

# Phase 2 Kickoff Presentation for the Devil's Den Pumping Plant Recovery





# Devil's Den Incident Recap

- On August 11th, 2023, an electrical fault developed in the Unit 1 cubicle within the East Side switchgear.
- The fault caused a sudden release of electrical energy, resulting in an explosive arc blast and subsequent fire. This event led to the complete destruction of the electrical infrastructure in the East Side Gallery and caused residual damage to the West Side Gallery.
- The plant underwent a three-month recovery effort to clean up and restore the West Side gallery, enabling the temporary reactivation of Units 4, 5, and 6.





# Devil's Den West Side Restoration (Phase 1)

The West Side of the plant was temporarily restored and became operational in November 2023, which included:

- Installation and removal of the bypass lines
- Cleaning of the equipment
- Electrical testing of equipment
- Preliminary assessment of equipment
- Startup and commissioning
  - Units 4, 5, 6
- Project closeout (documentation, As-Built drawings, commissioning documents)





# Devil's Den East Side Restoration (Phase 2)

- The East Side of the plant cleanup effort was completed in March 2024.
  - Removed the damaged electrical equipment and disposed
  - Designated it as a *Green Zone*
- The planning phase for the restoration of the Facility began in February 2024.
- Scope includes design and procurement of new equipment, maintenance and refurbishment, and restoration of existing equipment.
- Three-year timeline with a \$10M budget.



# Devil's Den - Equipment Replacement / Modernization Scope:

Equipment to be Refurbished *	Equipment to be Designed and Procured
<b>Switchyard</b>	<b>Plant</b>
70kV Transformers	4160V Switchgear
70kV Breakers	Motor Control Center (MCC)
Switchyard Disconnects	480V Breakers and Switchgear
Instrument Transformers	Protection System (Relays)
<b>Plant</b>	Fire and Life Safety Detection
East Side Pumps and Motors	Programmable Logic Controllers (PLC's)
Essential DC Power (Battery and Battery Chargers)	HVAC

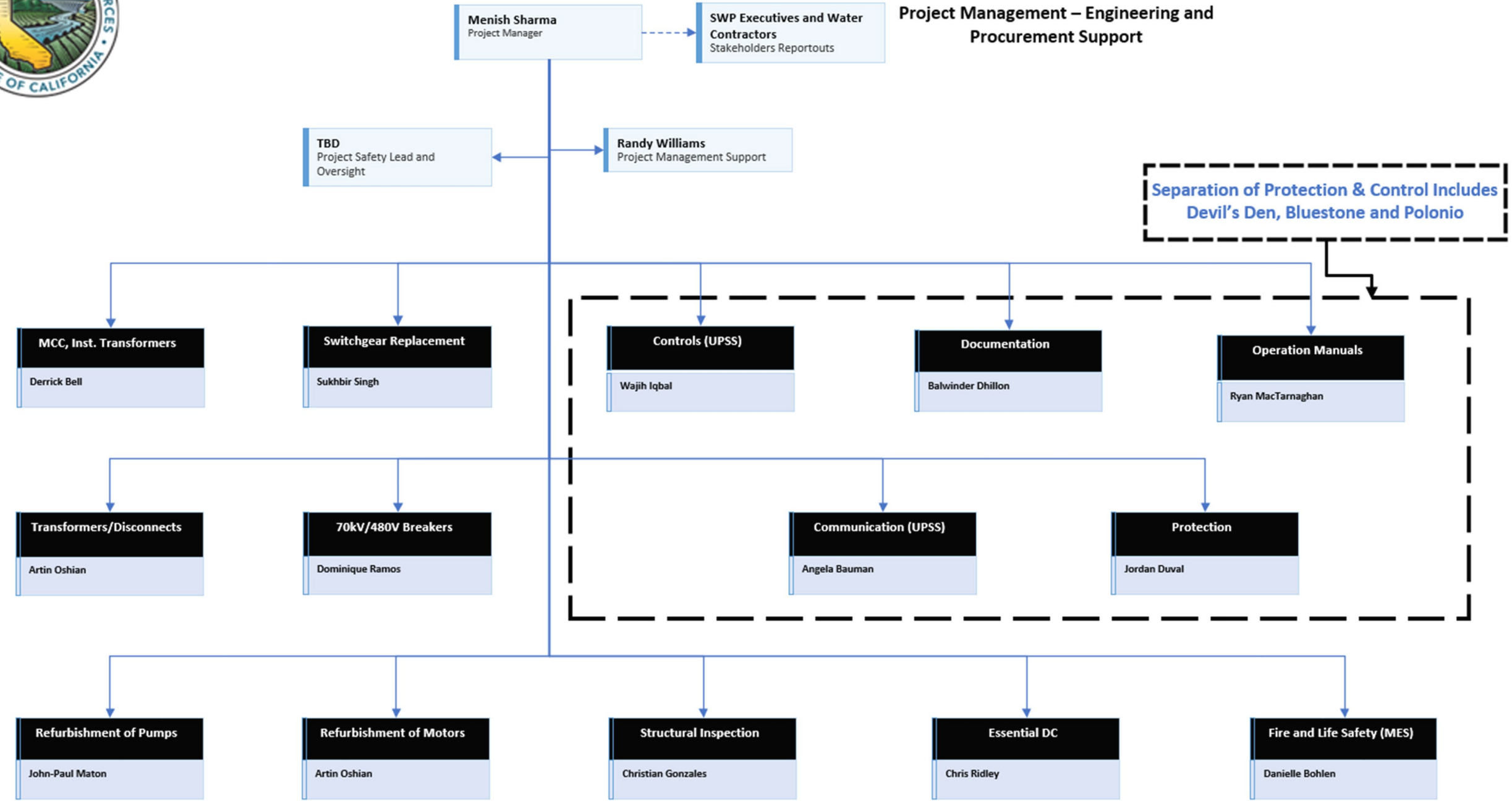
\* Scope to be determined based on test data and conditions of the equipment



# Project Team Organization Chart



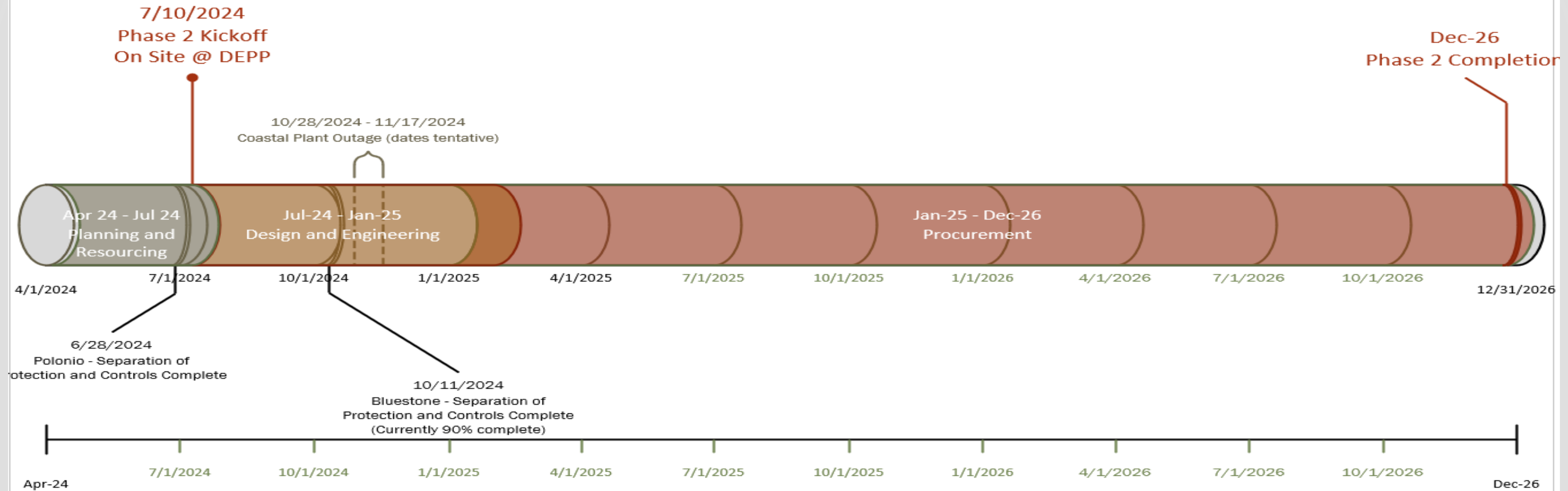
## Devil's Den Restoration Project – Project Team





# Phase 2 Project Timeline

## DEPP Restoration and Refurbishment Phase 2 Milestone Schedule



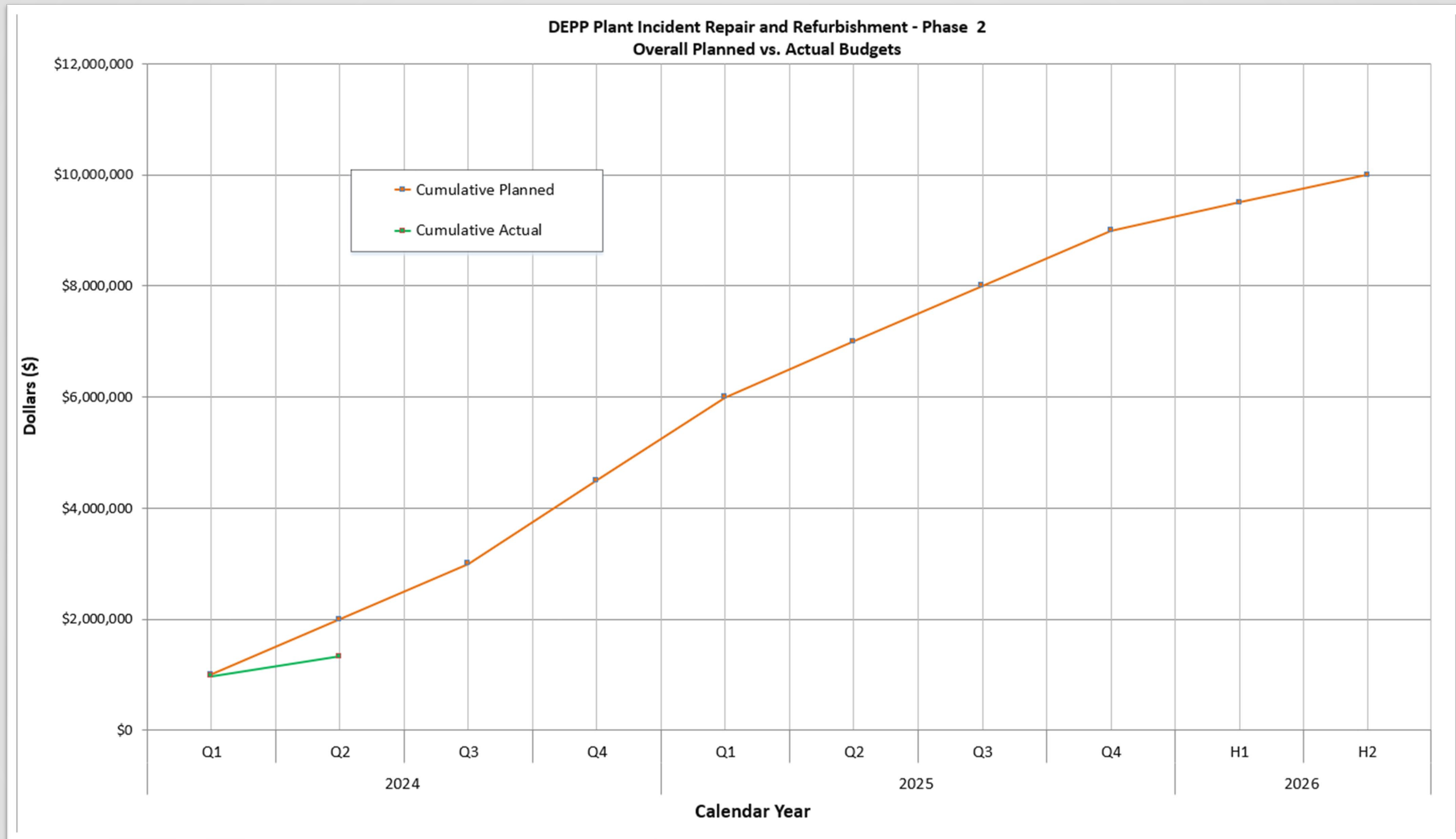
# Planned Objectives for Phase 2

- Cleanup and demolish equipment in the East Side Gallery.
- Design, engineering, and specifications for 4160V switchgear, MCCs, and 480 switchgear and breakers.
- Assess, evaluate, and, if needed, perform refurbishments on equipment.
- Procure equipment to mitigate the risk of long lead times.
  - 4160 V switchgear
  - 480 V switchgear and breakers
  - MCCs
  - HVAC systems



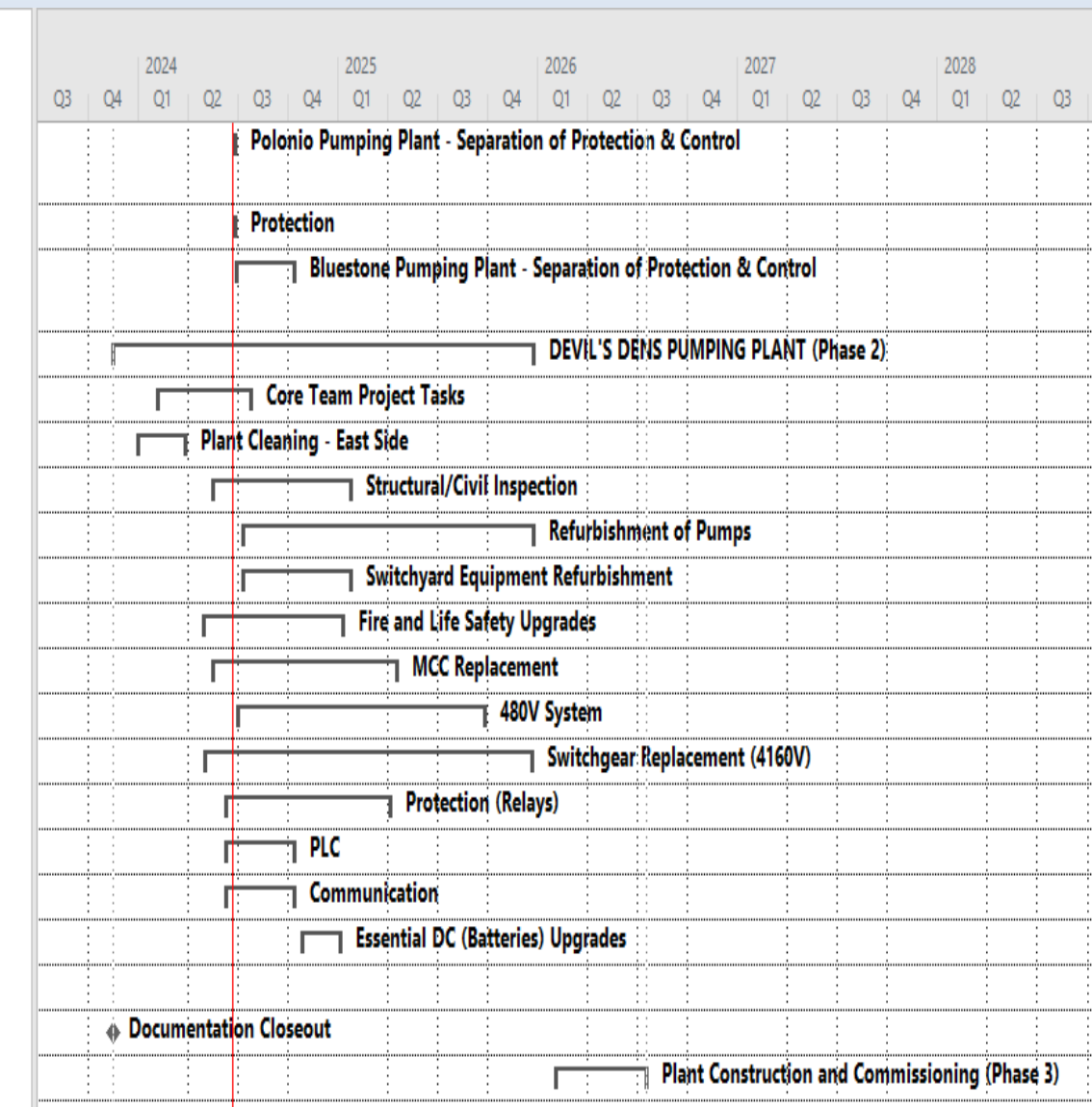


# Budget Tracking



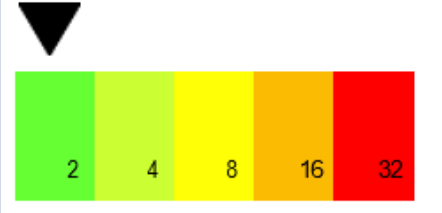
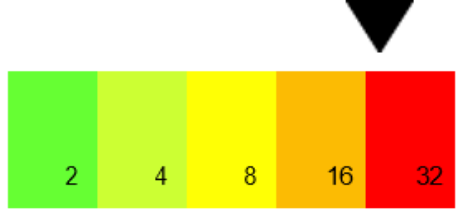
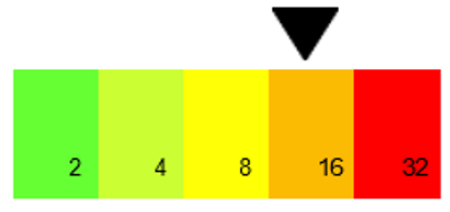
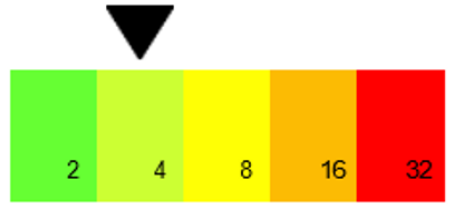
# Phase 2 Gnat Chart (Microsoft Project Schedule)

Task Name	Duration	Start	Finish	% Com	Predecessors	Resource Names	Notes	Add New Column
1 Polonio Pumping Plant - Separation of Protection & Control	3 days	Mon 6/24/24	Wed 6/26/24	0%				
2 Protection	3 days	Mon 6/24/24	Wed 6/26/24	0%				
5 Bluestone Pumping Plant - Separation of Protection & Control	76 days	Fri 6/28/24	Fri 10/11/24	0%				
9 DEVIL'S DENS PUMPING PLANT (Phase 2)	550 days?	Wed 11/15/23	Tue 12/23/25	4%				
10 Core Team Project Tasks	123 days	Mon 2/5/24	Wed 7/24/24	5%				
17 Plant Cleaning - East Side	61 days	Tue 1/2/24	Tue 3/26/24	99%		Artin Oshian		
21 Structural/Civil Inspection	182 days	Thu 5/16/24	Fri 1/24/25	0%		Christian Gonzales		
29 Refurbishment of Pumps	380 days	Wed 7/10/24	Tue 12/23/25	0%		Jean Paul Maton		
36 Switchyard Equipment Refurbishment	140 days	Fri 7/12/24	Thu 1/23/25	0%				
58 Fire and Life Safety Upgrades	183 days	Mon 4/29/24	Wed 1/8/25	7%		Daniella Bohlen		
68 MCC Replacement	240 days	Fri 5/17/24	Thu 4/17/25	0%		Derrick Bell		
75 480V System	323 days	Mon 7/1/24	Wed 9/24/25	0%		Dominique Ramos	Received quote from Siemens	
83 Switchgear Replacement (4160V)	427 days	Thu 5/2/24	Fri 12/19/25	0%		Sukhbir Singh	Service contract TBD, need to determine milestones	
90 Protection (Relays)	215 days	Mon 6/10/24	Fri 4/4/25	0%		Jordan Duval		
95 PLC	90 days	Mon 6/10/24	Fri 10/11/24	0%		Wajih Iqbal		
98 Communication	90 days?	Mon 6/10/24	Fri 10/11/24	0%		Angela Bauman		
101 Essential DC (Batteries) Upgrades	50 days	Mon 10/28/24	Fri 1/3/25	0%		Chris Ridley		
105 Develop Operation Manuals				0%				
106 Documentation Closeout	0 days	Wed 11/15/23	Wed 11/15/23	0%		Balwinder Dhillon		
109 Plant Construction and Commissioning (Phase 3)	120 days	Mon 2/2/26	Fri 7/17/26	0%				





# Risks and Mitigations

Risk	Mitigation	Risk Score
Plant operations due to only having Units 4-6 in service.	<ul style="list-style-type: none"> <li>Execute project on time.</li> <li>Staff, execute, monitor, and escalate issues. Proactive maintenance on the working units</li> </ul>	
Extended material lead times for major equipment	<ul style="list-style-type: none"> <li>Expedite manufacturing with contractors and subcontractors where possible.</li> </ul>	
Control cost of equipment due to inflation	<ul style="list-style-type: none"> <li>Lock in work authorizations for procurement to establish known costs.</li> </ul>	
Equipment assessed and found to be in unfavorable condition	<ul style="list-style-type: none"> <li>Spare parts inventory</li> <li>Effectively use scheduled outages for maintenance</li> </ul>	



# Planned Objectives for Phase 3

- Construction, startup, and commissioning for the East Side Gallery
- Permanent restoration of the West Side Gallery
- Documentation closeout (operation manuals, As-Built drawings, commissioning procedures)





# Phase 1, 2, and 3 Recap for Devils Den Restoration

## Phase 1 (Complete)

- Clean up and restore the West Side Gallery (Units 4-6)

Cost: \$10 million



## Phase 2 (In-Progress)

- Restore the East Side Gallery
- Design, engineering, procurement

Cost \$10 million



## Phase 3 (Future)

- Construction and commissioning of the East Side Gallery
- Permanent restoration of the West Side Gallery
- Documentation Closeout
- Full operation of Devil's Den

Cost - TBD



# Close out

- Periodic updates on schedule, scope, risk, and budget
- Questions?

