

CHL-1 COLD BOX REPLACEMENT PROJECT
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Project Scope:

The replacement of the SC1 cold box will consist of a sub-atmospheric primary cold box including the cold compressors and the aux heat exchanger box and supporting hardware to operate in a 2K environment. The Central Helium Liquifier Building that will house this equipment already exists. New technology designed for similar systems by TJNAF for FRIB and LCLSII can be used as the basis for a design to replace the SC1 cold box however, the design must be modified to accommodate the unique requirements for CEBAF. Engineering, design, equipment lead-time and installation will take approximately three years.

Justification:

The TJNAF cryogenic systems are experiencing failure at increasing frequencies. This system capability gap jeopardizes TJNAF's ability to deliver its mission, perform a complementary role within the DOE laboratory system, and attain the vision for scientific excellence and pre-eminence in the structure of nuclear building blocks, the underlying quark-gluon structure of the nucleus. In addition, this gap jeopardize TJNAF's capability to contribute to enabling technologies and emerging fields in photon science and electron-light ion colliders, 2K cryogenic engineering technology, photon science, advanced high power free electron lasers, energy recovering linear accelerator (ERLs), and electron-light ion collisions at ultra-high luminosity. The CHL 1 Cold Box Replacement GPP will help to address this capability and performance gap in the TJNAF cryogenic system.

Milestones	
Preliminary Design Review	Nov. 2017
Cold Compressor Award	Feb. 2018
Heat Exchanger Award	Mar. 2018
Cold Box Design Complete	Jun. 2018
Final Design Review	Jul. 2018
Cold Box Award	Nov. 2018
Cold Box Components Delivered to TJNAF	Dec. 2018
Cold Box Assembly Complete	Dec. 2019
Project Complete (turnover to operations)	Dec. 2020

	FY 2017 (\$K)	FY 2018 (\$K)	FY 2019 (\$K)	FY 2020 (\$K)	Total (\$K)
Funding Baseline	8,000	N/A	N/A	N/A	8,000
Costs	-	TBD	TBD	TBD	TBD