C) Cryogenic Helium Targets:

- 5K, 15 atm: different condition from the LH2/LD2 system
- Target cell/cell blocks prototype tested, design nearly finalized
- Compressor ordered
- Gas handling system design first round
- Additional cooling lines for 5K/20K switching
- Major problem: current ESR cooling capacity not enough
  Needs 500 W at 5K, available now < 300 W after 3 hall's spectrometers
- Long term: Upgrade of ESR is planned (will take 2-3 years, $3 million)
- Short term: Run He experiments when one other hall not using ESR
  Installation Summer 99, Run to end of 99?
- Now 10 cm, future longer cell, need new design

B) Status:

- The cryotarget system installed in the Hall in 9/97
- Commissioned in early October, 1997
- LH2 target took up to 130 mA, about 700 Watts
- LD2 target took up to 120 mA, over 700 Watts, world record!
- Total heating (max) in one loop about 1 KW
- Commissioning run preliminary results
- Improved reliability after the commissioning run.

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- It has been working very well for the first cryotarget experiment E91026

    No down time due to cryotarget problem

- Running together with Hall C, limited by total ESR cooling power

Hall A Cryotarget System

A) Basic Target System:

- Three loops for liquid H_2, D_2 and one gaseous target (^{3}He or ^{4}He)
  Initially LH2, LD2 and LD2 with collimator
  Each target can handle beam heating up to 700 Watts
  Rastered beam current up to 120 μA.

- LH_2, LD_2: each has 2 cells (15 cm, 4 cm)
  operation conditions: 22 K, 22 psia for LH2
  19 K, 26 psia for LD2.

- ^{3}He, ^{4}He: one cell, 10 cm, 5 K, 15 atm.

- Dummy Targets: 15 cm, 4 cm, and 10 cm

- Solid Targets attached at bottom: Raster, Al, 12C, BeO, and Empty.

- It was built by TJNAF with a lot of help from users groups, especially
  CalStateLA, Kent, Maryland, ODU, W&M