

**Office of Project Assessment  
Office of Science**

**COVID-19 Project Impact Worksheet**

<b>Overview Information</b>	
Date of Report	September 11, 2020
Project Name	sPHENIX
Laboratory/Project Location	Brookhaven National Laboratory
SC Program Office	Nuclear Physics
Federal Project Director	Robert Caradonna – BHSO Point of Contact
Project Director/Project Manager	Edward O'Brien

<b>Project Status (as of date) July 31, 2020</b>		
Project Type	Line Item / Major Item of Equipment (MIE)	
CD-0	Planned:	Actual:
CD-1/3A	Planned: August 2018	Actual: August 2018
PD-2/3	Planned: Sept. 2019	Actual: Sept. 2019
PD-4	Planned: Dec 2022	Actual:
TPC Percent Complete	Planned: 57.2 %	Actual: 53.6%
TPC Cost to Date	\$11,448K	
TPC Committed to Date	\$4,148K	
TPC	\$27,000K	
TEC	\$20,577K	
OPC	\$6,423K	
Contingency - Cost	\$4,801K	% to go: 41.2 on ETC
Contingency - Schedule	11.5 months	% to go: 65.7

<b>COVID-19 Cost and Schedule Impacts</b>				
Annual standing army cost (March 2020 to March 2021) <sup>1</sup>		\$ 230K/Year		
Estimated number of FTE (March 2020 to March 2021) <sup>2</sup>		10 FTEs		
Escalation (weighted average of labor and material rates from March 2020 to March 2021) <sup>3</sup>		1.1%		
		<b>Cost Impact</b>		
		High Impact	Most Likely Impact	Low Impact
TPC	\$27,000K	\$0	\$0	\$0
TEC	\$20,573K	\$0	\$0	\$0
OPC - Complete	\$6,423K	\$0	\$0	\$0
		<b>Schedule Impact (in months)</b>		
		High Impact	Most Likely Impact	Low Impact
		No impact on PD-4 date*	No impact on PD-4 date*	No impact on PD-4 date*

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\*Note: In order to maintain the early completion, date the sPHENIX project will have to expend significant amounts of budget contingency. As of July 31 2020, sPHENIX has 11.5 months of schedule contingency. Even with a mitigation approach fully implemented it is likely that the early completion date will be delayed between four months for the most likely impact and six months for the high impact. However, the PD-4 date will not be impacted.

<sup>1</sup> The annual standing army cost or current staff charged to the project (including any support contractors) from March 2020 to March 2021. This includes cost that is fully burdened or loaded. Use actual numbers when available.

<sup>2</sup> The number of estimated FTEs from March 2020 to March 2021. The FTEs should correspond to the standing army cost provided. Use actual numbers when available.

<sup>3</sup> The escalation rates (labor and material—weighted average) the project use and any expected changes from March 2020 to March 2021.

BNL began resumption of Operations for Phase 1 (Continuation of Essential Mission Critical Operations and beginning of Limited Operations) on June 4, 2020. BNL began Phase 2 of Limited Operations on July 6, 2020.

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**Current Project Stage / Most Recent Critical Decision:**

**If the most recent critical decision was CD-1 or CD-2**, are remote capabilities sufficient to keep project reasonably on schedule? Provide an overview of activities.

**For projects beyond CD-3/CD-3(x) ONLY, provide the following:**

- What are the current site conditions? BNL's work re-start is in Phase-2/Stage-B, which is "Limited Operations." sPHENIX has approximately 60% of our technical staff working on site at BNL. We have submitted a request to BNL Management to increase the number to 80% of the technical staff on site in Phase-2/Stage-2. The approval is pending. Visiting scientists and students from the greater NY metropolitan area have been given BNL permission to work on site on sPHENIX testing and assembly activities. They will follow all BNL ES&H protocols.
- Identify any potential Safeguards and Security and/or Environmental, Health and Safety concerns: None. We are following all BNL ES&H protocols including those related to COVID risk mitigation.
- What type of work continues to be performed, identify whether remote, or onsite? On site work includes the fabrication and testing of sPHENIX EMCal and HCal components in the respective detector factories, the testing of electronics boards and the fabrication of custom cables. Work that continues to be performed remotely includes engineering, design, procurement, documentation, project management and fabrication at vendors. Work at all university collaborating institutions has restarted with the implementation of a low-density labor environment.
- What type of work has been stopped or delayed? What is the nature of the delay? All fabrication work at BNL and most work at universities has been delayed during the COVID work-pause. Fabrication and component testing have restarted both at BNL and collaborating universities over the past 10-14 weeks depending on the institution.
- Are the delays beyond the control of the contractors or vendors in performing the work scope? There are a small number of sPHENIX vendors with delays beyond their control but most have no current delays.
- Can the impacts be readily quantified (cost/schedule impacts)? No cost impacts yet. There is a potential for a future cost impact associated with efforts to maintain the project early completion date. The sPHENIX CPI is 1.04. The schedule has lost 0.5 months of schedule contingency in July. There are 11.5 months of contingency remaining between the early

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project completion date and the PD-4 date. The SPI is 0.94. Mitigation strategies are being implemented to recover the lost schedule time and recover the early completion date to the original date. The mitigation plans include using budget contingency to increase the labor on the project and to buy additional equipment to speed up production at certain sPHENIX component production facilities.

- What are the potential impacts to the contract (possible REAs/draws on contingency)? None
- Are any delays resulting from supply chain disruption? Yes. Electronics and material deliveries had been delayed due to COVID-19 in April and May. There are no current delays due to supply chain disruption.
- Are overseas vendors being impacted? Yes. Overseas vendor deliveries have experienced past delays due to COVID-19.
- Has the contractor demobilized? BNL was in minsafe mode from the end of March to the first week of June. BNL is now in Phase-2/Stage B, “Limited Operations” mode.
- If project is in stand-by / shutdown status, provide a summary of what will be required to restart activities? BNL is gradually moving to a full operations mode through a phased restart. Under the BNL plan, additional personnel working on the sPHENIX project are returning in each of the phases. sPHENIX production activities are restarting at BNL as they return. BNL is in Phase-2/Stage B of the restart as of July 22.
- Any additional impacts to the DOE/SC mission not considered above? None