

# RICH Issues and Troubleshooting

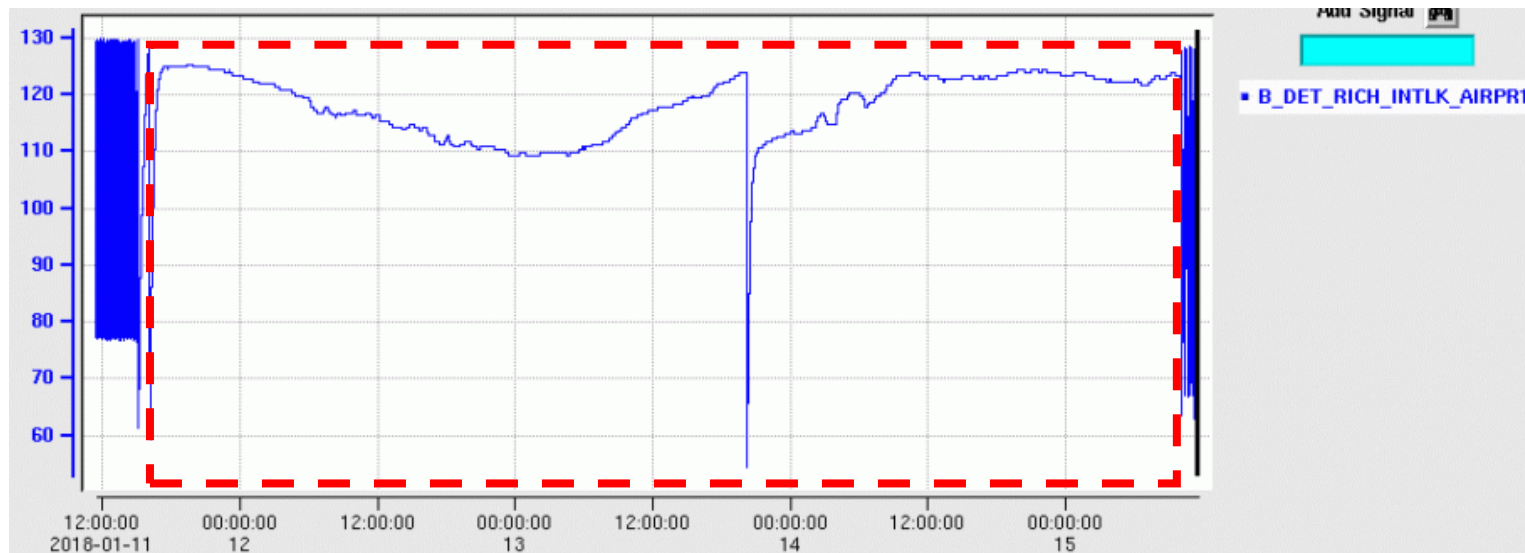
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Detector Support Group

January 17, 2018

# Air-Cooling Tank Pressure Interlock Trip

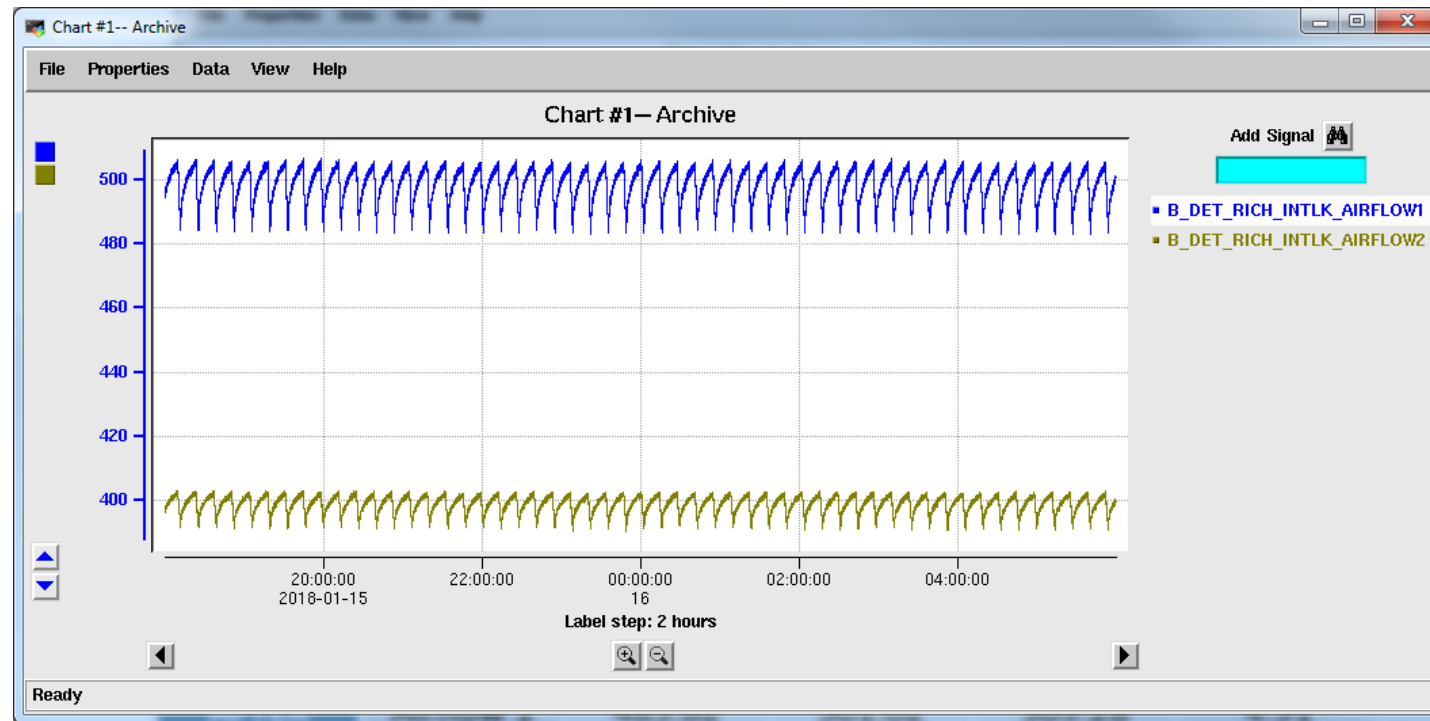
- On January 13, 2018 pressure in air-cooling system's tank dropped below 60 psi, tripping the air pressure low limit interlock.
- Archived data supports that compressor was not able to provide ~950 slm flow, as set on valve panel.
  - Pressure was not oscillating, following on-off cycle of compressor.
- Pressure returned to normal behavior after flow decreased from 950 slm to 900 slm.



# Airflow 1 Interlock Trip

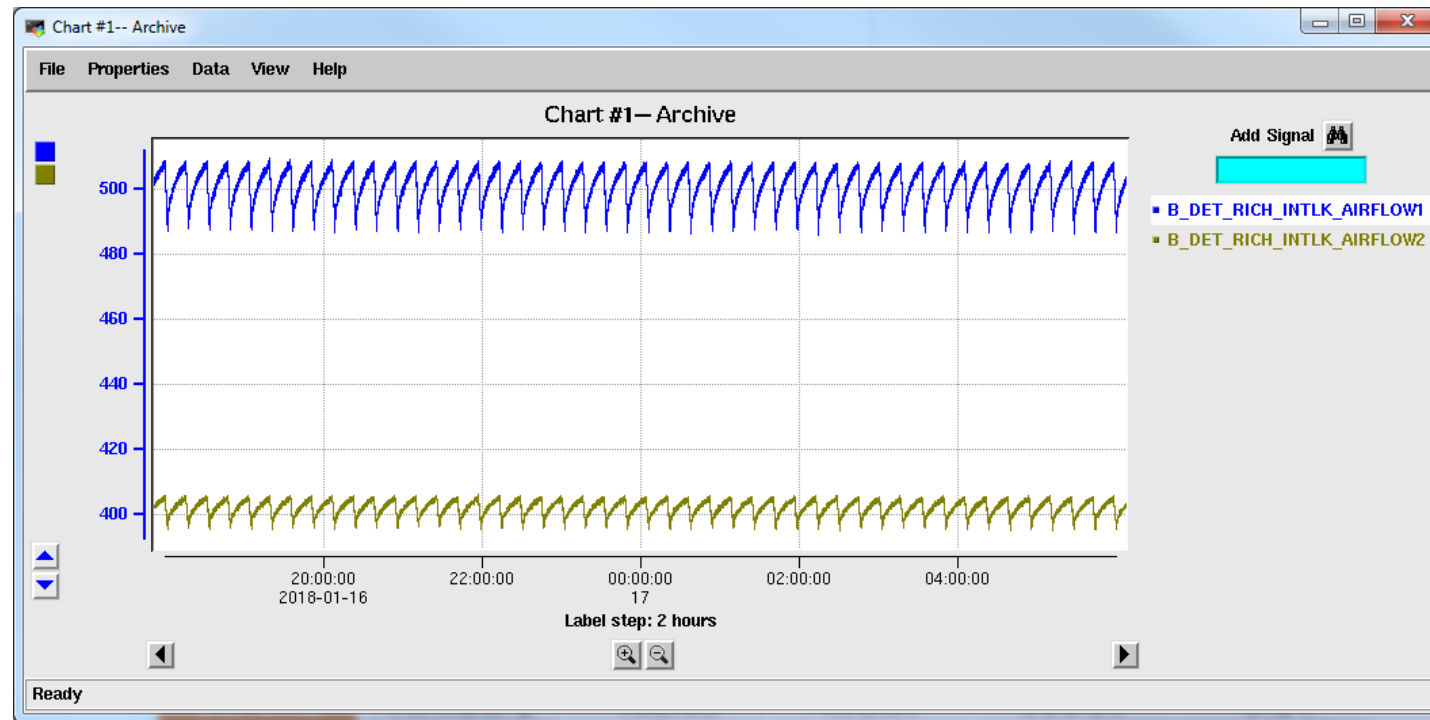
- Airflow 1 increased to ~550 slm during time of pressure issues, tripping the high limit interlock for Airflow 1.
  - High interlock limit was set to 550 slm.
- To make airflow more stable and not affected by compressor's cycle, air panel's regulator was decreased from (~60 psi) to ~45 psi.
- Since regulator change, airflow is still affected by compressor's cycle.

# Before Regulator Change



PV	Min [slm]	Max [slm]	Max – Min [slm]	Mean [slm]	Std Dev [slm]
Airflow 1	482.83	506.59	23.76	498.57	5.14
Airflow 2	390.44	403.18	12.75	398.87	2.57

# After Regulator Change



PV	Min [slm]	Max [slm]	Max – Min [slm]	Mean [slm]	Std Dev [slm]
Airflow 1	485.82	509.28	23.46	501.02	4.91
Airflow 2	395.30	406.28	10.98	402.30	2.18

# EP cRIO Interlock Limit Reset

- Issue noted in logbook: <https://logbooks.jlab.org/entry/3514481>
- Cause of limit reset was not reboot of cRIO.
  - PV indicating hours since cRIO's last reboot was at ~160 hours.
- Noted soft IOC was rebooted at same time limits were reset.
- Discussed issue and solution with Nathan Baltzall.
  - Nathan found IOC configuration error that caused soft IOC to not save parameters for EP cRIO PVs.
  - Error fixed and tested successfully.

# Nitrogen Panel Upgrade

- Rotameter and flow meter on hand for upgrade to nitrogen panel.
- Upgrade would allow increased flow capacity.
  - ~60 slm per line to RICH for total flow of ~120 slm.
- Increased flow would only be used for purge.
  - Allows ~34 volume exchanges per day.
- Email sent on January 10 ,2018 to Bob Miller (RICH gas system owner) to notify of parts on hand.
- Waiting for Bob Miller to assign a Design Authority to approve update.