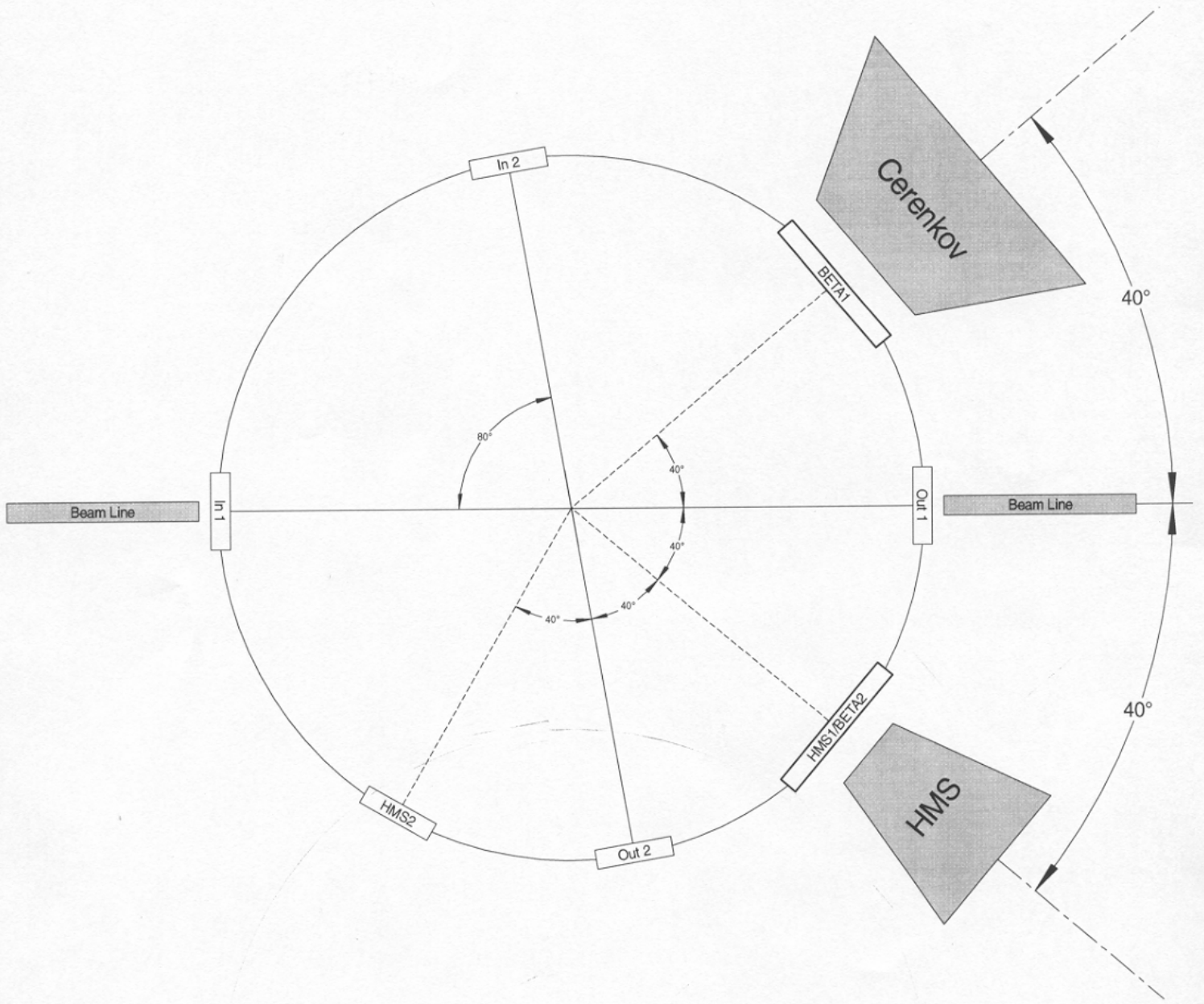
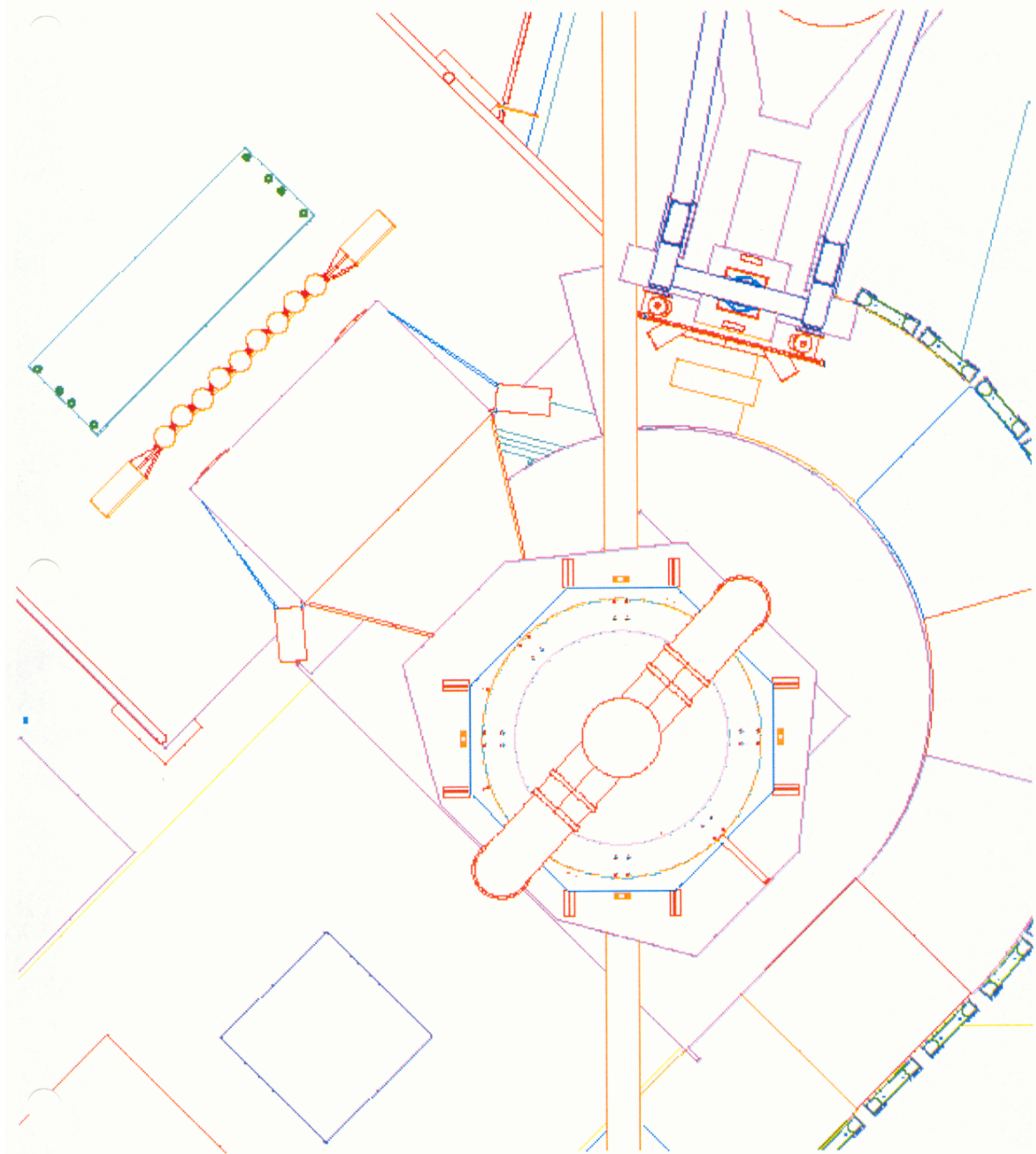
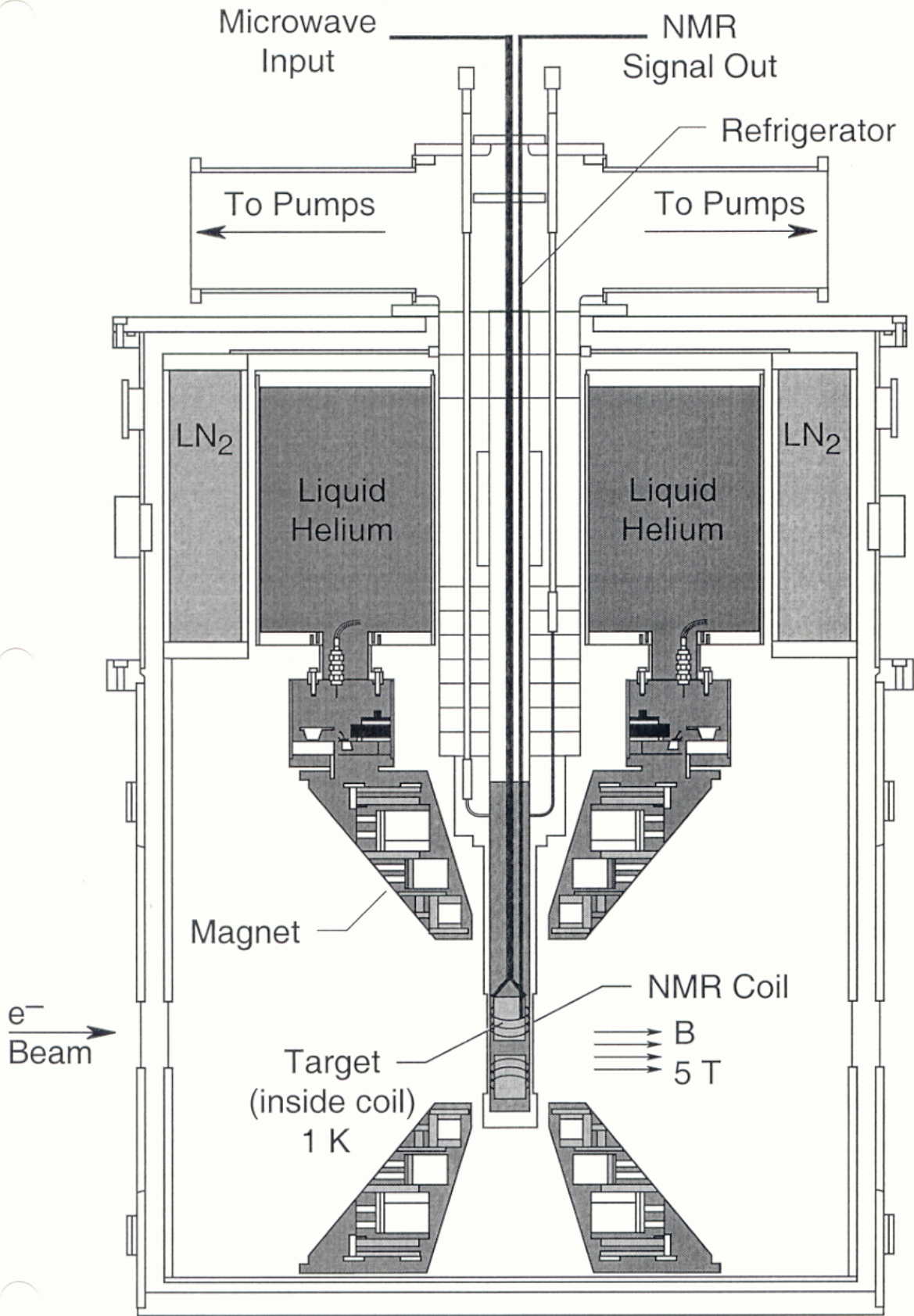


SANE Target Considerations

- New Outer Vacuum Can
 - BETA aperture somewhat different from GeN Neutron Detector
 - Scattering angle and field angle very different from GeN/RSS
 - BETA windows will be around 15mil Aluminum, like GeN/RSS
- New Target Material Needed
 - About 10 target loads of $^{15}\text{NH}_3$ will be needed
 - Two additional loads should be on hand in case of lost material
 - Cost is a factor: ammonia gas is about \$135/liter = roughly \$25k total
 - Material preparation requires irradiation in a particle beam: NIST machine
 - Should also test polarize material before experiment – see below
- Target Platform & Cryogenic Controls
 - Design can be very similar to GeN and RSS setup from 2001/2002
 - JLab Target Group will likely play major role
 - BETA Calorimeter will make demands on platform design
- Target Insert Modification/Preparation
 - Should have at least 3 inserts ready at beginning of experiment
 - Minor instrumentation changes might be desirable
- Tailpiece Redesign
 - It would be nice to minimize amount of LHe traversed by electrons
 - Difficult to make optimal geometry into a leak-tight vessel
 - The GeN/RSS cylindrical tailpiece (5mil Al, 5mm LHe) is a reliable alternative
- Target Cups
 - Electrons scattered at 40° traverse 1mm of Kel-F in cup wall (high Z, ρ)
 - Difficult to make optimal geometry while maintaining uniform dilution factor
 - Easiest alternative is to thin part of cup wall on BETA side
- 4K and LN_2 Shields
 - As with outer vacuum can, new detector locations require new apertures
 - These are easy parts to design and fabricate
- Full Test Run in EEL (or similar building)
 - Excellent shakedown of all target components
 - New material can be polarized for first time
 - Also encourages maximum progress before Hall installation begins







SANE Target Timeline

Item	Long Term	12 Month	6 Month	3 Month
Vacuum Can	Design Finished	Bids Complete	Can Fabricated	Leak Tested
Target Material	Ammonia Gas Acquired	All Material Frozen	All Material Irradiated	Material Tested
Target Platform		Design Complete		Fabrication Complete
Cryogenic Controls		Design Complete	Fabrication Started	System Tested
Target Inserts		Changes Finalized	Modifications Complete	All Inserts Tested
Tailpiece	Feasibility & Design	Fabrication Complete	Leak Tested	
Target Cups	Feasibility & Design	Fabrication Complete		
4K Shield		Design Complete	Shield Fabricated	
LN2 Shield		Design Complete	Shield Fabricated	
Full Target Test			Date Chosen	Material Polarized