 Total For 2 Units)	1,650,000			Mid Cycle scope review reductions
25	Replace 2 LP FW Htrs - #2 (4 Total For 2 Units)	1,650,000			Mid Cycle scope review reductions
26	Cooler Replacement to Support Gen Hydrogen Cooling	800,000			Scope evolution from Shaw evaluation and distribution into other mod
27	FW Pump Thrust Bearings	150,000			Mid Cycle scope review reductions
28	Allowance For New Jet Impingement Shields And / Or Pipe Whip F	125,000			Engineering evaluation
29	Nozzle block and blade modification	12,500,000			Incorporated into turbine work
30	Reactor Vessel upperhead temp conversion CRDM analysis	12,500,000			Engineering evaluation; not required
31	New Turbine High Lift valve Mod (See item 39)	1,640,000			Incorporated into turbine work
32					
33	TOTAL	40,335,000			
34	GRAND TOTAL	189,594,500			

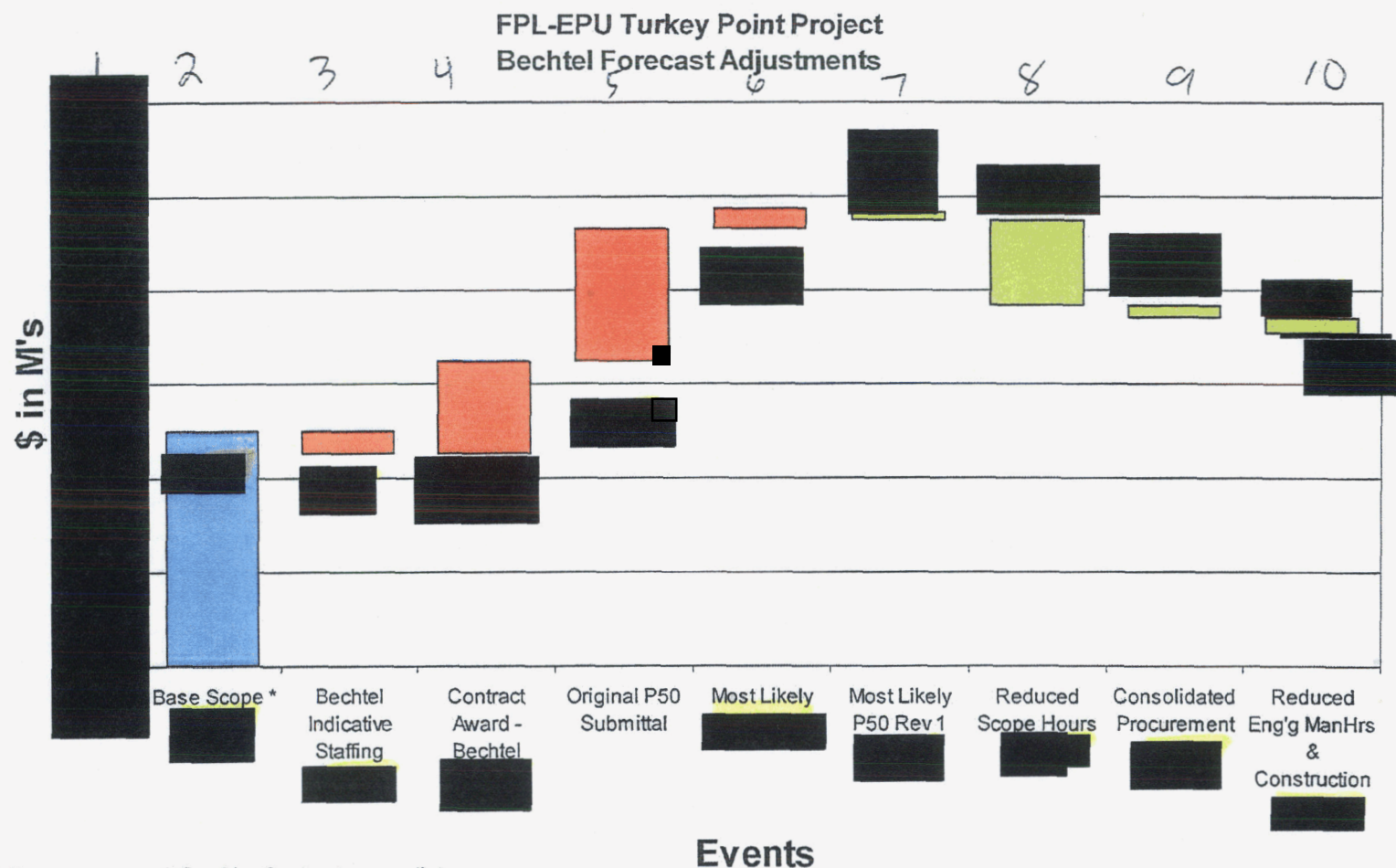
*Totals do not represent all Implementation items



FPL

III. Implementation

Bechtel Proposal Estimate Changes



* Base scope as defined by Contract scope list



III. Implementation

This timeline shows original Bechtel costs and the changes that resulted in a reduced EPC costs

	1	2	3	4	5	6	7	8	9	10
	PTN EPC Scope and Forecast Evolution									
Approx. Date	5/15/2008	Prior to contract (10/15/08)	11/07/08	06/03/09	06/30/09	7/1/2009 ??	07/02/09	07/02/09	07/14/09	
Item	FPL Project Forecast prior to EPC (Shaw Estimates) We only have dollars	FPL Project Forecast based on Bechtel indicative staffing.	Contract Award date. FPL Project Forecast based on Bechtel Manning Submittal	Original Bechtel P50 Submittal	Most likely P50	Same as previous submittal with clarification of scope - \$ 4.765 M	P50 with reduced scope (Changes to MODS scope from Mid-cycle scope review)	P50 with reduced scope (Consolidation of Procurement & Reduction in Management Services)	P50 with reduced scope and reduced Eng. & Craft Hrs after MOD by MOD Estimate Reviews	
2 Total NM Man-hours										
3 Total Craft Hrs										
4 Total Dollars										
5 Scope	Based on 43 MODS per Unit.	33 EPC Modifications Identified in Spec M-156.	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 plus additional scope for AST MOD's and Wraparound MOD's	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD plus additional scope for AST MOD's and Wraparound MOD's	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD plus additional scope for AST MOD's and Wraparound MOD's	Based on 43 revised/eliminated EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD's along with Reduction to Design Engr & Supv. And FE hours hrs. based on Area and NSR strategy.	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD's, Reduction on Design Engr & Start up hrs and removing Management Service	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD's, Reduction on Design Engr & Start up hrs and removing Management Service & reductions due to MOD estimates	

III. Line by Line - Total

This table represents the total variance between the original budget and the current forecast. Further breakdown for LAR, engineering and implementation appear on other slides

	DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
	OVER-RUNS				
1	Condenser Replacement/Amertap	\$54,000,000			Balance of Plant material cost, heavy haul, Amertap replacement, Cathodic protection and Bechtel indirects
2	HP Internals & Rotor/Generator Rewind, Rotor/ Hi-Lift Valves	\$100,062,000			Siemens' proposal greater than original estimate
3	License Amendment Request Engineering, Licensing and Support	\$28,670,000			NSSS/Fuel, BOP Engineering, Licensing, LAR Support, NRC Fees
4	New Turbine Controls DEH/EHC	\$10,480,000			Implementation costs, includes capital spare replacement components - not in base scope
5	Allowance for Additional Cooling Mods to TPCW/ICW	\$3,700,000			Heat Exchanger Costs, Original Scope - Valve installation
6	Install Condensate Pumps - Replace Internals	\$5,000,000			New Pumps, Re-wind Motors, Recirc Piping, HVAC
7	Replace 2 HP FW Htrs - #5 (4 Total For 2 Units)	\$4,950,000			Heater Cost, Increased work based on implementation details
8	Allowance For Replacement Of Gravity Drain Piping - #5 Heater	\$1,612,400			Increased work based on detailed field walkdowns
9	Implement LEFM Check Plus MUR	\$6,000,000			Based on preliminary estimates
10	Replace 2 HP FW Htrs - #6 (4 Total For 2 Units)	\$7,995,000			Based on preliminary estimates
11	Main Steam Piping Support Mods And / Or New Supports	\$850,000			Engineering identified additional supports required
12	BOP Instrumentation & Control Setpoint, Rescaling & Hardware Mo	\$1,265,000			Increased work scope due to better scope definition
13	Add New Fast closing FW Isolation Valves Outside Containment	\$8,580,000			Based on preliminary estimates
14	Add FW Htr # 5 & # 6 Digital Level Controls	\$5,549,200			Reduced scope for LP Heaters
15	Steam Dump Valves/piping Modifications	\$360,000			Increased work scope due to better scope definition
16	Simulator	\$850,000			Reactor Core Simulator model / versus entire EPU parameter change model
17	FW Regulating Valve (FRV) Trim Replacement	\$680,000			Increased material costs
18	"Total Walk-Thru" Over-Runs Sub-Total	\$240,603,600	\$463,174,382	-\$222,570,782	
	UNDER-RUNS				
19	Containment Cooling Mods - Chilled Water (NCC's)	\$10,150,000			Scope reduced from Supplemental Chillers on Aux roof to NCC's
20	Main Steam Safety Valve / Piping Modification	\$1,175,000			Based on preliminary estimates
21	"Total Walk-Thru" Under-Runs Sub-Total	\$11,325,000			

Continued on next page

III. Line by Line - Total

	1	2	3	4	5
	DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
	SCOPE INCREASES				
1	Allow ance for MSR replacement	\$32,360,000			Material Cost, Elevated MSR's- rework Crossover Pipes, drain tank addition
2	Project Support - FPL Project Management Services	\$28,419,300			Original based on preliminary needs assessment (total 5.5% of total cost); based on 52 FTEs
3	Steam Generator Moisture Carry Over (Erosion-Corrosion Degradation)	\$25,000,000			Bechtel support of Westinghouse
4	Plant Craft Support	\$0			Project Services not included in base: disposal, NPS, security, transport etc
5	Replace FAC-Identified Piping	\$6,020,000			Implementation cost, Bechtel indirects
6	Outage Extension Costs	\$18,000,000			Trued up for actual outage durations
7	Modify the Isolated Phase Bus Duct Cooling System	\$1,040,000			Eng determined scope changes from cooler replacement to isophase duct, also includes Generator Neutral work
8	Transfer of work responsibility (Nurses/Ops, etc.)	\$0			Bechtel work transferred to FPL
9	Modifications for AST	\$1,500,000			New LAR scope: Control Room ventilation, NaTB baskets (vs chem. injection)
10	Training & Procedures	\$0			Specific item not included in Shaw's base scope
11	Start-Up	\$0			Specific item not included in Shaw's base scope
12	Heater Drain Tank Alternate Drains	\$0			Additional work required
13	Temp. Facilities	\$210,000			Warehousing and increased Inprocessing not in base
14	AFW Controls	\$0			Additional work required
15	Replace Normal & Emergency Heater Drain Valves	\$2,062,600			Implementation costs
16	O&M	\$0			Material write-off
17	Turbine Gantry Crane scoping study	\$0			Not in original scope - Crane is mission critical
18	Turbine TAPS	\$0			New scope for turbine performance testing
19	Upgrade Internal Trim and Controllers on the MSR Reheater Steam	\$0			Additional work required
20	HVAC CBUS Switchgear (Actuals)	0			Additional work required, then Mid Cycle scope review
21	General Conditions (Env. Permitting, Other)	\$0			Additional work required
22	SGFP - Actual	\$0			Expend engineering dollars prior to mid course scope review
23	"Total Walk-Thru" Scope Increases Sub-Total	\$114,611,900	\$297,207,710	-\$182,595,810	

continued on next page

III. Line by Line - Total

	1	2	3	4	5
	DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
	SCOPE DELETIONS				
i	Rx Vessel Upper Head Temp Conver.	\$14,000,000			Engineering Evaluation; not required
2	Replace The Main Transformers	\$18,394,200			Scope reduced from replacement to cooler replacement
3	Addition of Trim Coolers to Exciter	\$4,500,000			Not required due to turbine plant cooling water replacement
4	Alternate SFP Cooling System	\$8,000,000			Reduced cooling capacity for incremental heat load (Risk item)
5	Replace 2 LP FW Htrs - #4 (4 Total For 2 Units)	\$4,950,000			Not required for 3 Condensate Pump option
6	Replace 2 LP FW Htrs - #3 (4 Total For 2 Units)	\$4,950,000			Not required for 3 Condensate Pump option
7	24 Month Fuel Cycle	\$3,000,000			Engineering Evaluation; not required
8	Cooler Replacement to Support Gen Hydrogen Cooling	\$2,800,000			Part of Generator scope
9	Replace 2 LP FW Htrs - #1 (4 Total For 2 Units)	\$5,950,000			interferences
10	Pressurizer Loop Seal Removal	\$3,804,000			Engineering Evaluation; not required
11	Replace 2 LP FW Htrs - #2 (4 Total For 2 Units)	\$4,950,000			Not required for 3 Condensate Pump option
12	FW Pump Thrust Bearings	\$1,200,000			Mid Cycle scope review reductions
13	LP Turbine - Analysis	\$400,000			Engineering Evaluation; not required
14	Allowance For New Jet Impingement Shields And / Or Pipe Whip R	\$375,000			Engineering Evaluation; not required
15	Community Outreach	\$370,000			Mid Cycle scope review reductions
16	Update EQ Qualification	\$250,000			Engineering Evaluation; not required
17	Update Checksum Softw are For FAC	\$100,000			Engineering Evaluation; not required
18	Emergency Containment Filter Removal	\$1,939,000			Mid Cycle scope review reductions (Abandon in place)
19	Upgrade MSIV Internals	\$670,000			Engineering Evaluation; not required
20	Increase Aux FW Pump Capacity & CST Volume	\$300,000			Engineering Evaluation (Risk items to replace rotating element)
21	"Total Walk-Thru" Scope Deletions Sub-Total	\$80,902,200	\$25,407,411	\$55,494,789	
	OTHER				
22	Station Electrical Load Study (ETAP)	\$400,000			
23	Project Support - 5 FPL Home Office	\$6,825,000			
24	Escalation	\$0			Original escalation included in individual line items
25	NSSS Material / Mainstream Check Valve Implementation	\$0			
26	Project Escalation (Shaw)	\$62,008,928			
27	Project Contingency (Shaw)				
28	"Total Walk-Thru" Other Sub-Total	\$301,738,410	\$36,827,649	\$264,910,761	
29	TOTAL EPU PTN PROJECT COSTS	\$749,181,110	\$832,585,838	-\$83,404,728	

REDACTED

POD 31
Pages 168-171

III. Risk and Mitigation

- 1 • Undefined Scope in Formal Analysis [REDACTED]
- 2 • High Risks accounts for [REDACTED] of weighted Risks
3 Exposure
- 4 • Medium Risks accounts for [REDACTED] of weighted Risk
5 exposure

IV. NRC Schedule



IV. NRC Schedule

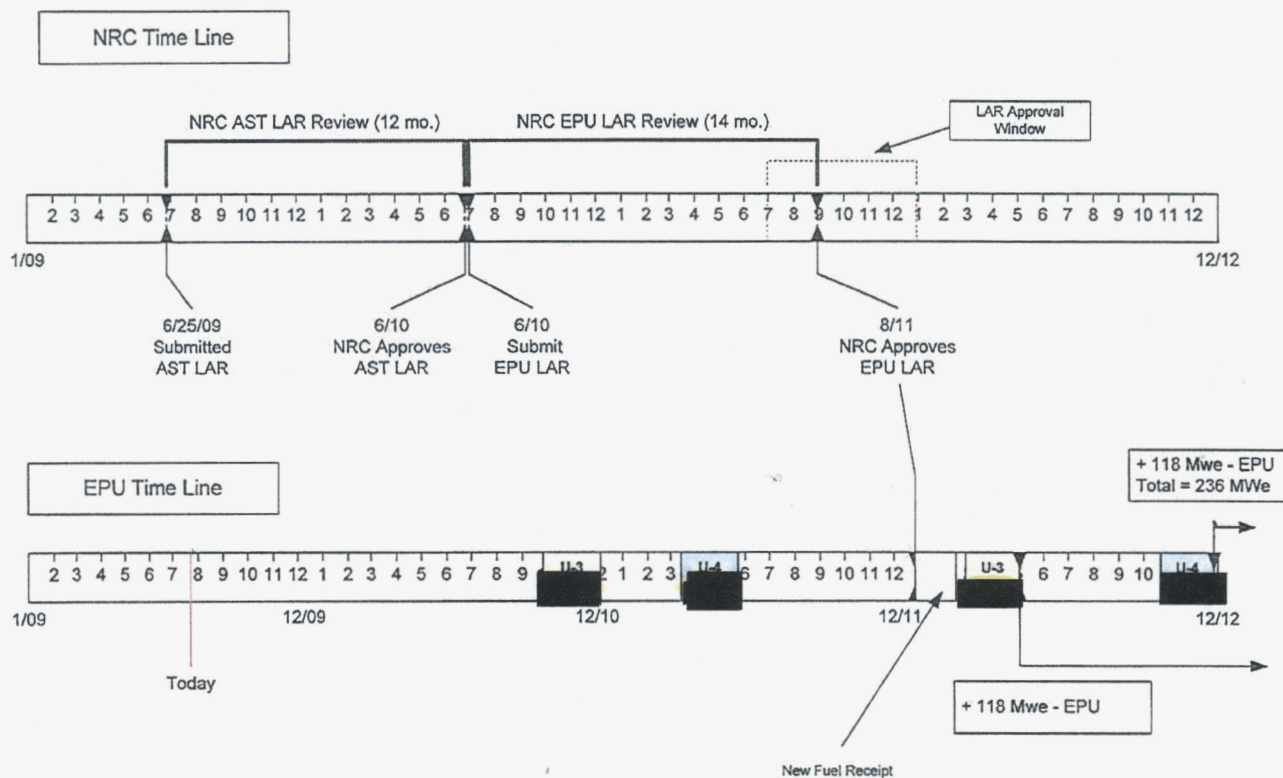
NRC LAR Schedule

- **AST LAR submitted 6/25/09**
 - Staff acceptance review in progress
 - Responding to two requests
 - 12 month review projected

- **EPU LAR Planned submittal in June 2010**
 - 14 month review period projected

IV. NRC Schedule

Turkey Point Timeline



V. Lessons Learned

- **Scope Control**
 - Did not use formal process such as Plant Review Board to approve scope growth during design process prior to 01/01/09
 - No formal cost benefit was performed on design changes
 - Changes were made late in the designs (design evolution)
- **Cost Reporting and Early Warning**
 - No contingency established of emergent items or increased scope
 - Must include contingency based on level of risk/progress on project
 - Key Performance Indicators not established early
 - Individual Modifications Budgets and Site Department budgets not established

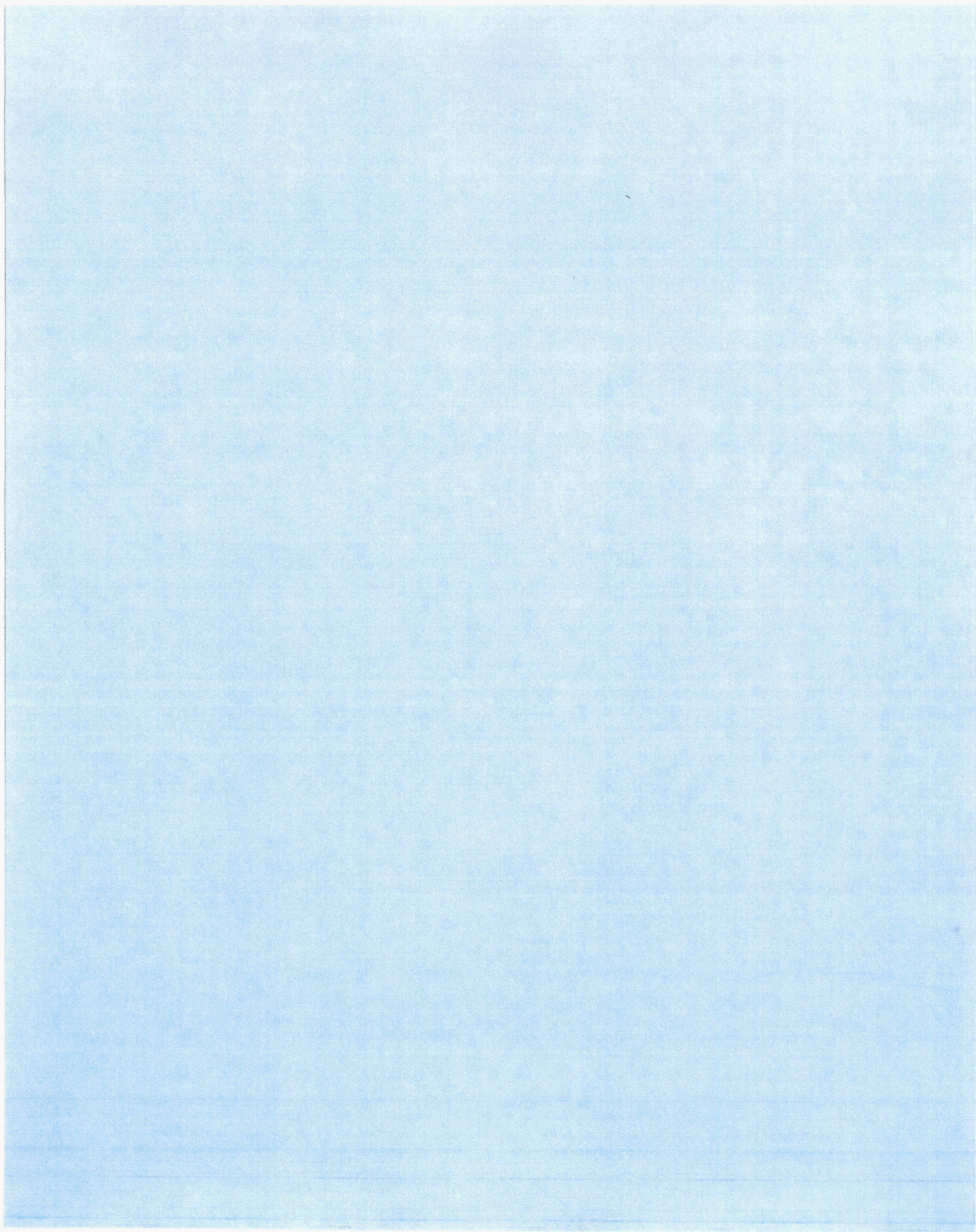
V. Lessons Learned

- **Contingency and Risk Assessment**
 - Did not assess the licensing risks and establish contingency that was aligned to the licensing risk
 - Did not look at individual projects risks early such as Feedwater heaters
 - Need a better way to assess risks to material costs increases
 - Under estimated the risk and costs associated with the fast track project concept
 - Did not assess the regulatory risk of the linked LAR to AST

- **NRC Licensing Costs**
 - Need a formal licensing risk analysis of the LAR and related issues
 - Did not assess the risk of legacy plant issues associated with LAR analysis
 - Need to follow industry trends for estimating licensing costs and factor in plant specific scope considerations

V. Lessons Learned

- **Fast Track Modification Control**
 - Looked at the project only from a high level risk assessment
 - Should have done a more detailed risk assessment when establishing the budget
 - Did not assess the quality of original site staffing due to fast tracking





Extended Power Upgrades Executive Steering Committee Current Project Overview

Terry Jones

Vice President, Nuclear Power Upgrades

September 9, 2009

Agenda

- Organization Structure
- Project Assessment

Previous EPU centralized management has been reorganized to provide for decentralized functions and a core lead team. Common issues among all three sites will be leveraged as required (e.g. Siemens).

EPU Lead Team

- Licensing
- Midwest Owner
- South Owner
- Project Controls
- Regulatory Recovery
- Q A (matrix)

Reorganization will result in clearer lines of accountability and more efficient and timely decisions.

Site project teams, under the project director, have greater accountability/responsibility.

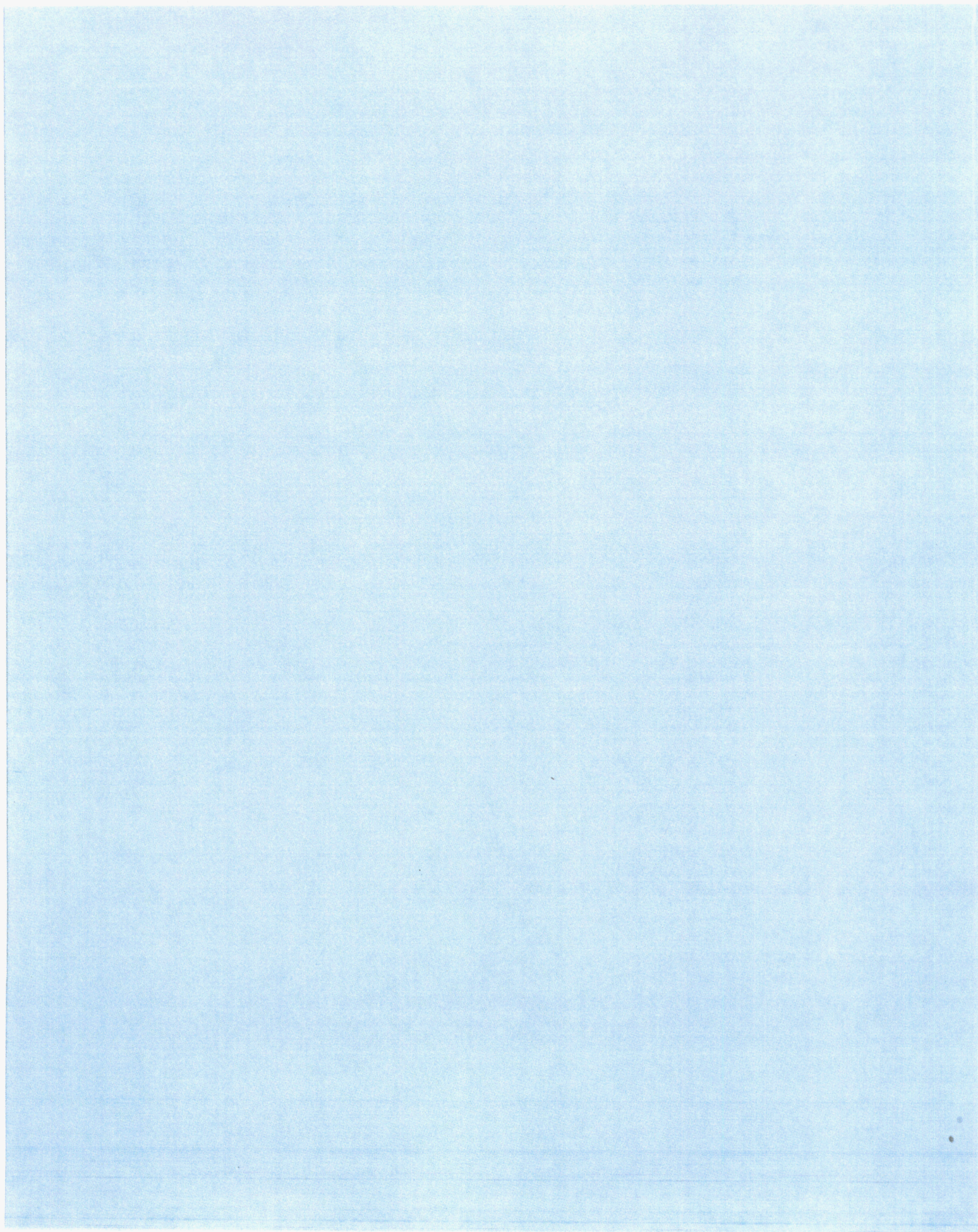
Site Project Team

- Engineering – Now reports to site director
- Project Manager – Responsible for start up and site interface in addition to project managers and construction supervisors
- Contract Administration – Responsible for compliance matrix
- LAR Manager
- Project Controls (matrix)
- Q A (matrix)
- ISC (matrix)

Site project teams have more direct control of their project.

Actions were taken to access the organization, contract management as well as going forward exposures.

- **Assessed each project**
- **Determined going forward commitments and risk**
- **Determined strategy to accelerate the engineering for project neutral cost**
- **Flesh out the Short/Long outage plan in regards to planned modifications**
- **Reevaluating scopes and contracts to bring cost certainty**





Extended Power Upgrades Executive Steering Committee St. Lucie and Turkey Point

Steve Reuwer

EPU Implementation Owner - South

September 9, 2009

Agenda

- Status
- Costs
- Other Issues
- Next Steps
- Appendix



Status

Comprehensive review of EPU project has identified increased potential scope and risks, resulting in a net cost increase. LAR schedule is slipping.

- **July 25th EPU estimate increased to \$1,850M from \$1,706M for the Florida Units (PSL & PTN)**
- **LAR schedule slipping due to less than adequate qualified resources**
- **Implemented Outage Optimization Plan**
- **Established new EPU organization**
 - **Filling key critical vacancies**

Outage schedule has been optimized to accommodate LAR schedule, levelize resources and provide proper planning

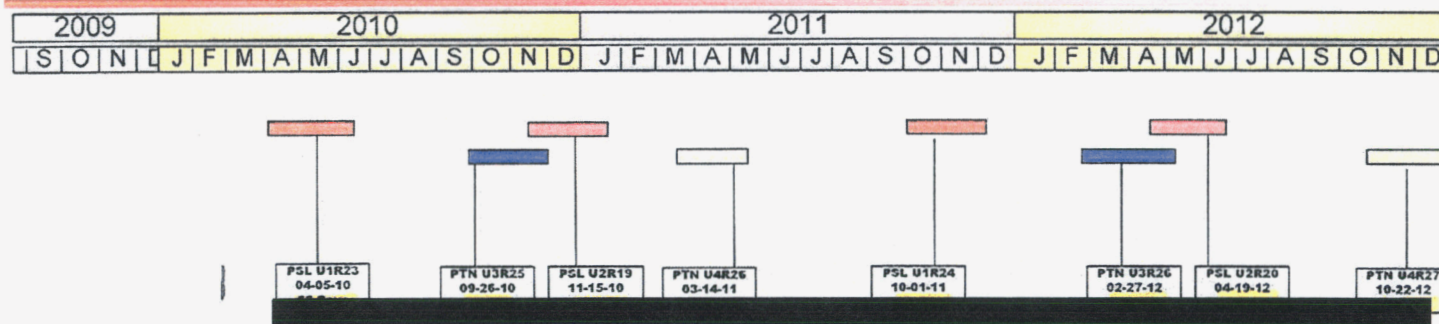
Advantages

- Results in fewer Outage days
- Better aligned with station milestones
- Timely material delivery and reduced expediting costs
- Additional time for Engineering will facilitate more complete design prior to execution
- No overlapping Outages between PSL and PTN

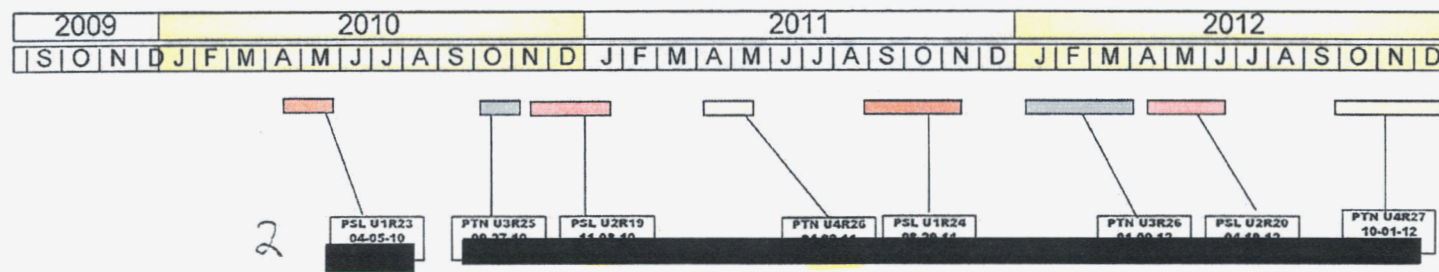
Outage schedule has been optimized and results in 37 fewer total outage days for a total of \$33 Million savings

Outage Optimization Plan

Previous Extended Power Uprate Refueling Outage Plan - PSL / PTN



New Extended Power Uprate Refueling Outage Plan - PSL / PTN



LAR Engineering continues to identify new work which impacts schedule and costs. Reassessment of current scope may further impact the LAR schedule and costs

- **Additional potential scope from LAR analysis includes:**
 - PSL: Steam Dumps, Hot Leg Injection, Containment purge system, Safety Injection Tanks, Control Room A/C
 - » Rough Order of Magnitude \$40M
 - PTN: Component Cooling Water upgrade, Control Room Ventilation intake, Pressurizer pressure instrumentation, Reactor Coolant System (RCS) hot leg injection, Boric Acid Storage Tank Heat Tracing –
 - » Rough Order of magnitude \$25M

- **Scope changes that could reset the LAR clock includes:**
 - Condenser and Moisture Carry Over (MCO), in or out, affects multiple LAR analyses and calculations that are already completed (i.e., rework!)

Last Florida Unit LAR submittal is expected June 2010



Cost

At this time approximately 30% of total project costs have a high certainty and a large portion of the scope is undefined

Cost Estimates by Area

	PSL ORIGINAL	PSL JULY 09 ESTIMATE	PSL AUGUST FORECAST	PTN ORIGINAL	PTN JULY 09 ESTIMATE	PTN AUGUST FORECAST
LAR	\$45.5	\$72.6	\$72.6	\$28.7	\$62.6	\$62.6
ENGINEERING	\$18.7	\$36.2	\$39.6	\$18.5	\$67.8	\$65.8
MATERIALS	\$220.9	\$255.1	\$256.5	\$201.0	\$237.6	\$236.0
IMPLEMENTATION	\$119.7	\$360.4	\$346.9	\$192.0	\$438.6	\$474.8
SCOPE NOT DEFINED	\$182.1	\$60.0		\$245.9	\$77.2	
ESCALATION	\$69.5	\$11.6	\$13.4	\$63.1	\$26.0	\$25.3
RISK			\$20.7			\$61.1
CONTINGENCY			\$81.5			\$93.4
TOTAL	\$656.4	\$795.9	\$831.2	\$749.2	\$909.8	\$1,019.0

Team is working to define scope and quantify remaining costs and risks

Cost certainty is driven by LAR, engineering completion, material purchase and implementation contract

Current status of Cost Certainty

	<u>PSL</u>	<u>PTN</u>
LAR Engineering	80%	60%
Mod Engineering	20%	20%
Material	80%	80%
Implementation	<u>10%</u>	<u>10%</u>
Approximate Total (weighted)	36%	28%

Engineering and Design will complete in
December 2010 improving cost certainty

The team is clarifying the remaining scope, quantifying risks and completing engineering (12/10) to improve certainty to project costs

Actions to bring more certainty to costs

- Define and reevaluating scope
- Understand each modification for complete scope and design certainty
- Accelerating Modification Engineering and estimating implementation costs
- Validation of estimates by Engineering and Construction Department is proceeding (refer to appendix pg. 54 for details)

Execution Costs will be challenged by a 3rd party review of Turkey Point (PTN) EPU costs

- Current Turkey Point execution plan uses Bechtel as EPC Contractor
- Third party evaluation planned to be completed in the Fourth Quarter 2009
- If the evaluation and review results in the need to change vendors, execution with a new vendor could start in the 1st quarter 2010
- Reference page 57 for details

Difficulties with changing vendors are likely with this approach

CONFIDENTIAL



Other Issues

Proprietary & Confidential Business Information

196

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There are significant issues we are addressing

- **New organizational structure has been defined and implementation is in progress**
 - New structure is decentralized
 - Some critical key positions remain unfilled
- **Cost certainty will increase as engineering approaches 90% for individual modifications**
- **Efforts to reduce costs by reevaluating scope may potentially impact LAR schedule and costs**
 - e.g., Evaluation of Condenser Modification, Moisture Carry Over (MCO), etc.
- **Cost certainty for Bechtel management services should be achieved by 12/09**
- **Challenges with Turkey Point and St. Lucie EPU LAR submittal schedule (reference pages 24-28 for additional details)**



Next Steps

Continuing to drive to cost and execution certainty through proper planning and target pricing in contracts

- Third party review of Engineering and Implementation for PTN
- Revise and implement EPU Governance and Oversight Protocol
- Establish certainty in Bechtel cost through target pricing
- Establish target pricing for Bechtel Spring Outage and Management services
- LAR reevaluation / Staffing



Appendix

Plans and Targets
Project Dashboard
Project Timeline
Risk Exposure and Mitigation
Bechtel Costs
Vendor Renegotiation
Siemens and related Turbine Costs
Other Action Items
Contingency and Risk analysis

Plans and Targets – Forecast changed based on Outage optimization plan

1 2 ³
St. Lucie 4 5

	PROFORMA		FORECAST	
	U-1	U-2	U-1	U-2
LAR Submittal	9/01/09	9/01/09	11/30/09	1/31/10
1 st Outage	4/1/2010	11/1/2010	4/5/2010	11/8/2010
Duration				
2 nd Outage	10/1/2011	5/1/2012	8/29/2011	4/19/2012
Duration				
In Service Date	October 2011	April 2012	November 2011	June 2012
MWE	103	103	129 ⁵	136 ⁵

Notes

- ¹ Outage durations driven by non-EPU Alloy 600 repairs
- ² Outage duration driven by Generator rewind and LP turbine replacement
- ³ Outage duration driven by HP & LP Turbine and Generator rewind
- ⁴ Outage duration driven by HP turbine
- ⁵ MWe gross based on Siemens heat balance (contract target)

Plans and Targets – Forecast changed based on Outage optimization plan

Turkey Point

	1	2	3	4	5
		PROFORMA		FORECAST	
		U-3	U-4	U-3	U-4
LAR Submittal		9/01/09	9/01/09	6/30/10 ¹	6/30/10 ¹
1 st Outage		9/26/2010	4/25/2011	9/27/2010	3/19/2011
Duration					
2 nd Outage		3/5/2012	10/22/2012	1/09/2012	10/01/2012
Duration					
In Service Date		April 2012	October 2012	April 2012	December 2012
MWE		104	104	118 ⁴	118 ⁴

Notes

¹ AST LAR must be approved prior to submittal of EPU LAR

² Outage duration driven non-EPU S/G ECT

³ Outage duration driven by: HP Turbine, Generator rewind, Condenser replacement

⁴ MWe gross based on Siemens heat balance (contract target)

Project Dashboard- PSL

	LAR Submittals	Mod Packages (9 month milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	U1 Target is 11/30/09 U1 Target is 01/15/09 FPL resources challenged to meet targets	Meeting Station Milestones	Meeting Station Milestones	U-1 Spring 2010 Planned - XXXXXXXXXX (CP- Alloy 600 repairs)
Contracts	Major Contracts issued for LAR development	Meeting Station Milestones	Meeting station Milestones	Meeting Station Milestones Contract issued to Bechtel
Staffing & Vendor Support	WEC resources less challenged with revised submittal plan Shaw resources at critical stage FPL resources do not support targets; efforts to assign short term assistance in progress; U2 FPL work largely on hold	No issues	Bechtel staffing to an approved plan Increased staffing required to meet certainty goals	Implementation team on site and planning milestones met
Other Issues or Challenges	U1: many technical issues in resolution process – late discovery may drive mod scope U-2: many technical issues in resolution process; potential for additional. Will drive some mod scope	Rod Control Phase 2 –4 Under evaluation	Core team identified; staffing after Outage	Generator Hot Spots could extend Rewinds
Costs	2009 Budget for Engineering & Staff: \$ 54.5 MM 2009 YTD Budget for Engineering & Staff: \$ 36.7 MM 2009 YTD Actual for Engineering & Staff: \$ 31.3 MM 2009 Forecast for Engineering & Staff: \$ 52.2 MM		2009 Budget for Mtls & Implementation: \$88.6 MM 2009 YTD Budget Mtls & Implementation: \$40.4 MM 2009 YTD Actual for Mtls & Implementation: \$27.8 MM 2009 Forecast for Mtls & Implementation: \$73.6MM	

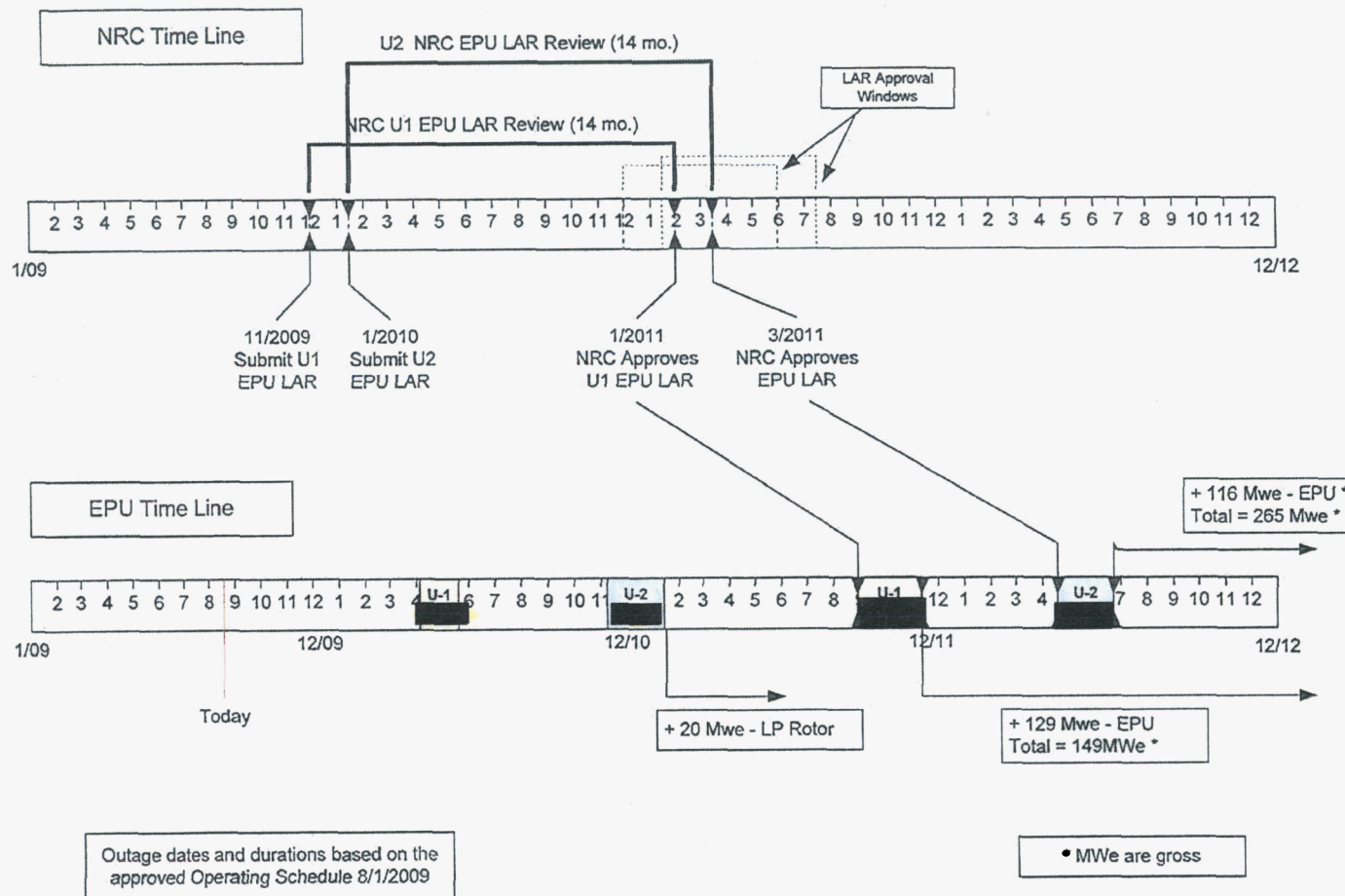


Project Dashboard- PTN

	LAR Submittals	Mod Packages (9 Month Milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	AST LAR submitted	7 Mods with up to 40 Days negative float to T- 9 Station Milestone (Due to Steam Generator Feedwater flow ananlysis)	No Negative float	No Negative Float U-3 Fall 2010 - [REDACTED] (CP: ECT of S/Gs)
	EPU LAR schedule milestone challenged to submit before June 30, 2010. Need earlier submittal due to Outage pull-up. Recovery plan being developed.			
Contracts	Major Contracts issued for LAR development	Contracts issued for Mod Engineering	Need to finalize TEi deliverables on FW heaters. Long lead material contracts for DEHC/ TPCW/ SGFP/ Condensate Pumps/ FW Reg Valve	Contract issued to Bechtel
Staffing & Vendor Support	- Weak lead team. FPL staffing inadequate to support work. Recovery plan in development. - WEC resources impacted by Point Beach needs causing delays. - Shaw resources impacted by Point Beach needs and marginal to support overall workload	Working to fill critical key positions	Bechtel staffing to an approved plan	Implementation team on site and planning milestones met
Other Issues or Challenges	- Numerous technical issues need several resolution paths. - Scope changes impact LAR analyses - rework - Delay of LAR and moving up of Outage could impact timing and decisions regarding high enriched fuel	CD/FW Hydraulic flow analysis by Shaw being re-performed - may result in negative impact to LAR analysis and add scope. TPCW /ICW/CCW Cooling analysis	Working with plant and interface issues	Short - Long Outage Concept accepted, reconfiguring scope to the respective Outage
Costs	2009 Budget for Engineering & Staff: \$56.5 MM 2009 YTD Budget for Engineering & Staff: \$35.0 MM 2009 YTD Actual for Engineering and Staff: \$31.8 MM 2009 Forecast for Engineering and Staff: \$47.7MM		2009 Budget for Mtis & Implementation: \$79.2MM 2009 YTD Budget for Mtis & Imp: \$53.1MM 2009 YTD Actual for Mtis & Imp: \$39.7MM 2009 Forecast for Mtis & Imp: \$91.5MM	

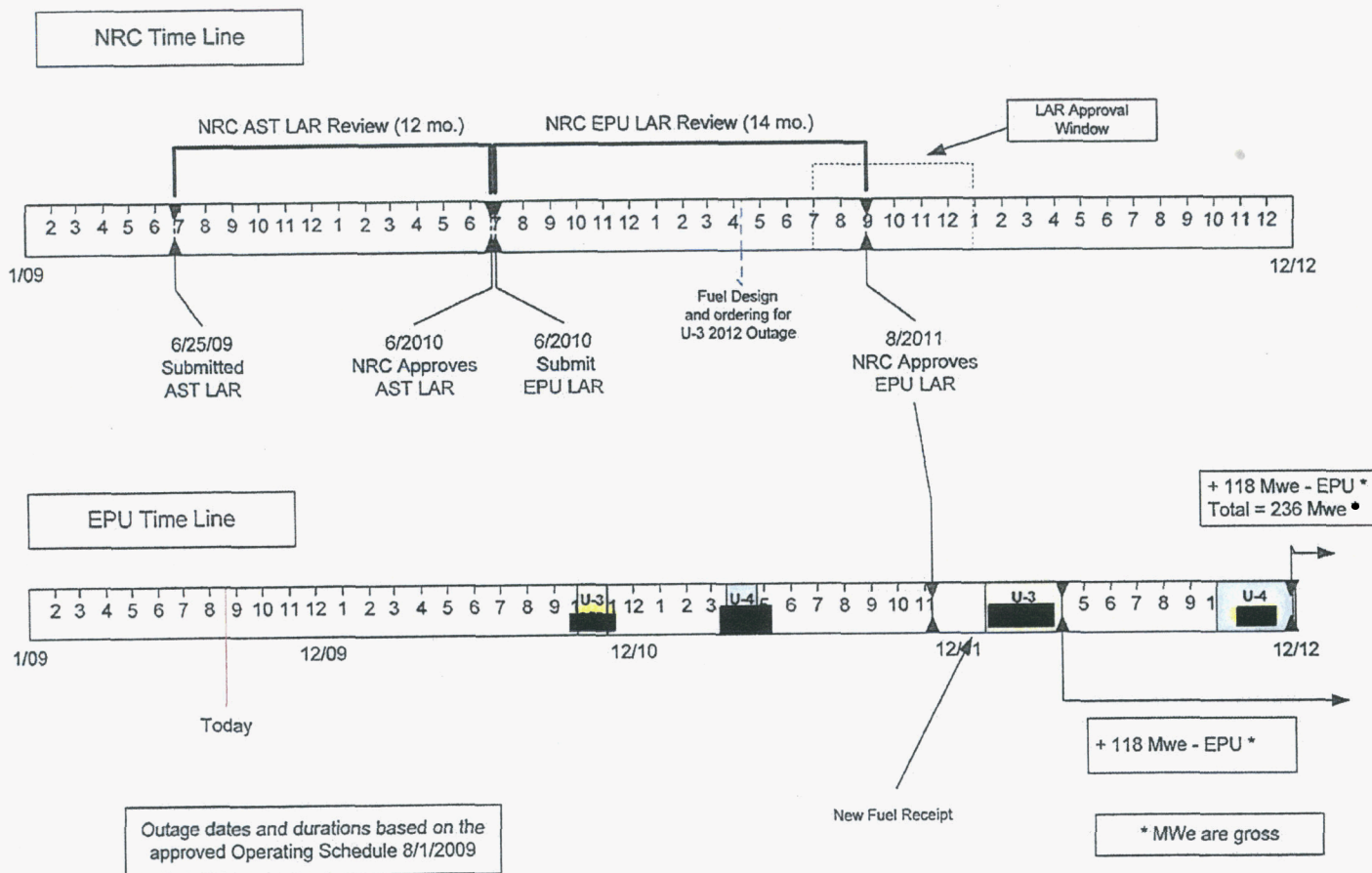
Project Timeline adjusted with Outage Optimization

St. Lucie Timeline



Project Timeline adjusted with Outage Optimization

Turkey Point Timeline



EPU LAR – Significant challenges being addressed

PSL - 1 Technical Challenges

- FPL & Shaw Challenged to meet current schedules
- Unit 1 Technical Issues being resolved, may impact mod scope and/or LAR schedule
 - Leading Edge Flow Meter (LEFM) initial uncertainty analysis does not meet 0.3% assumed
 - Main Steam Safety Valves (MSSV) Lifting during Normal Plant Trips
 - PRA Evaluation – Risk improvement mods must be identified and selected - schedule challenge
 - Maximum Containment Spray flow – schedule challenge
 - Assessment of Impacts to electrical equipment pending
 - Small Break Loss of Coolant Accident (SBLOCA) error – Areva reworking analysis (under warranty)
 - Pressurizer spray nozzle loading evaluation – reduction in allowable cycles –should be no impact
 - High Energy Line Break (HELB) outside containment – Environmental Qualification (EQ) inputs

EPU LAR – Significant challenges being addressed (continued)

PSL - 1 Technical Challenges

- **Unit 1 Technical Issues being resolved, may impact mod scope and/or LAR schedule - continued**
 - Reactor Vessel supports impacts for temperature changes, thermal and gamma heating evaluation
 - NAI dose analysis update – Schedule challenge
 - Appendix R Operator response time analysis – SG dryout challenge
 - Station Blackout (SBO) for 1 hour – HVAC evaluation

EPU LAR – Significant challenges being addressed (continued)

PSL- 2 Technical Challenges

- **Unit 2 Technical Issues being resolved**
 - FPL and Shaw activities largely on hold to support Unit 1 LAR
 - MSSV Lifting during Normal Plant Trips
 - PRA Evaluation – Risk improvement mods must be identified
 - Containment Spray high flow issue
 - ECCS Fathom model update
 - Mass and Energy releases
 - Large Break LOCA (LBLOCA)
 - Electrical equipment effects
 - Component Cooling Water (CCW) temperature limitation / stress analysis
 - Control Room A/C must be modified to alleviate CCW temperature Limits
 - CCW temperature increase will cause support modification

EPU LAR – Significant challenges being addressed (continued)

PTN Technical Challenges

- **EPU LAR Schedule challenges**
 - FPL, Westinghouse and Shaw resources challenged to meet current schedule
 - Modification Scope changes impacting LAR analysis, modification scope and certainty (Condenser, MCO, Steam Generator feed pumps) – 3 months if no further scope changes
 - Available schedule float reduced due to U-3 2012 Outage moving up (long/short Outages)
 - LAR required to load high enriched fuel into Spent Fuel Pool (SFP); will need to decide on fuel design and ordering of fuel in Spring 2011 based on progress of LAR
 - PRA analysis is sequential to PSL1 and PSL2
 - Areva Control Rod Drive Mechanism (CRDM) Analysis late turn-on and deliverables
 - Determining if evaluation of Reactor Coolant System (RCS) branch connections for LOCA displacements is required – may result in branch connection support modifications, delaying WEC and Shaw
 - Appendix R – new Safe Shutdown analysis is due 12/08 – must identify Operator action timing and evaluate EPU impact – Shaw and WEC impacted

EPU LAR – Significant challenges being addressed (continued)

PTN Technical Challenges

- **Technical Challenges**

- CCW System temperature limits will be exceeded - Evaluating Modification Options
- Evaluating Hot Leg Injection flow path for long term cooling and preclude boric acid precipitation – requires modification
- Long term Containment analysis – challenge to maintain 30 day design basis
- Intake Cooling Water (ICW)/CCW thermal-hydraulic analysis margin issues
- Existing feed pump flow degradation – evaluating alternatives to modify
- ECCS – Justify acceptability of sump strainer losses based on NRC sump strainer agreements
- Perform secondary plant dynamic analysis to ensure adequate margins
- Reconstitute basis for letdown line HELB analysis
- Reconstitute Aux Building post-LOCA heat-up profile, verify adequate ventilation
- Resolve Boric Acid mixing tank limitations with maximum negative Moderator Temperature Coefficient (MTC) design criteria
- Address Emergency Diesel Generator (EDG) over/under frequency issues with degraded voltage for electrical equipment

REDACTED

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Pages 212-217

Breakdown of Bechtel spend to date

Bechtel Spend to Date Breakdown Summary (as of July 2009)		
①		② PSL
		③ PTN
1	Management Cost (Home Office & FNM)	
2	Design Engineering (Units 3 & 4)	
3	Implementation Cost (FE, Craft Sup., QC, Weld., Startup, PC, Admin)	
4	Non Labor Cost (Travel, Per Diem, Mob/Demob)	
5	Project Fee	
6	Total Project Cost to Date	

ISC Has identified and contacted Vendors to renegotiate costs

- Identified target vendor group based on percent completed, value, commodity component
- Began negotiations with selected vendors (TEi and Siemens)
- Target completion 9/30/2009

Approximately 60% of the Siemens labor costs and Bechtel Siemens support cost are firm

Siemens EPU Costs		
①		② PSL
		③ PTN
1	Bechtel (Wrap Around Mod)	
2	Siemens Open/Close	
3	Siemens (FPL Materials)	
4	Siemens Implementation	
5	Bechtel Support	
6	Total	

Engage PGD and evaluate Siemens labor costs and Bechtel Siemens support cost

**Main Generator Rewind Cost Comparison
St. Lucie – Manatee 1 & 2 – Turkey Point 3**

- **St. Lucie Rewind pricing compared favorably to Manatee pricing**
- **Open/Close estimate consistent with past efforts at Turkey Point**
- **Major Cost Drivers Identified**
- **Improvement Opportunities Identified**

PGD and St. Lucie cost compare favorably and we understand the cost differences

Major Cost Drivers

- 1 • [REDACTED] - St. Lucie Upgrade requires several major
2 modifications not required for the Manatee generators
- 3 • [REDACTED] - Use of Siemens for disassembly-reassembly
4 of the generators
- 5 • [REDACTED] - Project Support costs
- 6 • [REDACTED] - Use of Siemens for Project Management,
7 Mobilization
- 8 • [REDACTED] - Nuclear site access In Processing

Improvement opportunities have been identified to reduce turbine related costs

- Scrub modifications/maintenance work for proper accounting
- Change to outage scopes will provide opportunity to optimize resource utilization and reduce open/close cost
- Integrate support costs to maximize utilization by the project.

1 **Determined write-off costs of Siemens exciter work – [REDACTED]**

- 2 • **Refurbished System spare exciter to be provided in**
3 **exchange for previous termination costs**
- 4 • **Existing exciter scope of Siemens contracts (4 rewinds**
5 **totaling approx. [REDACTED] revised to reflect one rewind**
6 **(approx. [REDACTED])**
- 7 • **Results in net Contract Reduction for Florida units of**
8 **approximately [REDACTED]**
- 9 • **Working with Nuclear Business Operations to evaluate**
10 **regulatory impact of spare exciter**

Bechtel scope adds, reductions and transfers by costs

St. Lucie

① Event	② Dollar Change	③ Comment
Bechtel Indicative Staffing Bid Estimate		Original Scope "19 Mods" during Bid Evaluation Phase
Final Contracted Scope & scope Clarifications		Scope Increase/Scope Clarification (34 Mods) - 19 Modifications at Contract signing (Nov 2008) - Approx 15 new mod's/scope changes during six months
Mid-Course Review		Scope / Material refinement and Mid-Course Review – (40 Mods)
Work Transfer		Transfer of Work to FPL Responsibility - Start-up, M&TE, Valves, I&C, Procedures and Nurses
Overhead Refinement		Bechtel Optimization - Reduced Field Non-Manual, Home Office, Craft Ramp
		Latest Bechtel P50 Estimate – July 23, 2009

(Current estimate amount)

Bechtel scope adds, reductions and transfers by costs (continued)

Turkey Point

Event	Dollar Change	Comment
Bechtel Indicative Staffing Bid Estimate		Original Scope "33 Mods" during Bid Evaluation Phase
Final Contracted Scope & scope Clarifications (additions)		Scope Increase/Scope Clarification - 43 Modifications at Contract signing (Nov 2008) - Approx 40 new mod's/scope changes during six months of 2009
Mid-Course Review		Scope Decreases due to Mid-Course Review - Deleted 9 Work Scopes
Work Transfer		Transfer of Work to FPL Responsibility - Start-up, Valves, I&C and Nurses
Overhead Refinement		Bechtel Optimization - Reduced Field Non-Manual, Home Office, Craft Ramp
		Latest Bechtel P50 Estimate – July 23, 2009

(Current estimate amount)

Have evaluated reducing integration and total overhead costs by 20% and have identified some savings

- Outage optimization has allowed for delaying addition of incremental outage staff resulting in a reduction

1 - [REDACTED] (PSL)

2 - [REDACTED] (PTN)

Determined the termination cost for each order on hold

- **Saint Lucie**

- Circ water pump

- 1 -- Termination Cost - [REDACTED]

- 2 -- Total Contract Value [REDACTED]

- 6.9 KV Cabinet Mod

- 3 -- Termination Cost - [REDACTED]

- 4 -- Total Contract Value - [REDACTED]

- **Turkey Point**

- FW Heaters

- 5 -- Termination Cost negotiated from [REDACTED]

- 6 -- Total Contract Value - [REDACTED]

Reviewed scope adds to determine if they should be CAPEX

- **St. Lucie**

- Scope additions have been reviewed and formal Nuclear Cost Recovery justification forms have been submitted as part of the scope change process.
 - Scope additions currently under review by the EPU Oversight Board are:
 - Rod Control System Upgrade.
 - Condensate Pump Refurbishment.
 - Scope additions determined CAPEX as a result of review are:
 - Circulating Water Pump Refurbishment.
 - Condensate Pump re-powering to 6.9KV.
 - DEH Constant Pressure Pumps.

- **Turkey Point**

- None at this time

Optimize Engineering cost and perform as soon as possible to increase certainty by 6/2010

- Completion of all Engineering Design Packages by June of 2010 was not practical due to the number of resources required to implement.
- New plan based on outage optimization for completion of design to meet T-9 milestones has been established.
 - Allows for project cost certainty by Dec. 2010.
 - Optimizes Engineering cost and resources.

Recommendation: Complete Engineering for lead unit by 12/2010

Model cash & savings flow for short and long outage including pull up of engineering design

	PSL	PTN
Outage Savings		
Staffing		
Bechtel Savings		
Total		

Obtain re-estimates of where we stand on each project by 10/1 along with proposals to reduce costs; create schedule with milestones to get this done

Evaluating opportunities to reduce project costs

Item	Site	Value	Time
Rod Control to CAPEX	PSL		3 rd Qtr.
Circ. Pump to CAPEX	PSL		3 rd Qtr.
Cond. Pump Material (6.9KV) to CAPEX	PSL		3 rd Qtr.
FAC Piping - Analysis Complete	PTN		3 rd Qtr.
Condenser – Re-evaluating Necessity	PTN		3 rd Qtr.
Steam Generator Moisture Carry Over Testing	PTN		3 rd Qtr.

For short and long outage plan see if short outage can go to Projects to implement

- Each Site has evaluated their short outage scope and have determined Projects would be more cost effective to implement minor mod work and project support activities.
 - such as, temporary power, temporary air, scaffolding, insulation and lagging, water delivery, coatings and tool room.
- Minor mod work
 - PSL : Testing associated with the Iso-phase Bus Duct Cooling.
 - PTN : Inspection of 1-4 Feed Water Heater inspection.

Determine actions to mitigate adverse outage accrual when changing the outage to a short and long outage model

- **2009 Impact**

- 1 – Reserve increased by [REDACTED]
- 2 – Increase included in current O&M forecast
- 3 – Increase covered by additional division reductions

- **2010 Impact**

- 4 – Reserve increased by [REDACTED]
- 5 – Will be included in 2010 budget submission

- **Total Impact**

- 6 – Reserve increased by [REDACTED]

Develop a formal mitigation plan for any work that was deleted from scope and work with Site Engineering to document as needed

St. Lucie

EPU SCOPE DELETIONS - Station Required Actions for Mitigation

Item	Deleted Item Description	Station actions required - Mitigation
1	Add Dedicated power Supply for 1C/2C Condensate Pumps – replace exist 1C/2C 4.16 kV motors, install 6.9kV Switchgear cube and remove transfer switch	None - Not required based on analysis.
2	Main Steam Safety Valve/ Tailpipe Mods	None - Not required based on analysis.
3	Main Steam Safety Valve Orifice Change	None - Not required based on analysis.
4	Replace DEH Constant Pressure Pumps – Replace exist centrifugal pps with constant pressure	Plant pursue mod as planned based on existing CAR 96-132, PC/M # 99115
5	Circulating Water Pp Refurbishments – refurb pumps to original design condition	Plant perform maint per PM schedule
6	Condensate Suction Piping U2 & Strainers	Plant pursue mod under existing CAR 06-007
7	Main Steam ADV Trim Change out	None - Not required based on analysis.
10	Exciter Upgrade / Rewind	Rewind not required for uprate, cooler upgrade remains in scope.
11	Condenser Material Upgrades	Plant pursue repairs as planned based on existing CR's

Develop a formal mitigation plan for any work that was deleted from scope and work with Site Engineering to document as needed

Turkey Point

EPU SCOPE DELETIONS - Station Required Actions for Mitigation		
Item	Deleted Item Description	Station actions required - Mitigation Plan
1	Replace the Feedwater Pumps- no longer required	Eval/ Rebuild Degraded Bearing Temp-Add to wireless monitoring system. Eval Seal Water system-Enhance PDM monitoring plan.
2	Add an Intake Cooling Water System (ICW) booster pump(partial scope reduction as TPCW heat exchangers will be replaced)	TPCW Shell/Tube HX-Alternative flow rate not required
3	Add cooling to the C electrical bus switchgear – no longer required	Not required- No Load Increase (Cond. Pump 2500 HP FW Pump N.C.)
4	Replace feedwater heaters (12/unit) partial reduction – cancel 1-4 hrs	Inspection required-Baseline & periodic (ECT Shell & Tube)
5	Upgrade MSSV outlet Piping	None - Need Hydraulic Analysis complete
6	Upgrade the Actuators to the Atmospheric Dump Valves	None-Still need hydraulic analysis
7	Replace Steam Dump to Condenser Valves – 2/unit	None- Need runback study (Cond., HDP & FW)
8	Upgrade remaining Steam Dump to Condenser Valve internals (2/unit)	None- Need runback study (Cond., HDP & FW)
9	Replace the main Condensers - under consideration	Replace Waterboxes(CAR 05-087), hydrided tubes, increased plugging. Tubesheet Steam Erosion, detailed inspection, plug more tubes /preempt higher impingement forces, replace tubes/tubesheet (esp. Unit 4). Vibration mitigation, cleanliness, effectiveness
10	Replace FAC Identified Piping – Substantial scope change: deletion of 1,2, 5 extraction steam piping and crossunder pipe manway installation	Inspection Plan - Increase inspection frequency
11	Add additional trim coolers for the Generator Exciter – exciter coolers and TPCW heat exchangers being replaced instead	None- Replacing HX with larger capacity
12	Increase AFW Capacity and CST Volume	None- Evaluated as acceptable
13	Replace the 'B' Bus Current Limiting Reactor Coils – no longer required	None - Load not increasing (Cond., FW pump load)
14	Pressurizer Loop Seal Removal: Piping will not be modified; settings on existing PSVs will be changed.	None-Set point change only
15	ECF removal: ECF's will be abandoned in place	None- CR air intake and Trisodium Tetraborate basket MOD's
16	Replace AFW valve position controls – will not be done	None- Obsolescence only
17	Implement FW Htr Drain Digital Controls Modification – scope revised to just No.5 and 6 fw htr drains	Pneumatic controls fully capable
18	Increasing size of condensate and feedwater pump motors will require electrical bus, cabling, and relay modifications	None- Use of 2500 HP Motor- Existing cables are ok
19	Replace SJAE Gland Steam Condenser	None - Midcourse Re-eval. -replacement not required

Engineering and Construction Department is validating the following modification packages of varying designs

<u>Modification</u>	<u>Site</u>	<u>% Eng. Design</u>	<u>Comments</u>
FW Heaters 5&6	PTN	30%	Under Review
MSRH	PTN	10%	Under Review
High Pressure Feed Water Replacement	PSL	10%	Under Review
Unit 1 Main Generator Bushings, CTs and PSS	PSL	30%	Under Review
Feed Water 4AB 5AB Replacement	PBN	90%	Under Review
Mini Flow Recirculation System	PBN	90%	Under Review

Total Project Cost is comprised of three components:

- Base – Original defined scope
- Risk – known exposure with a weighted cost
- Contingency – Unknown Project costs

EPU cost increases driven by detailed project analysis, risk identification and contingency evaluation

- **Contingency assigned based on a risk assessment of each project functional area**
- **Uncertainty was assessed in the following functional areas**
 - LAR
 - Design engineering
 - Major Contracts
 - Labor (includes craft and staff)
- **Contingency of 5% to 20% of to-go costs was assigned to each functional area**

URS Washington Division submitted proposal to provide independent to go estimate for Turkey Point EPU

- Cost [REDACTED]

- Schedule duration of 8 weeks, scheduled to complete November 2009

- Deliverables for each mod to include:

- Detailed cost estimate for engineering, procurement, construction, and commissioning
- Resource-loaded level 2 schedule

Outage Scope - PSL

<u>First Outage</u>	<u>Second Outage</u>	<u>Third Outage (Main Uprate)</u>	<u>Fourth Outage (Main Uprate)</u>
SL1-23, May 2010, [REDACTED]	SL2-19, Nov. 2010 [REDACTED]	SL1-24, Augst 2011, [REDACTED]	SL2-24, April 2012, [REDACTED]
Minor inspection/field work (Isophase, Turbine test tabs)	Main Generator Rewind LP Turbine Rotor Main Transformer Replacement	U-1 System Uprate Main Generator Rewind LP Turbine Rotor HP Turbine Main Transformer Upgrade Major Components (MSR,CCW,FWH) Major Pumps/Motors	U-2 System Uprate HP Turbine Main Transformer Replacement Major Components (MSR,CCW,FWH) Major Pumps/Motors Major Pumps/Motors

Outage Scope - PTN

PTN3-25, September 2010, [REDACTED]	PTN4-26, march 2011, [REDACTED]	PTN3-26, January 2012, [REDACTED]	PTN4-27, October 2012, [REDACTED]
No. 5 & 6 Feed Water Heaters	No. 5 & 6 Feed Water Heaters	U-3 System Uprate	U-4 System Uprate
Digital Upgrades	Digital Upgrades	Main Generator Rewind	Main Generator Rewind
		HP Turbine	HP Turbine
		Major Components (MSR's, NCC's, TPCW HX,)	Major Components (MSR's, NCC's, TPCW HX,)
		Turbine Digital controls	Turbine Digital controls
		Major Pumps/Motors	Major Pumps/Motors



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3389-3538

CONFIDENTIAL



Extended Power Upgrades Biweekly Update Meeting St. Lucie and Turkey Point

May 13, 2009

Agenda

- Project Dashboards
- LAR - PSL
- LAR - PTN
- Bechtel Integration
- Regulatory – NCRC
- Scope Validation
- PTN ISFSI
- Project Risks
- Performance Indicators

Project Dashboard- PSL

	LAR Submittals	Mod Packages (9 month milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	Staggered submittals will allow better resource allocation for FPL, W, SHAW, and Plant (PSL-2 12 months float)	11 of 12 mods with negative float beyond station milestone Recovery Plan being Developed- due 5/15	Work Order Planning behind due to Mod Engineering approvals for Spring 2010	No Negative Float U-1 Spring 2010 Proforma - [REDACTED]
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources less challenged with revised submittal plan Bi-weekly report provided by WEC PM; will continue to monitor	Quality issues with Bechtel provided Design Packages	Bechtel total staffing and associated ramp rate greater than proposal; review in progress	Implementation team on site and planning milestones met
Other Issues or Challenges	7 Potential mods resulting from LAR analysis	1. Rod Control Phase 2 -4 will be evaluated post spring Outage 2. Validating scope for Separate & Apart and process improvements	Core team identified; staffing after Outage	CP: Generator Rewind (Outage duration -66 days) 7.7 days best case savings identified Generator Hot Spots could extend Outage (5- 7 days)
Costs	2009 Budget for Engineering & Staff: \$ 54.5 MM 2009 YTD Budget for Eng. & Staff: \$ 21.1 MM 2009 YTD Actual for Eng. & Staff: \$ 17.4 MM		2009 Budget for Mtis & Implementation: \$88.6 MM 2009 YTD Budget Mtis & Implementation: \$17.7 MM 2009 YTD Actual for Mtis & Implementation: \$07.5 MM	

Project Dashboard- PTN

	LAR Submittals	Mod Packages (9 Month Milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	- 14 Days of float AST Dose Calcs NRC will accept EPU LAR after AST LAR Approval (June 2010)	No negative Float to Station Milestone	No Negative float	No Negative Float U-3 Fall 2010 Proforma - [REDACTED]
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	<u>W</u> and Shaw resources still challenged; some relief from EPU submittal schedule change Monthly report provided by Shaw PM; will continue to monitor	Need FPL Design Engineering Manager Other staffing levels under review	Bechtel total staffing and associated ramp rate greater than proposal; review in progress	Implementation team on site and planning milestones met
Other Issues or Challenges	Likely required Mods: - CCW or ICW - PRA Mods - MSSV setpoints - PSV Setpoints	Scope review of BOP Cond/FW plans	Site Interface Model Draft Complete. Review with Station Leadership post RFO. Potential Site Capacity Challenge due to: EPU, RTE, Policy 14, ISFSI	CP: Condenser & FW Heaters (Outage duration -70 days)
Costs	2009 Budget for Engineering & Staff: \$ 56.5 MM 2009 YTD Budget for Eng. & Staff: \$ 19.3 MM 2009 YTD Actual for Eng. & Staff: \$ 14.4 MM		2009 Budget for Mtls & Implementation: \$ 79.2 MM 2009 YTD Budget for Mtls & Imp: \$ 40.9 MM 2009 YTD Actual for Mtls & Imp: \$ 07.7 MM	

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EPU LAR – PSL

Technical Challenges

- **MSSV Lifting during Normal Plant Trips**
 - Options for Unit 1 include increased Steam Bypass to Condenser (SBCS) capacity and valve speed
 - Unit 2 challenging due to low operating margin, evaluating options in addition to SBCS upgrade, final option could be to reduce T_{cold} (Potential MWe reduction; still within target goals)
- **Unit 1 and 2 CCW Piping**
 - Selected portions of piping exceed stress analysis temperatures at EPU conditions, analyses underway to minimize impact
- **Unit 1 PRA Evaluation**
 - Issue involves current PORV sizing and ability to accommodate once-through cooling
 - Alternate options under evaluation

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EPU LAR – PTN

- **Alternate Source Term (AST) LAR**

- Pre-application meeting held with staff on 4/24/09
- Executing plan to ensure AST LAR issued in June 2009
- Dose calculations being finalized by NAI
- Containment Purge Valve dose shine being addressed
- Mods required
 - NCC FIN replacement
 - Relocation of CR emergency air intake

- **Containment Analysis**

- Acceptable containment peak pressure/temperature results
- Current Component Cooling Water System temperature limits will be exceeded
 - Evaluating Modification Options

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Bechtel Integration

No.	Staffing Requirement Assessment	Date
1.	Review the identified EPC Modification Scope at each EPU Site	Complete
2.	Evaluate Outage required Deliverable dates (Pre-outage milestones)	Complete
3.	Based on progress to date, evaluate Engineering scope and activities assigned to Bechtel to determine if current estimates are correct	Complete
4.	Evaluate process changes for efficiency improvements	May 13
5.	Assemble Level 1 Outage Schedules and resource load pre-outage and Outage with FNM and Craft	May 30
6.	Evaluate other FPL Contracts to determine if there is redundancy, overlap and determine if additional savings can be realized	May 30

Bechtel Integration

EPC Estimates

- **Estimates have increased significantly over the indicative bids**
 - FNM and Manual Labor hours significantly higher
 - FPL estimating 2 jobs to validate process and accuracy
 - Home Office and JW support costs appear to be redundant
 - Will minimize/eliminate Bechtel JW
 - Larger scope than in indicative bids (both new scope and trends)

- **Challenging Items**

Plan for Resolution

- | | |
|---|---------|
| – Work scope | 5/29/09 |
| – Assumptions used | 5/29/09 |
| – Outage duration assumptions | 6/26/09 |
| – Optimize manpower by eliminating Outage overlap | 6/26/09 |
| – Sharing resources between sites | 5/27/09 |

Regulatory – Cost Recovery

Nuclear Cost Recovery

FPSC Internal Controls Audit begins	1/22/09 (a)
2008 True-up and testimony filing	3/2/09 (a)
Discovery begins	3/3/09 (a)
2009-10 Projections and Testimony filed	5/1/09 (a)
Intervener Testimony	7/14/09 (e)
Staff Testimony	7/28/09 (e)
Rebuttal Testimony	8/21/09 (e)
Discovery Completed	8/28/09
Hearings	8/31/09, 9/2/09-9/4/09
Staff Recommendations	10/02/09 (e)
Issue Order	11/2/09 (e)

- Over 200 Interrogatories and Data Requests responded to on time
- Testimony - complete
- FPSC audit of Project Controls - complete

Notes:

(e)=Estimated date.

Focus – SSJ's, Competitive bidding, "Separate and Apart"

Scope Validation

Evaluating Project Margins and Scope

- **Initiated a validation of identified modification scope**
 - Condensate / Feedwater Pumps
 - Feedwater Heater Scope
 - ICW/ CCW/ TPCW Scope
 - SFP Cooling Options
- **Evaluating Margins & LAR inputs**
 - Safety Analysis
 - Trip Transient
 - Design Operating Margins
- **Senior Review Team reviewed results**
 - Follow up evaluation actions identified
 - Summary report will follow Senior Management Reviews

PTN ISFSI

Confirmation/ Approval for ISFSI Location

- Recommendation is for EPU Craft facility inside PA and relocate ISFSI Pad outside PA
 - Revisiting Facility Scope
- Miami- Dade County requested an additional time to determine the acceptability of the existing “Unusual Use Permits” for the applicability to the ISFSI
- FPL agreed to 30 day extension
 - Decision expected 5/20/09
- Based on time needed for Engineering and Construction, further delays will negatively impact the EPU Project

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Performance Indicators

Performance Indicators - PSL

Cost					Page
Freq	RP-2	RP-1	CRp		
M		G	G	1 Cost Status	6
M		G	G	2 Budget / Variance Status	
M	UD	UD	UD	3 Estimate Status	
W	Y	G	G	4 Invoice Issues	

Schedule U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 Station Outage Milestone Status	12
W	R	R	R	2 Project Pre-Outage Critical Path U1R23	
W	Y	R	R	3 LAR Milestone Status	
W	R	R	R	4 LAR Critical path	
M	W	W	G	5 Major Deliverables Histogram	

Eng. Deliverables U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 PCM Status	29
W	G	G	R	2 PCM Burndown Chart	
W	UD	UD	UD*	3 Engineering Walkdowns	
W	UD	UD	UD*	4 Drawing Status	
W	UD	UD	UD	5 Vendor Manual Status	

Project Management U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	Y	Y	Y	1 Performance (EV) Status	41
M	UD	UD	UD	2 Task Plans	
M	Y	G	G	3 Overtime Tracking	

Engineered Material U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	G	G	G	1 Bid Spec / RFP Cmpl	47
W	G	G	G	2 Award PO Cmpl	
W	Y	Y	Y	3 Fabrication / Deliver	

Installation Planning U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 Work Order Planning	66
W	Y	R	R	2 Site Preps	
W	R	R	R	3 Work Order Complete Burndown Chart	
M	UD	UD	UD	4 Manpower Planning	
M	UD	UD	UD	5 Constructability Walkdowns	

UD* Metric to be Available 05-15-09

Schedule U1R23 - Spring 2010				
RP-2	RP-1	CRp		
R	R	R	1 Station Outage Milestone Status	
R	R	R	2 Project Pre-Outage Critical Path	
Y	R	R	3 LAR Milestone Status	
R	R	R	4 LAR Critical path	
W	W	G	5 Major Deliverables Histogram	

Eng. Deliverables U1R23 - Spring 2010				
RP-2	RP-1	CRp		
R	R	R	1 PCM Status	
G	G	R	2 PCM Burndown Chart	
UD	UD	UD*	3 Engineering Walkdowns	
UD	UD	UD*	4 Drawing Status	
UD	UD	UD	5 Vendor Manual Status	

Project Management U1R23 - Spring 2010				
RP-2	RP-1	CRp		
Y	Y	Y	1 Performance (EV) Status	
UD	UD	UD	2 Task Plans	
Y	G	G	3 Overtime Tracking	

Engineered Material U1R23 - Spring 2010				
RP-2	RP-1	CRp		
G	G	G	1 Bid Spec / RFP Cmpl	
G	G	G	2 Award PO Cmpl	
Y	Y	Y	3 Fabrication / Deliver	

Installation Planning U1R23 - Spring 2010				
RP-2	RP-1	CRp		
R	R	R	1 Work Order Planning	
Y	R	R	2 Site Preps	
R	R	R	3 Work Order Complete Burndown Chart	
UD	UD	UD	4 Manpower Planning	
UD	UD	UD	5 Constructability Walkdowns	

Schedule U2R19 - Fall 2010				
RP-2	RP-1	CRp		
Y	W	W	1 Station Outage Milestone Status	
			2 Project Pre-Outage Critical Path	
R	R	R	3 LAR Milestone Status	
R	R	R	4 LAR Critical path	
Y	W	G	5 Major Deliverables Histogram	

Eng. Deliverables U2R19 - Fall 2010				
RP-2	RP-1	CRp		
W	W	R	1 PCM Status	
Y	Y	R	2 PCM Burndown Chart	
UD	UD	UD*	3 Engineering Walkdowns	
UD	UD	UD*	4 Drawing Status	
UD	UD	UD	5 Vendor Manual Status	

Project Management U2R19 - Fall 2010				
RP-2	RP-1	CRp		
UD	UD	UD	1 Performance (EV) Status	
UD	UD	UD	2 Task Plans	
UD			3 Overtime Tracking	

Engineered Material U2R19 - Fall 2010				
RP-2	RP-1	CRp		
Y	G	G	1 Bid Spec / RFP Cmpl	
Y	Y	Y	2 Award PO	
Y	Y	Y	3 Fabrication / Deliver	

Installation Planning U2R19 - Fall 2010				
RP-2	RP-1	CRp		
W	W	W	1 Work Order Planning	
W	W	W	2 Site Preps	
G	G	G	3 Work Order Complete Burndown Chart	
UD	UD	UD	4 Manpower Planning	
UD	UD	UD	5 Constructability Walkdowns	

Legend		
Green	Total Float is (+) & Baseline Variance is (+)	
White	Total Float is (+) & Baseline Variance is (-). BL Date is > Data Date	
Yellow	Total Float is (+) & Baseline Variance is (-). BL Date is < Data Date	
Red	Total Float is (-) & Baseline Variance is (-). BL Date is < Data Date	

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Performance Indicators

Performance Indicators - PTN

Cost					Page
Freq	RP-2	RP-1	CRp		
M		W	R	1 Cost Status	7
M		G	G	2 Budget / Variance Status	
M		UD	UD	3 Estimate Status	
W	G	G	Y	4 Invoice Issues	

Schedule U3R25 - Fall 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 Station Outage Milestone Status	11
W	R	R	R	2 Project Pre-Outage Critical Path	
W	R	R	R	3 LAR Milestone Status	
W	R	R	R	4 LAR Critical path	
M	Y	Y	Y	5 Major Deliverables Histogram	

Eng. Deliverables U3R25 - Fall 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 PCM Status	24
W	G	R	R	2 PCM Burndown Chart	
W	UD	UD	UD*	3 Engineering Walkdowns	
W	UD	UD	UD*	4 Drawing Status	
W	UD	UD	UD	5 Vendor Manual Status	

Project Management U3R25 - Fall 2010					Page
Freq	RP-2	RP-1	CRp		
W	Y	Y	Y	1 Performance (EV) Status	42
M	UD	UD	UD	2 Task Plans	
M	G	G	G	3 Overtime Tracking	

Engineered Material U3R25 - Fall 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 Bid Spec / RFP	48
W	R	R	R	2 Award PO	
W	Y	Y	Y	3 Fabrication / Deliver	

Installation Planning U3R25 - Fall 2010					Page
Freq	RP-2	RP-1	CRp		
W	W	W	W	1 Work Order Planning	72
W	W	W	W	2 Site Progs	
W	G	G	G	3 Work Order Complete Burndown Chart	
M	UD	UD	UD	4 Manpower Planning	
M	UD	UD	UD	5 Constructability Walkdowns	

UD* Metric to be Available 05-15-09

Schedule U3R25 - Fall 2010					Page
RP-2	RP-1	CRp			
R	R	R	1 Station Outage Milestone Status		
R	R	R	2 Project Pre-Outage Critical Path		
R	R	R	3 LAR Milestone Status		
R	R	R	4 LAR Critical path		
Y	Y	Y	5 Major Deliverables Histogram		

Eng. Deliverables U3R25 - Fall 2010					Page
RP-2	RP-1	CRp			
R	R	R	1 PCM Status		
G	R	R	2 PCM Burndown Chart		
UD	UD	UD*	3 Engineering Walkdowns		
UD	UD	UD*	4 Drawing Status		
UD	UD	UD	5 Vendor Manual Status		

Project Management U3R25 - Fall 2010					Page
RP-2	RP-1	CRp			
Y	Y	Y	1 Performance (EV) Status		
UD	UD	UD	2 Task Plans		
G	G	G	3 Overtime Tracking		

Engineered Material U3R25 - Fall 2010					Page
RP-2	RP-1	CRp			
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R	R	R	2 Award PO		
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Installation Planning U3R25 - Fall 2010					Page
RP-2	RP-1	CRp			
W	W	W	1 Work Order Planning		
W	W	W	2 Site Progs		
G	G	G	3 Work Order Complete Burndown Chart		
UD	UD	UD	4 Manpower Planning		
UD	UD	UD	5 Constructability Walkdowns		

Schedule U4R26 - Spring 2011					Page
RP-2	RP-1	CRp			
G	G	G	1 Station Outage Milestone Status		
			2 Project Pre-Outage Critical Path		
			3 LAR Milestone Status		
			4 LAR Critical path		
Y	Y	Y	5 Major Deliverables Histogram		

Eng. Deliverables U4R26 - Spring 2011					Page
RP-2	RP-1	CRp			
W	W	W	1 PCM Status		
G	W	G	2 PCM Burndown Chart		
UD	UD	UD*	3 Engineering Walkdowns		
UD	UD	UD*	4 Drawing Status		
UD	UD	UD	5 Vendor Manual Status		

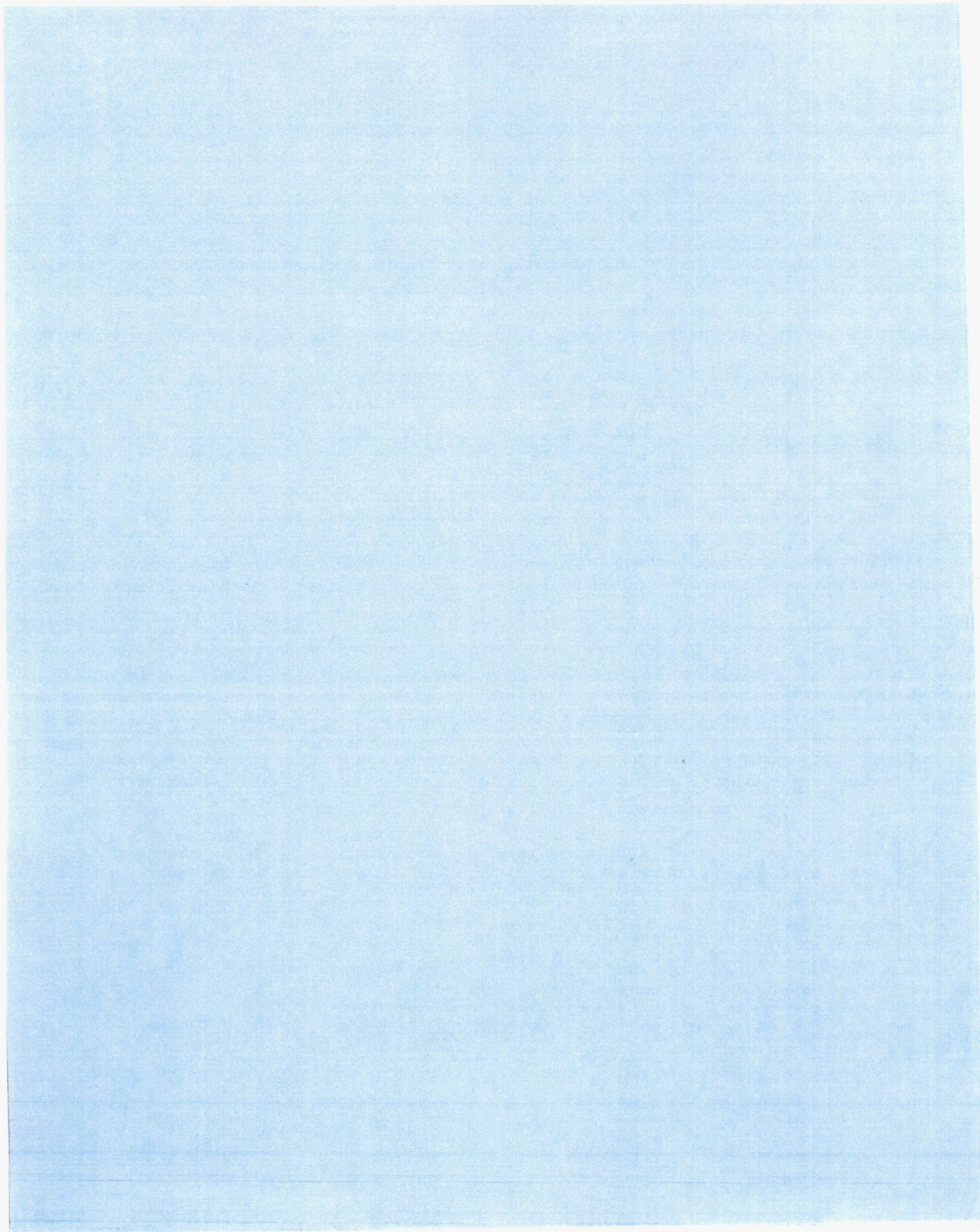
Project Management U4R26 - Spring 2011					Page
RP-2	RP-1	CRp			
			1 Performance (EV) Status		
UD	UD	UD	2 Task Plans		
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Engineered Material U4R26 - Spring 2011					Page
RP-2	RP-1	CRp			
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Installation Planning U4R26 - Spring 2011					Page
RP-2	RP-1	CRp			
W	W	W	1 Work Order Planning		
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Legend		Total Float is (+) & Baseline Variance is (+)
White	Total Float is (+) & Baseline Variance is (-). BL Date is > Data Date	
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CONFIDENTIAL



Extended Power Uprates Biweekly Update Meeting Saint Lucie & Turkey Point

June 10, 2009

Draft Proprietary and Confidential

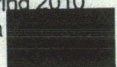
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Agenda

- Project Dashboard
- Bechtel Integration
- Heat Balance
- Scope Validation
- PTN ISFSI Location
- Regulatory – LAR
- Nuclear Cost Recovery
- Risk Exposures & Mitigation
- KPIs

Project Dashboard- PSL

	LAR Submittals	Mod Packages (9 month milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	Staggered submittals will allow better resource allocation for FPL, W, SHAW, and Plant (PSL-2 12 months float)	11 of 12 mods with negative float beyond station milestone Recovery Plan developed to meet T-6	Procedure Milestone behind due to Mod Engineering approvals for Spring 2010	No Negative Float U-1 Spring 2010 Proforma 
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources less challenged with revised submittal plan Bi-weekly report provided by WEC PM; will continue to monitor	Monitoring quality of Bechtel provided Design Packages	Bechtel total staffing and associated ramp rate greater than indicative bid	Implementation team on site and planning milestones met
Other Issues or Challenges	8 Potential mods resulting from LAR analysis - Added 1 due to Unit 2 Steam bypass capacity	1. Rod Control Phase 2 -4 will be evaluated post spring Outage 2. Validating scope for Separate & Apart and process improvements	Core team identified; staffing after Outage	CP: Generator Rewind (Outage duration -66 days) 7.7 days best case savings identified Generator Hot Spots could extend Outage (5- 7 days)
Costs	2009 Budget for Engineering & Staff: \$ 54.5 MM 2009 YTD Budget for Eng. & Staff: \$ 21.1 MM 2009 YTD Actual for Eng. & Staff: \$ 17.4 MM		2009 Budget for Mtls & Implementation: \$88.6 MM 2009 YTD Budget Mtls & Implementation: \$17.7 MM 2009 YTD Actual for Mtls & Implementation: \$07.5 MM	

Project Dashboard- PTN

	LAR Submittals	Mod Packages (9 Month Milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	AST Station review NRC will accept EPU LAR after AST LAR Approval	No negative Float to Station Milestone	No Negative float	No Negative Float U-3 Fall 2010 Proforma - [REDACTED]
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources still challenged; some relief from EPU submittal schedule change Monthly report provided by Shaw PM; will continue to monitor	Need FPL Design Engineering Manager Other staffing levels under review	Bechtel total staffing and associated ramp rate greater than indicative bid	Implementation team on site and planning milestones met
Other Issues or Challenges	4 Potential mods resulting from LAR analysis	Options review of BOP Cond/FW plans	Site Interface Model Draft Complete. Review with Station Leadership post RFO. Potential Site Capacity Challenge due to: EPU, RTE, Policy 14, ISFSI	CP: Condenser & FW Heaters (Outage duration -70 days)
Costs	2009 Budget for Engineering & Staff: \$ 56.5 MM 2009 YTD Budget for Eng. & Staff: \$ 19.3 MM 2009 YTD Actual for Eng. & Staff: \$ 14.4 MM		2009 Budget for Mtls & Implementation: \$ 79.2 MM 2009 YTD Budget for Mtls & Imp: \$ 40.9 MM 2009 YTD Actual for Mtls & Imp: \$ 07.7 MM	

Bechtel Integration

Bechtel EPC Estimates

- **Estimates are based on preliminary design**
 - More detail in scope as modification process proceeds
 - Some undefined scope is now identified
 - Some items as a result of on-going LAR & Engineering Analyses
(e.g. PSL mini-purge, hot leg injection, TB control sys; PTN – CCW, MSSV setpoints, PSV setpoints, CR ventilation intake)
- **In the process of developing estimates (i.e. from Shaw preliminary scoping estimates to level 2 estimates)**
 - Estimates exceed indicative pricing provided in proposal
- **The estimate process includes developing Best Case, Worst Case and P50 view points to validate level 2 estimates**
 - Target date for completion 6/30/09

Bechtel Integration

EPC Estimates

- **Estimates have increased over the indicative bids**
 - FNM and Manual Labor hours higher
 - FPL validating process and accuracy
 - Management Services, Home Office and JW support costs appear to be redundant
 - Will optimize Bechtel MS, HO and JW
 - Scope clarified (more details) resulting in estimates greater than in indicative bids (both new scope and trends)

Challenge Items

Plan for Resolution

- | | |
|---|----------|
| – Sharing resources between sites | Complete |
| – Work scope being evaluated (for redundant) | Complete |
| – Assumptions used – work hours, overheads, etc. | Complete |
| – Outage duration assumptions | 6/26/09 |
| – Optimize manpower by eliminating Outage overlap | 6/26/09 |
| – Finalize Estimates | 6/30/09 |

Bechtel Integration

Project Forecast

- **Bechtel and Sites performing P50, Best Case and Worst Case Project Cost reviews to validate input into target price**
 - P50 – is the most likely case with a 50/50 probability of executing the project plan and scope. This results in the most probable (50/50) project costs and schedule
 - Best Case – Results in the lowest total project cost, if the implementation went better than planned (scope simplified, beat schedule, no emergent items, no rework, no quality issues)
 - Worst case – results in the highest total project cost, if implementation went worse than planned (scope increases, schedule slips, emergent items, rework, quality issue). Assign cost and probability of occurrence to specific high risk mods.

Bechtel Integration

Example Criteria

	P-50	Best	Worst
Management	Mgmt Service Staff 10/site	Mgmt Service Staff 8/site	Mgmt Service Staff 25/site
	20% turnover in personnel	10% turnover in personnel	50% turnover in personnel
	work hours 5-8's with occasional OT	work hours 5-8's with occasional OT	work hours 6-10's
	JW staff at 9 people	JW staff at 3 people	JW staff at 9 people
	ODC and OHO (Max limit)	ODC and OHO limits (Max limit)	ODC and OHO limits (Max limit)
Construction	Project work 6-10's (except CP), 2 shifts during Outage, no double time	Project work 6-10's (except CP), 2 shifts during Outage, no double time	CP on 7-12's, Double time OT on 7th day. Assign cost and probability of occurrence to specific CP and near CP high risk mods
	FNM at full staff 30 days prior to Outage	FNM at full staff 2 weeks prior to Outage	FNM at full staff 4 weeks prior to Outage
	Craft at full staff 1 week prior to Outage	Craft at full staff 1 week prior to Outage	Craft at full staff 1 week prior to Outage
	Outage Schedule per plan	Outage Schedule - 10% improvement per station plan, per Outage (and corresponding Job hour saving)	Outage Schedule - 20% push to Outage per station plan, per Outage
	Most station milestones are met	Most station milestones are met	Most station milestones are met
Engineering	Training / in processing - 5 days (40 hrs)	Training / in processing - 3 days (24 hrs)	Training / in processing - 5 days (40 hrs)
	Project Scope is the work list as approved by FPL in April	Define savings in resources (e.g., can the Elec Lead do Elec and I&C)	Using T-12 approach resulting in huge ramp-up of engineering staff to perform work
	Optimize Frederick/HO scope split	Most Engineering in H.O. as appropriate	All Engineering at site
	Most milestones met (9Mo criteria)	Levelized and optimized T-9 with some mods moved to other Outages. Some milestones to T-6	All milestones met (12 mo criteria)
Materials and Subs	Award all 3 sites to same subcontractor	Just in time material deliveries save warehouse costs and multiple handling	3 separate subcontracts and 3 sites
	Bulk buys as much as possible	Minimal stock material remaining	Welders - use "golden arm" subcontractors PLUS 10% weld repair rework
	Bechtel/FPL optimize purchasing effort	Ensure BOM is not factored by Engineering and again by Field Engr.	More Subcontractors and less Direct Perform Craft
	Welders - use "golden arm" subcontractors for critical welds	Use welders from "hall" for all welding (no contract welders)	Significant Stand-alone purchases

Heat Balance

Potential MWe Gain

- Preliminary design heat balance indicate more MWe likely
- Will be performing additional testing to maximize MWe output
- Final design numbers will not be available until after testing and secondary pump and heater options are finalized (see page 21)

St. Lucie: 1 2 3 4 5

	Unit	Needs Filling	Siemens Contract (MWe)	Winter Planning Max (MWe)	Summer Planning Min (MWe)
1	Unit 1	103		137	102
2	Unit 2	103		151	123
3					

Turkey Point:

	Unit	Needs Filling	Siemens Contract (MWe)	Winter Planning Max (MWe)	Summer Planning Min (MWe)
4	Unit 3	104		111	121
5	Unit 4	104		111	121
6					

Scope Validation

Evaluating Project Margins and Scope

- **Initiated a validation of identified modification margins**
 - Condensate / Feedwater Pumps
 - Feedwater Heater Scope
 - Exciters
- **Evaluating Margins & LAR inputs**
 - Safety Analysis
 - Trip Transient
 - Design and Operating Margins
- **Technical Challenge Board to review results and plan going forward**

PTN ISFSI

Confirmation/ Approval for ISFSI Location

- **Recommendation is for EPU Craft facility inside PA and relocate ISFSI Pad outside PA**
 - Revisiting Facility needs
- **FDEP Approved Amendment Request to the Site Certification for ISFSI Location outside PA. Agencies and third parties have about 30 days to appeal.**
- **Plan to Resolve Zoning Issue for ISFSI Location is in Process**
 - Plan is to confirm zoning approval through County Building Department permitting process
 - Requirement and related process for revision of the Conceptual Site plan is still under discussion with the County
 - Uncertainly exists on ISFSI zoning approval for location outside PA. Any construction of EPU facility on initial ISFSI location should await better understanding of zoning status
- **Based on time needed for Engineering and Construction, need to start ISFSI construction is August 3, 2009**

EPU LAR – PSL

Technical Challenges

- **MSSV Lifting during Normal Plant Trips**
 - Options for Unit 1 include increased Steam Bypass to Condenser (SBCS) capacity and valve speed
 - Unit 2 challenging due to low operating margin
 - Tcold reduction not recommended due to adverse impact on generation
 - Increased Steam bypass to condenser capacity and valve speed, add relief valves downstream of MSIVs, and add turbine trip time delay
- **Unit 1 and 2 CCW Piping**
 - Selected portions of piping exceed stress analysis temperatures at EPU conditions, analyses underway to minimize impact
- **Unit 1 PRA Evaluation**
 - Issue involves current PORV sizing and ability to accommodate once-through cooling
 - Alternate options under evaluation
- **Unit 1 LBLOCA – maximum Containment Spray flow**
 - AREVA working LBLOCA runs – challenging schedule to complete

EPU LAR – PTN

- **Containment Analysis**
 - Acceptable containment peak pressure/temperature results
 - Current Component Cooling Water System temperature limits will be exceeded
 - Evaluating Modification Options
 - Evaluating Hot Leg Injection flow path for long term cooling and preclude boric acid precipitation
- **Steam Line Break Core Analysis**
 - Initial results did not meet acceptance criteria
 - Acceptable results achieved by adding lead/lag module to SAIS low steam pressure input
 - Also reduces limiting peak containment pressure for SLB
- **DNB Parameters (OT Δ T, OP Δ T Trips)**
 - Initial PZR. Pressure margin to trip too close to normal operating pressure considering instrument uncertainties
 - Replacing PZR. Pressure gauges with digital to gain operating margin

Regulatory – Cost Recovery

Nuclear Cost Recovery

FPSC Internal Controls Audit begins	1/22/09 (a)
2008 True-up and testimony filing	3/2/09 (a)
Discovery begins	3/3/09 (a)
2009-10 Projections and Testimony filed	5/1/09 (a)
Intervener Testimony	7/14/09
Staff Testimony	7/28/09
Rebuttal Testimony	8/21/09
Discovery Completed	8/28/09
Hearings	9/8/09-9/11/09
Staff Recommendations	10/02/09
Issue Order	11/2/09 (e)

- Over 200 Interrogatories and Data Requests responded to on time
- Testimony - complete
- FPSC audit of Project Controls - complete

Notes:

(e)=Estimated date.

REDACTED

POD 31
Pages 274-277

Performance Indicators

Performance Indicators - PSL

Cost					Page
Freq	RP-2	RP-1	CRp		
M	G	G	G	1 Cost Status	6
M	G	G	G	2 Budget / Variance Status	
M	UD	UD	UD	3 Estimate Status	
W	G	G	G	4 Invoice Issues	

Schedule U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 Station Outage Milestone Status	10
W	R	R	R	2 Project Pre-Outage Critical Path U1R23	
W	R	Y	R	3 LAR Milestone Status	
W	R	Y	R	4 LAR Critical path	
M	G	G	G	5 Major Deliverables Histogram	

Eng. Deliverables U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 PCM Status	26
W	R	R	R	2 PCM Burndown Chart	
W	UD	UD	G	3 Engineering Walkdowns	
W	UD	UD	UD*	4 Drawing Status	
W	UD	UD	UD	5 Vendor Manual Status	

Project Management U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	Y	Y	Y	1 Performance (EV) Status	39
M	UD	UD	UD	2 Task Plans	
M	G	G	G	3 Overtime Tracking	

Engineered Material U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	G	G	G	1 Bid Spec / RFP Cmpl	45
W	G	G	G	2 Award PO Cmpl	
W	Y	Y		3 Fabrication / Deliver	

Installation Planning U1R23 - Spring 2010					Page
Freq	RP-2	RP-1	CRp		
W	R	R	R	1 Work Order Planning	64
W	R	R	R	2 Site Preps	
W	R	R	R	3 Work Order Complete Burndown Chart	
M	UD	UD	UD	4 Manpower Planning	
M	UD	UD	UD	5 Constructability Walkdowns	

UD* Metric to be Available 05-15-09

Schedule U1R23 - Spring 2010				
RP-2	RP-1	CRp		
R	R	R	1 Station Outage Milestone Status	
R	R	R	2 Project Pre-Outage Critical Path	
R	Y	R	3 LAR Milestone Status	
R	Y	R	4 LAR Critical path	
G	G	G	5 Major Deliverables Histogram	

Eng. Deliverables U1R23 - Spring 2010				
RP-2	RP-1	CRp		
R	R	R	1 PCM Status	
R	R	R	2 PCM Burndown Chart	
UD	UD	G	3 Engineering Walkdowns	
UD	UD	UD*	4 Drawing Status	
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Project Management U1R23 - Spring 2010				
RP-2	RP-1	CRp		
Y	Y	Y	1 Performance (EV) Status	
UD	UD	UD	2 Task Plans	
G	G	G	3 Overtime Tracking	

Engineered Material U1R23 - Spring 2010				
RP-2	RP-1	CRp		
G	G	G	1 Bid Spec / RFP Cmpl	
G	G	G	2 Award PO Cmpl	
Y	Y		3 Fabrication / Deliver	
		R		

Installation Planning U1R23 - Spring 2010				
RP-2	RP-1	CRp		
R	R	R	1 Work Order Planning	
R	R	R	2 Site Preps	
R	R	R	3 Work Order Complete Burndown Chart	
UD	UD	UD	4 Manpower Planning	
UD	UD	UD	5 Constructability Walkdowns	

Legend		
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Schedule U2R19 - Fall 2010				
RP-2	RP-1	CRp		
W	W	R	1 Station Outage Milestone Status	
			2 Project Pre-Outage Critical Path	
R	Y	Y	3 LAR Milestone Status	
R	Y	R	4 LAR Critical path	
G	G	G	5 Major Deliverables Histogram	

Eng. Deliverables U2R19 - Fall 2010				
RP-2	RP-1	CRp		
R	R	R	1 PCM Status	
R	R	R	2 PCM Burndown Chart	
UD	UD	UD*	3 Engineering Walkdowns	
UD	UD	UD*	4 Drawing Status	
UD	UD	UD	5 Vendor Manual Status	

Project Management U2R19 - Fall 2010				
RP-2	RP-1	CRp		
UD	UD	UD	1 Performance (EV) Status	
UD	UD	UD	2 Task Plans	
			3 Overtime Tracking	

Engineered Material U2R19 - Fall 2010				
RP-2	RP-1	CRp		
G	G	G	1 Bid Spec / RFP Cmpl	
Y	Y	G	2 Award PO	
Y	Y	Y	3 Fabrication / Deliver	

Installation Planning U2R19 - Fall 2010				
RP-2	RP-1	CRp		
W	W	R	1 Work Order Planning	
W	W	W	2 Site Preps	
G	G	G	3 Work Order Complete Burndown Chart	
UD	UD	UD	4 Manpower Planning	
UD	UD	UD	5 Constructability Walkdowns	

Performance Indicators

Performance Indicators - PTN

Cost				
Freq	RP-2	RP-1	CRp	Page
M	W	R	R	1 Cost Status
M	G	G	G	2 Budget / Variance Status
M	UD	UD	UD	3 Estimate Status
W	Y	R	R	4 Invoice Issues
				7

Schedule U3R25 - Fall 2010				
Freq	RP-2	RP-1	CRp	Page
W	R	R	R	1 Station Outage Milestone Status
W	R	R	R	2 Project Pre-Outage Critical Path
W	R	Y	Y	3 LAR Milestone Status
W	R	G	R	4 LAR Critical path
M	Y	Y	Y	5 Major Deliverables Histogram
				12

Eng. Deliverables U3R25 - Fall 2010				
Freq	RP-2	RP-1	CRp	Page
W	R	R	R	1 PCM Status
W	R	R	R	2 PCM Burndown Chart
W	UD	UD	G	3 Engineering Walkdowns
W	UD	UD	UD	4 Drawing Status
W	UD	UD	UD	5 Vendor Manual Status
				24

Project Management U3R25 - Fall 2010				
Freq	RP-2	RP-1	CRp	Page
W	Y	Y	Y	1 Performance (EV) Status
M	UD	UD	UD	2 Task Plans
M	G	G	G	3 Overtime Tracking
				43

Engineered Material U3R25 - Fall 2010				
Freq	RP-2	RP-1	CRp	Page
W	R	R	R	1 Bid Spec / RFP
W	R	R	R	2 Award PO
W	Y	Y	Y	3 Fabrication / Deliver
				49

Installation Planning U3R25 - Fall 2010				
Freq	RP-2	RP-1	CRp	Page
W	W	W	W	1 Work Order Planning
W	W	W	W	2 Site Preps
W	G	G	G	3 Work Order Complete Burndown Chart
M	UD	UD	UD	4 Manpower Planning
M	UD	UD	UD	5 Constructability Walkdowns
				74

UD* Metric to be Available 05-15-09

Schedule U3R25 - Fall 2010				
RP-2	RP-1	CRp		
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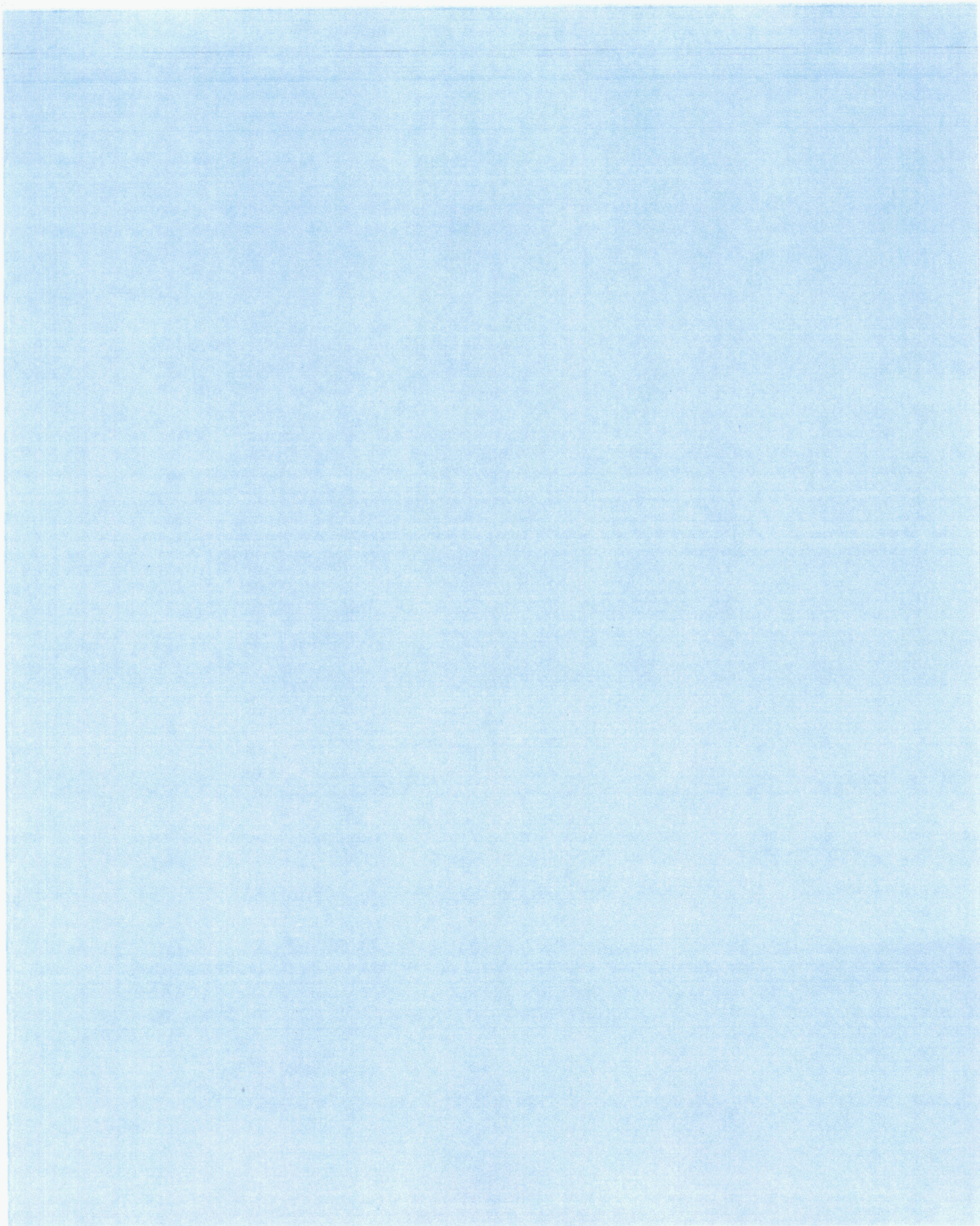
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Green	Total Float is (+) & Baseline Variance is (+)
White	Total Float is (+) & Baseline Variance is (-). BL Date is > Data Date
Yellow	Total Float is (+) & Baseline Variance is (-). BL Date is < Data Date
Red	Total Float is (-) & Baseline Variance is (-). BL Date is < Data Date



CONFIDENTIAL



Extended Power Upgrades Biweekly Update Meeting Saint Lucie & Turkey Point

July 10 2009

Draft Proprietary and Confidential

FPL 003426
NCR-10

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Agenda

- Project Dashboard
- Project Schedule Timeline
- Budget Option Analysis
- Scope Review
- Regulatory – LAR
- PTN ISFSI Location
- Lean Team Status
- Risk Exposures & Mitigation
- KPIs

Project Dashboard- PSL

	LAR Submittals	Mod Packages (9 month milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	Staggered submittals will allow better resource allocation for FPL, W, SHAW, and Plant (PSL-2 12 months float)	2 of 12 mods late per recovery plan Recovery Plan developed to meet T-6 milestone	Procedure Milestone behind due to Mod Engineering approvals for Spring 2010	U-1 Spring 2010 Proforma - [REDACTED] Actual - 66 days (Generator rewind)
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources less challenged with revised submittal plan Bi-weekly report provided by WEC PM; will continue to monitor	Monitoring quality of Bechtel provided Design Packages	Bechtel total staffing and associated ramp rate greater than indicative bid	Implementation team on site and planning milestones met
Other Issues or Challenges	8 Potential mods resulting from LAR analysis	1. Rod Control Phase 2 -4 will be evaluated post spring Outage	Core team identified; staffing after Outage	Generator Hot Spots could extend Outage
Costs	2009 Budget for Engineering & Staff: \$ 54.5 MM 2009 YTD Budget for Eng. & Staff: \$ 26.7 MM 2009 YTD Actual for Eng. & Staff: \$ 23.1 MM		2009 Budget for Mtls & Implementation: \$88.6 MM 2009 YTD Budget Mtls & Implementation: \$20.1 MM 2009 YTD Actual for Mtls & Implementation: \$22.4MM	

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Project Dashboard- PTN

	LAR Submittals	Mod Packages (9 Month Milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	AST LAR submitted on schedule NRC will accept EPU LAR after AST LAR Approval	No negative Float to Station Milestone	No Negative float	No Negative Float U-3 Fall 2010 Proforma - [REDACTED] Actual - 76 days (FW Heaters & Condenser)
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources still challenged; some relief from EPU submittal schedule change Monthly report provided by Shaw PM; will continue to monitor	Identified FPL Design Engineering Manager Other staffing levels under review	Bechtel total staffing and associated ramp rate greater than indicative bid	Implementation team on site and planning milestones met
Other Issues or Challenges	4 Potential mods resulting from LAR analysis	- MSRH height - Turbine Controls Aux cooling Mods	Site Interface Model Draft Complete. Review with Station Leadership post RFO. Potential Site Capacity Challenge due to: EPU, RTE, Policy 14, ISFSI	Outage Durations Recommendations
Costs	2009 Budget for Engineering & Staff: \$ 56.5 MM 2009 YTD Budget for Eng. & Staff: \$ 25.1 MM 2009 YTD Actual for Eng. & Staff: \$ 21.4 MM		2009 Budget for Mtls & Implementation: \$ 79.2 MM 2009 YTD Budget for Mtls & Imp: \$ 53.4 MM 2009 YTD Actual for Mtls & Imp: \$ 20.7 MM	

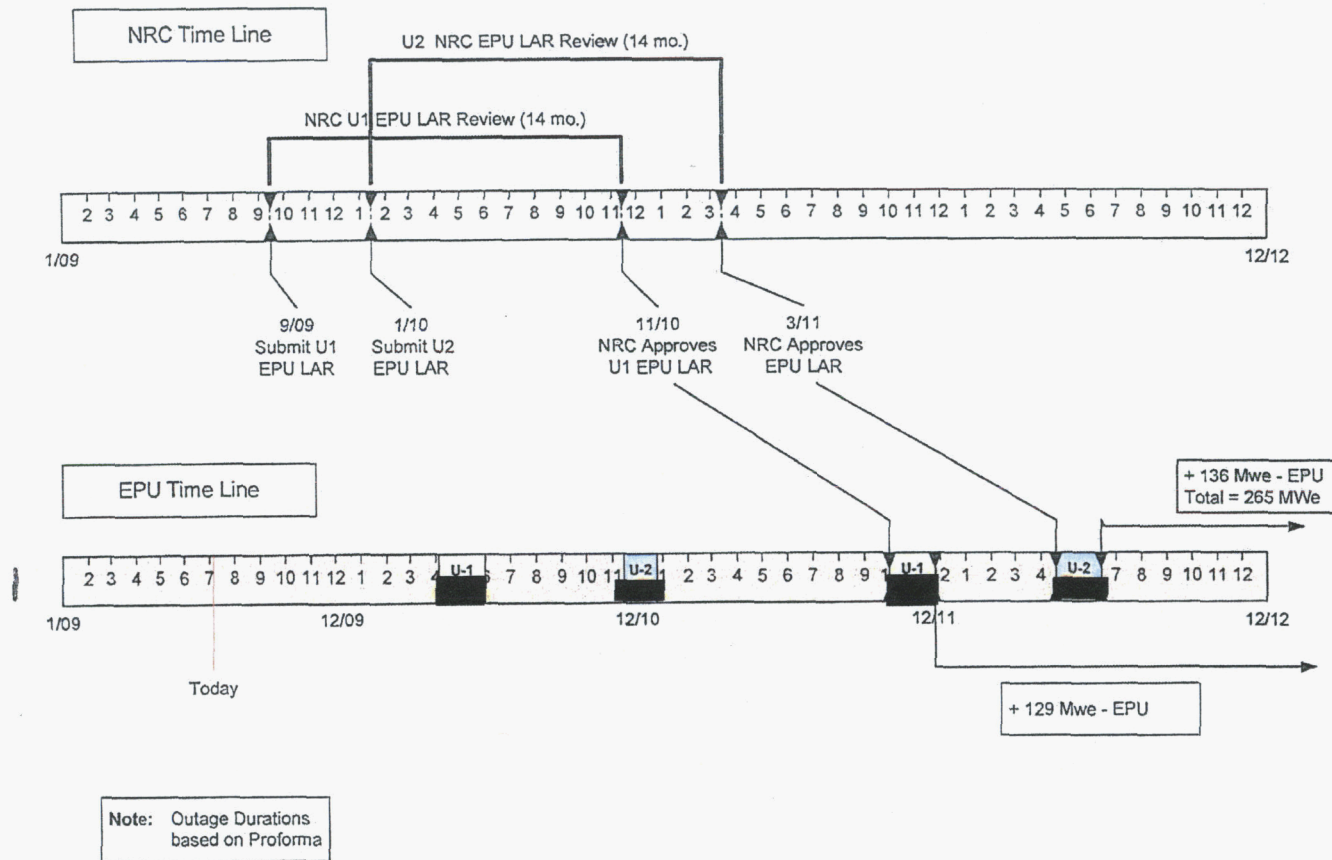
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St. Lucie

EPU Licensing and Implementation Schedule



Turkey Point

NRC Time Line

1/09 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 12/12

6/25/09 Submitted AST LAR

6/10 NRC Approves AST LAR

7/10 Submit EPU LAR

9/11 NRC Approves EPU LAR

EPU Time Line

1/09 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 12/12

Today

12/10 U-3

12/11 U-4

12/12 U-3

12/12 U-4

+ 118 MWe - EPU

+ 118 MWe - EPU Total = 236 MWe

New Fuel Receipt

285



EPU Budget Options Analysis - PSL

ITEM	STATUS	DUE DATE
2.) Validate Engineering Cost to Go Line by Line Review with Basis and Bechtel Input	On Track	7/15/09
3.) Third Party Assessment Determine if Consultant can Assist in Validating Some Estimates – Jack Martin Establish Contact and develop charter for assessment and verify utility recommendation.	Not a benefit at this time	6/25/09A NR
4.) LAR/Licensing A. Validate the to go LAR Cost Forecast	Complete	7/10/09
5.) Implementation Costs A. Bechtel Lowest Cost for Implementing Current Schedule/Plan. Please make sure your preps focus on summaries (with separate pages and explanations) for the following three areas. 1. Original estimate for PSL was [REDACTED] 2. Original Scope and price for original P50 was [REDACTED] 3. Scope and price for adjusted method of work, including scope shifts was [REDACTED] 4. Scope and price for scope elimination was [REDACTED]	A. On track	7/10/09
ACTIONS: 1. Complete scope review to verify all orig scope that is Bechtel responsibility. 2. Review scope adds to validate total project picture (\$97.294M) 3. Add/delete scope based on scope review 4. Bechtel provide Mod by Mod estimate for P50 scope 5. Review gaps, compare with Shaw study and revise P50 estimates 6. Miller/Weaver resolve gaps (not resolved by Site Directors) 7. Miller/Weaver establish criteria for FNM 8. Determine minimum core staff (w/o station integration). Person by person accounting of who and why needed.	1. Complete 2. Complete 3. In progress 4. In Progress 5. In progress 6. on track 7. Complete 8. In Progress	7/10/09 7/10/09 7/10/09 7/13/09 7/13/09
B. Cost to Self Perform Some/All Remaining Work. Include Human Capital Needed	B. On Track	7/15/09
C. Determine cost of outage sequence improvement model (e.g., 35/90 model)	C. On Track	7/15/09

EPU Budget Options Analysis - PSL

ITEM	STATUS	DUE DATE
7.) Initial Scope to Present Present Simple comparison of original EPU Scope Defined in Shaw Estimate to Current Scope with Basis Line by Line	Complete	Complete
8.) Site Staffing Person by Person description of every Individual Charging EPU from station integration (FPL & Contractors)	Complete	Complete
9.) Proforma Look at Input of Costs and additional LAR scope	In Progress	7/15/09
10.) Clearly ID on 1 Page the Project Costs to go @ St. Lucie Broken Down as Follows: a. Total costs with out scope deletions b. LAR c. Engineering d. Site Support & EPU Staff augmentation e. Implementation (scope shifting and scope reduction) f. List any Actions Needed to Reduce or Ensure Certainty in Forecast	Initial Report Complete; Final after SA complete	7/10/09
12.) Project briefing meeting with Corporate VP and Site VP		7/10/09

①

EPU Budget Options Analysis - PTN

ITEM	STATUS	DUE DATE
2.) Validate Engineering Cost to Go Line by Line Review with Basis and Bechtel Input	In Progress	7/10/09
3.) Third Party Assessment Determine if Consultant can Assist in Validating Some Estimates – Jack Martin Establish Contact and develop charter for assessment and verify utility recommendation.	Not Beneficial at this time	NR
4.) LAR/Licensing A. Validate the to go LAR Cost Forecast	COMPLETE	7/10/09
5.) Implementation Costs A. Bechtel Lowest Cost for Implementing Current Schedule/Plan. Please make sure your preps focus on summaries (with separate pages and explanations) for the following three areas. 1. Original estimate for PTN was [REDACTED] 2. Original Scope and price for original P50 was [REDACTED] 3. Scope and price for adjusted method of work, including scope shifts was [REDACTED] 4. Scope and price for scope elimination was [REDACTED] ACTIONS: 1. Complete scope reveiw to verify all orig scope that is Bechtel responsibiliity. 2. Reveiw scope adds to validate total project picture [REDACTED] 3. Add/delete scope based on scope review 4. Bechtel provide Mod by Mod estimate for P50 scope 5. Reveiw gaps, compare with Shaw study and revise P50 estimates 6. Miller/Weaver resolve gaps (not resolved by Site Directors) 7. Miller/Weaver establish cirteria for FNM 8. Determine minimum core staff (w/o station integration). Person by person accounting of who and why needed. B. Cost to Self Perform Some/All Remaining Work. Include Human Capital Needed C. Determine cost of outage sequence improvement model (e.g., 35/90 model	On Track	7/10/09
	1. Complete	
	2. Complete	
	3. Working	7/10/09
	4. Working	7/10/09
	5. Working	7/10/09
	6. On Track	7/13/09
	7. Complete	7/10/09
	8. Working	7/13/09
	B. Working	
	C. Working	7/10/09



EPU Budget Options Analysis - PTN

ITEM	STATUS	DUE DATE
7.) Initial Scope to Present Present Simple comparison of original EPU Scope Defined in Shaw Estimate to Current Scope with Basis Line by Line	Complete	Complete
8.) Site Staffing Person by Person description of every Individual Charging EPU from the station integration(FPL & Contractors)	Working	7/10/09
9.) Proforma Look at Input of Costs and additional LAR scope	In Progress	7/15/09
10.) Clearly ID on 1 Page the Project Costs to go @ Turkey Point Broken Down as Follows: a. Total costs with out scope deletions b. LAR c. Engineering d. Site Support & EPU Staff augmentation e. Implementation (scope shifting and scope reduction) f. List any Actions Needed to Reduce or Ensure Certainty in Forecast	After Completion of Item 5. 7/10 est. completion	7/10/09
12.) Project briefing meeting with Corporate VP and Site VP		7/15/09

Scope Review

Mid Course Scope Preliminary Results

- **PSL Draft Scope Review Recommendations**
 - Delete Rewinds of Main Generator Exciter Rotors
 - Rewind Spare only Main Generator Exciter Rotor
 - Reduce scope on Heater Drain Valves Digital Controls--Delete #1-#4 FWH controls upgrades
 - Delete Condensate Pump C repowering
 - Delete Circulating Water Pump Refurbishments
 - Delete DEH Constant Pressure Pumps
 - Reduce Condenser Material Upgrades
 - Delete Unit 2 Condensate Pump Suction Piping Modifications

- **PTN Draft Scope Review Recommendations:**
 - Delete replacement of #1 - 4 FWHs--pre/post EPU inspections and some upgrades
 - Run 3 condensate pumps, different pump design and 4 of 6 motor rewinds
 - Delete replacement of Main Feedwater Pumps--nozzle inspections
 - Delete Rewinds of Main Generator Exciter Rotors



EPU LAR – PSL

Technical Challenges

- **MSSV Lifting during Normal Plant Trips**
 - Options for Unit 1 include increased Steam Bypass to Condenser (SBCS) capacity and valve speed
 - Unit 2 challenging due to low operating margin
 - Tcold reduction not recommended due to adverse impact on generation
 - Increased Steam bypass to condenser capacity and valve speed, add relief valves downstream of MSIVs, and add turbine trip time delay
- **Unit 1 and 2 CCW Piping**
 - Selected portions of piping exceed stress analysis temperatures at EPU conditions, analyses underway to minimize impact
- **Unit 1 PRA Evaluation**
 - Issue involves current PORV sizing and ability to accommodate once-through cooling
 - Alternate options under evaluation
- **Unit 1 LBLOCA – maximum Containment Spray flow**
 - AREVA working LBLOCA runs – challenging schedule to complete

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EPU LAR – PTN

- **AST LAR submitted to NRC on 6/25/09**
- **Containment Analysis**
 - Acceptable containment peak pressure/temperature results
 - Current Component Cooling Water System temperature limits will be exceeded
 - Evaluating Modification Options
 - Evaluating Hot Leg Injection flow path for long term cooling and preclude boric acid precipitation
 - May require modification
- **Steam Line Break Core Analysis**
 - Initial results did not meet acceptance criteria
 - Acceptable results achieved by adding lead/lag module to SIAS low steam pressure input
 - Also reduces limiting peak containment pressure for SLB
- **DNB Parameters (OT Δ T, OP Δ T Trips)**
 - Initial Pressurizer pressure margin to trip too close to normal operating pressure considering instrument uncertainties
 - Replacing Pressurizer pressure gauges with digital to gain operating margin
- **Assessing Impact of Mid Course Review on LAR development**

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PTN ISFSI

Confirmation/ Approval for ISFSI Location

- Recommendation is for EPU Craft facility inside PA and relocate ISFSI Pad outside PA
 - Revisiting Facility needs
- FDEP Approved Amendment Request to the Site Certification for ISFSI Location outside PA.
- Permit Approved by County Building Department for Soil Improvement, however zoning approval for the ISFSI was not confirmed as planned
- Revised Plan to Resolve Zoning Issue for ISFSI Location
 - Second Building Permit Application (for Storage Modules) being prepared
 - Formal submittals with the County Administration and County Attorney's office have documented FPL position that zoning is appropriate and no further zoning approvals are needed
 - Subsequent issuance of Building Permit to place modules on site will serve as confirmation of zoning by county
- Based on time needed for Engineering and Construction, current start date for ISFSI construction is August 3, 2009, if additional funding is approved

Lean Team

Lean Status Report as of 7/9/09

CURRENT	ITEM	OWNER	DUE DATE	STATUS
OPEN/CLOSE	No items scheduled for this interval			
REWIND				
Engineering	Mod-8 Review	Christodoulou	3/20/09	The analysis is complete and the block design will be implemented at PB. Proof testing at CR3 to validate 24hr reduction of critical path time.
Engineering	Diamond spacer installation mods	Christodoulou	3/20/09	Analysis complete. Diamond spacer tape to be tested at N.Anna to validate 12 reduction critical path time.
LOGISTICS				
	Publish draft tag out strategy to PB.PTN.PSL	McHenry	7/22/09	
2 WEEK LOOK AHEAD	ITEM	OWNER	DUE DATE	STATUS
	Siemens validate to go engineering activities and durations	Douglas	7/7/09	Complete. Update provide by M.Londergan 7/7/09
	Testing review and contingency planning meeting in Orlando	Douglas	7/28/09	FPL, Pearce, Hajos, Fleisher attending
	Feedback on learnings from N. Anna (work platforms, coil cutting, working both ends, winding technique, etc.)	Londergan	9/01/09	Final summary due 9/1/09. N.Anna experiencing core issues. Individual issues reported by Mark L. as work progress.

Lean Team

Critical Actions

Item	Owner	Due Date	Comments
Finalize schedule and owners for all future actions	S. Douglas M. Pearce	7/29/09	Schedule populated with most items. Siemens confidential engineering items and schedule duration for PB Spring 2010 to be added.
Issue final report on results of proof testing open/close improvement concepts at PTN/PSL	J. Mano	7/20/09	This input will determine the duration for open/close
Siemens submit draft PB-1 rewind schedule	S. Douglas	7/13/09	Date provided by S.Douglas 7/8/09 as planned
Siemens submit detailed generator testing plan and schedule with basis. This is the basis for establishing formal decision trees and contingency plans.	S. Douglas	TBD	Contingent upon 7/28/09 meeting. Test plans will be reviewed on 7/28. Schedule details to follow

REDACTED

POD 31
Pages 296-299