

# SDCC Cooling Outage in CDCE on 6/15/21

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**BROOKHAVEN**  
NATIONAL LABORATORY



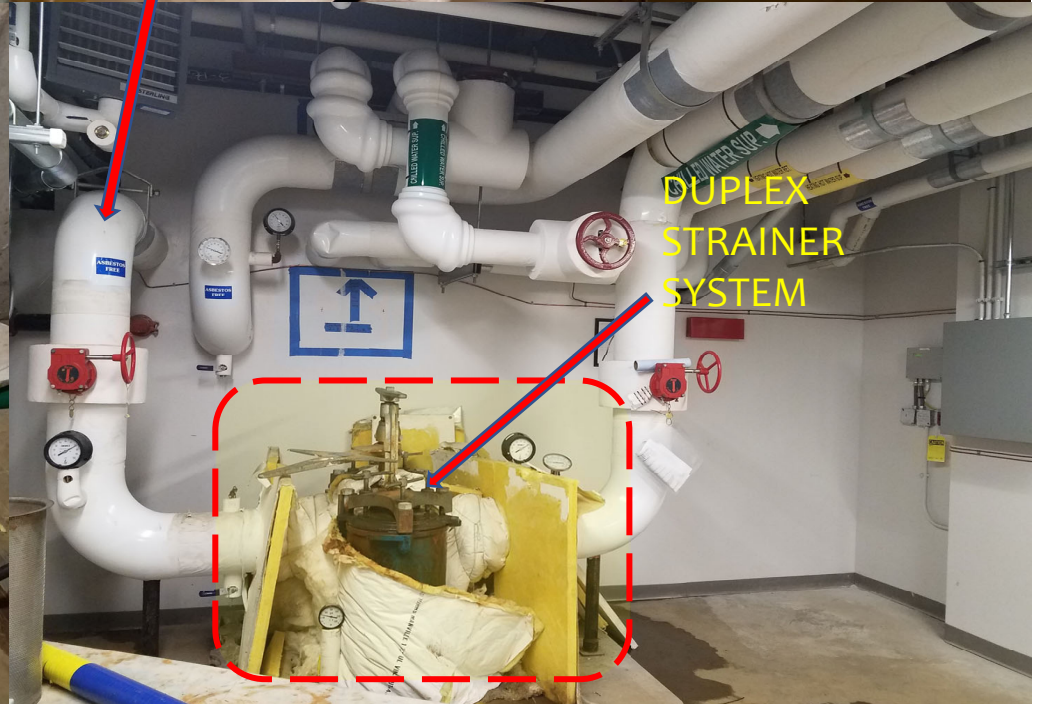
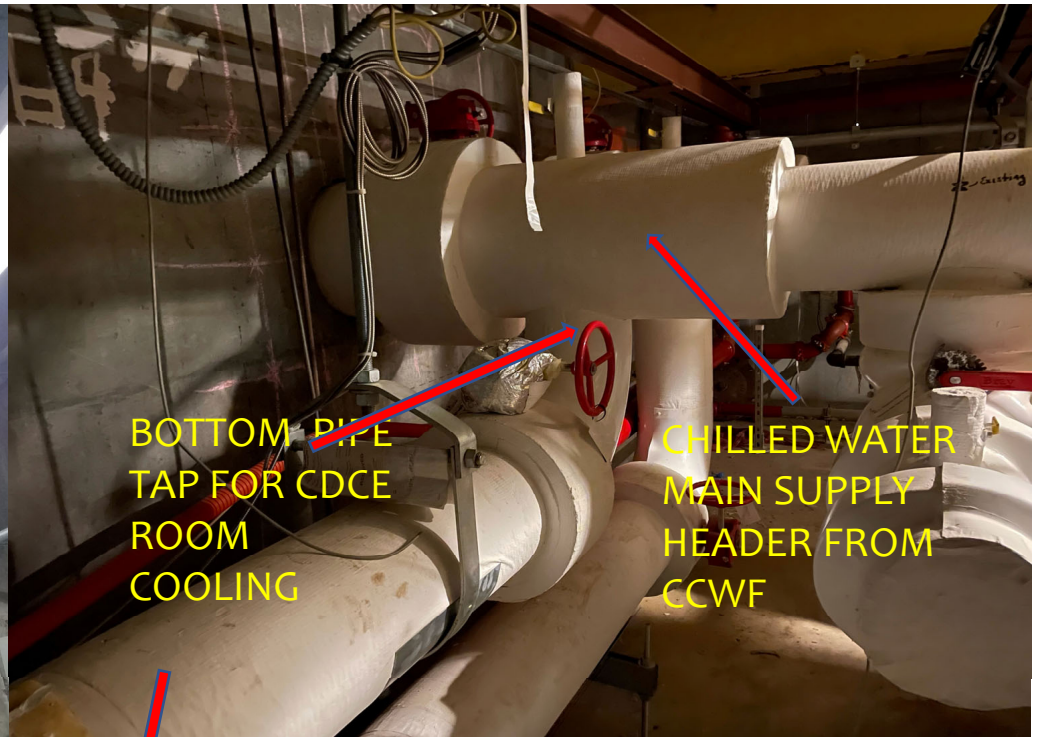
# Overview

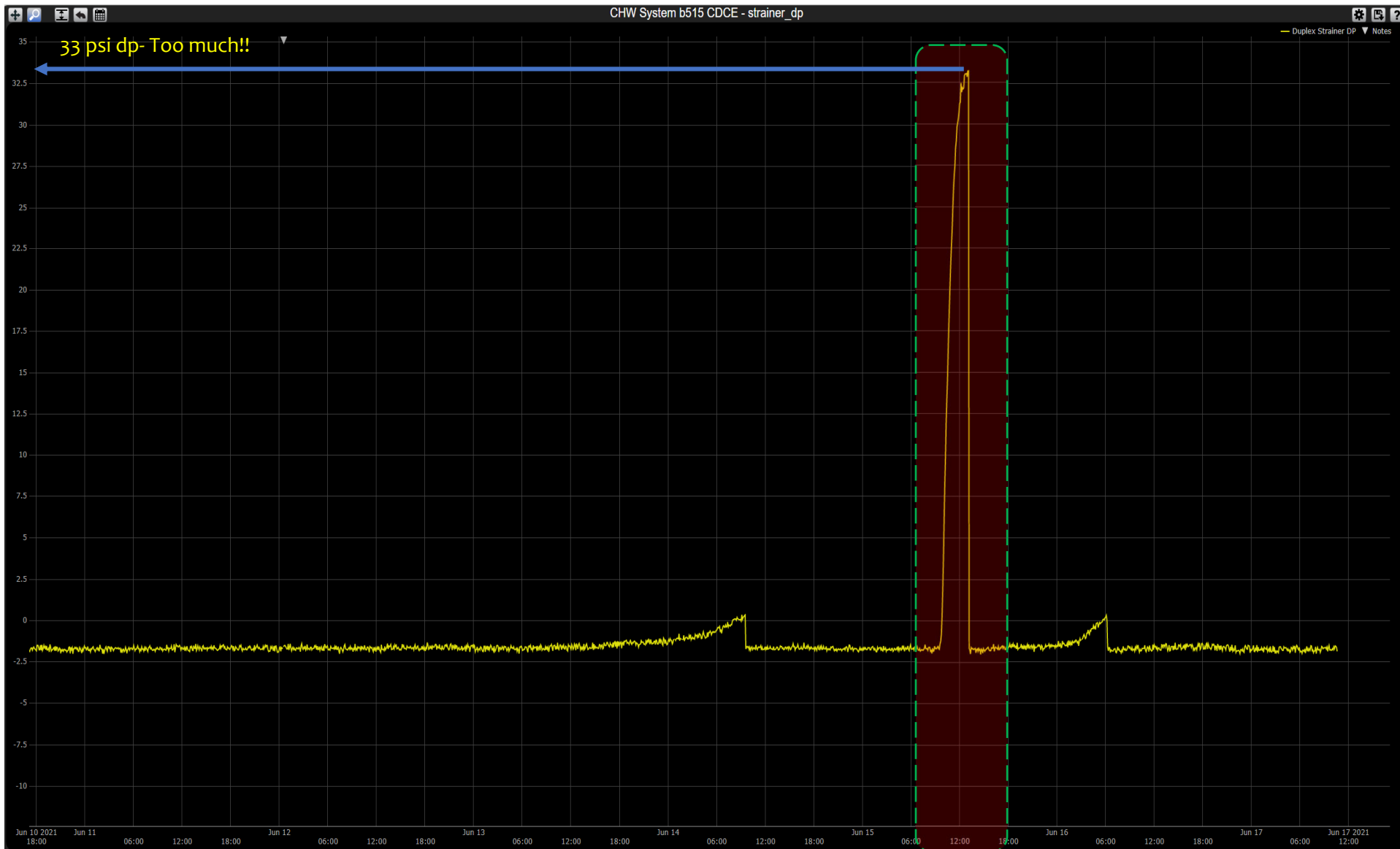
- On Tuesday 6/15/2021, starting around 11am a major cooling failure occurred due to issues with the chilled water system feeding CDCE room 515 SDCC.
- The space temperature in CDCE room rose up, triggering the automated monitoring software shutdowns of compute nodes in that room around 1:00 PM in order to avoid equipment damage.
- This affected all ATLAS T1 compute nodes, and a large portion of the shared pool (all spoolXYZ systems). Parts of SDCC's RHEV system were also affected.
- The issue with the building chilled water circulation was repaired by approximately 2:30 PM, and the farm equipment was powered back online, and opened to jobs after CDCE room temperature stabilized.

# Cooling Issue

- Cooling in the entire SDCC is facilitated by Chilled water supply coming from Central Chilled Water Facility (CCWF) in building 600 via site wide piping distribution.
- To meet the additional cooling load demand during summer months, CCWF adds more flow/pressure in the closed loop system site wide resulting in mineral deposits in older piping infrastructure to deteriorate and pushed into the piping distribution.
- The chilled water branch piping feeding CDCE is connected to the bottom of main chilled water header in 515 basement thus collecting major chunk of mineral/sediments deposit.
- As additional flow was added to the system by CCWF, the chilled water duplex Strainer (filter) system in CDCE basement got severely clogged with sediments, resulting in loss of chilled water circulation to the Computer Room Air Handling (CRAH) units in CDCE room. This caused the CDCE room temp to spike and the compute node were forced to shut down.







# Corrective Actions

- The issue has been escalated and discussed with F&O, with following corrections actions put in place with immediate effect.
  - 1) The AC shop and Site Shift team to closely monitor the differential pressure and flow across the duplex chilled water strainer
  - 2) Preemptively clean the strainer baskets **twice daily** until stabilized pressure is achieved.
  - 3) The work will be done at no cost to SDCC
  - 4) Planning and engineering underway to relocate the chilled water supply tap from bottom to the side of main chilled water manifold feeding CDCE to prevent excessive collection of sediments in the duplex strainer system servicing CDCE.
  - 5) This work will require cooling shutdown in CDCE so it will be scheduled during upcoming winter on a schedule convenient for SDCC
  - 6) This piping relocation work will be performed as a maintenance item with no cost incurred to SDCC.



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**Questions  
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