Meeting with Cryo Group and Will Oren

September 30, 2015

Poelker, Areti, Sandorfi, Xiangdong Wie, Creel, Rao Ganni, Mat Wright, Will Oren, Scott Thompson

On Wed Sept 30, a group of us met with the Cryo team and Will Oren to discuss how to provide helium to HDIce.   It seems our original path forward - i.e., the cryo staff periodically fills a dewar from an on-site CHL spigot, and delivers this dewar to HDIce  - was ill-conceived, at least in the opinion of Rao Ganni.  By ill-conceived, I mean the process of filling a large dewar is more complicated than we originally imagined.  Filling a 1000 L dewar will require considerably more engineering and infrastructure (plumbing, valves and sensors).   It's not just a valve and nozzle like you see at the LN2 dispenser.  In addition, our 1000 L dewar is a piece of garbage, and although not expressly stated, the CHL folks would rather not provide this service (poelker reading between the lines).   So here are our options, a downselect needs to happen soon:

1) Physics purchases LHe from a LHe vendor, Physics coordinates the swapping of dewars
2) Engineering builds a rather sophisticated on-site dewar fill-station, more complicated and more expensive than originally envisioned.   Cryo folks fill and deliver dewars to HDIce.  WE imagine needing a filled 1000 L dewar every five days.   As stated previously, HDIce beam tests last for 6 weeks and are performed three times per year.
3) Cryo group designs, builds a LHe transfer line, from CTF to the HDIce 500 L buffer dewar, providing 0.55 gm/s

For all options, we agree to capture the helium boil off and return it to CTF, i.e., the Cryo group will install a return line from HDice.

Also of some relevance, a new 4K cold box will be installed and functional by Feb 2017.   This will increase our CTF 4K capacity. Rao expressed some confidence that operating the 1/4 CM and HDice using 4 K helium could alleviate some of the problems with over-burdened CTF, over-subscribed LHe at building 58...