

# SANE Beam Request Update

## Status Summary:

PAC31 approved the jeopardy update to conditionally approved SANE (formerly E-03-109):

- Upgraded scientific rating from "A-" to "A"
- Approved 34 PAC days: 27 days of data and overhead plus 14 calendar days of commissioning time recommended by the TAC
- Hall C interprets this as 70 calendar days on the floor, with 12 days of commissioning

The TAC recommended a Readiness Review of SANE:

- The collaboration and Hall C organized the review, which was conducted on July 2, 2007
- The Summary of the review committee's report states:
  - "The readiness review committee has not found any obvious problem that would jeopardize the installation and running of the experiment"
  - "The committee has emphasized certain aspects of the preparations and gave recommendations".
- A collaboration planning meeting was held on 8/24/2007 to address the recommendations.

The Accelerator Schedule for January-June 2008 shows SANE installation starting on 5/27/2008. The installation is expected to last for up to 10 weeks.

# SANE Beam Request Update (II)

## Beam Request:

We have updated our beam request (submitted by Seonho on 9/13/07) as follows:

- Updated Commissioning and Run Schedule
- Three beam energies:
- 2-pass near 2.4 GeV - no polarization required
- 4-pass near 4.8 GeV - longitudinal polarization at target  $\geq 75\%$
- 5-pass near 6.0 GeV ( $\geq 5.6$  GeV) - longitudinal polarization at target  $\geq 75\%$

75% polarization at target (polarization at the injector times the spin rotation into the Hall) is required to attain SANE's physics goals. Reduced FOM due to potentially lower polarization should be compensated with matching data taking time extension.

- Proposed Run Plan time line for 70 days on the floor, starting on 7/28/2007 after nine weeks of installation. The starting date may be up to a week later, as allowed in the Hall C installation period.
- Updated radiation budget - materials have been submitted to P. Degtiarenko, including changes due to minor modifications to target chamber windows and updated run times

# Beam Energy

- No problem at 2 or 4 passes: 100% longitudinal component is possible assuming other Halls ask for 5 passes
- 5-pass in three Halls only options are:
  - 5.600 to 5.625 GeV with almost 100% longitudinal component in Hall C, but 60% or less in A and B;
  - > 5.92 GeV, with > 80% longitudinal component in A and C (B gets 100%).
- Problem partly taken into account by scheduling about 10% longer data runs at 6 GeV (nominal) than at 4.8 GeV, compared to the proposal.
- Indicated in the request that potentially lower FOM should be compensated with a matching run time extension

# Run Plan

Days*	Setup Numbers from Radiation Budget Form	Special Requirements (including any variance from standard† beam conditions)
6	12	COMMISSIONING - TARGET FIELD 0° OR 180° E = 2-PASS **
2.5	1-2-3	Calibration - Target field OFF, ON 80°, ON 180° E = 2-PASS
0.5		Energy change to 4-PASS
3	4	Target field 180° E = 4-PASS
0.5		Target rotation 180° to 80°
6	5	Target field 80° E = 4-PASS
0.5		Energy change to 5-PASS
10.5	6	Target field 80° E = 5-PASS
0.5		Target rotation 80° to 180°
5	7	Target field 180° E = 5-PASS
(214)	8-9	Miller calibrations at setup Nos 4 to 7
(20h)	10-11	Calibration runs at setup Nos 4 to 7
		** Linac energy $\times 2 > = 1130$ MeV in all cases

\* Assume 100% efficiency for accelerator and experimental equipment operations. The sum of run days must be = the PAC-approved days.

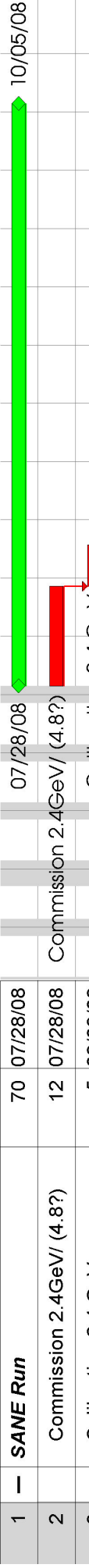
† Provide setup numbers as indicated on the Radiation Budget form.

‡ Consult Accelerator Liaison Physicist, H. Areti, for current beam capabilities.

# Run Plan

## SANE Run

?	Activity Name	Duration	Start	July 2008			August 2008			September 2008			October 2008																											
				06/22	06/29	07/06	07/13	07/20	07/27	08/03	08/10	08/17	08/24	08/31	09/07	09/14	09/21	09/28	10/05	10/12																				
1	<b>SANE Run</b>	70	07/28/08			07/28/08																																		
2	Commission 2.4 GeV/ (4.8?)	12	07/28/08																																					
3	Calibration 2.4 GeV	5	08/09/08																																					
4	Energy change 2 => 4 pass	1	08/14/08																																					
5	4.8 GeV parallel	6	08/15/08																																					
6	Target rotation 180° - 80°	1	08/21/08																																					
7	Chicane alignment	0	08/21/08																																					
8	4.8 GeV 80 deg.	12	08/22/08																																					
9	Energy change 4 pass => 5 pass	1	09/03/08																																					
10	? Chicane alignment (if needed)	0	09/03/08																																					
11	6. GeV 80 deg.	21	09/04/08																																					
12	Target rotation 80° - 180°	1	09/25/08																																					
13	Chicane alignment	0	09/25/08																																					
14	6. GeV parallel	10	09/26/08																																					



# Run Plan

	Calibrati on B OFF	Calibrati on B	Calibrati on B anti 	Data 4.6 	Data 4.6 80°	Data 5.7 80°	Data 5.7 	Moller B anti	Moller B 80°	C runs B anti 	C runs B 80°	Commissi on
Run plan calendar days	1	2	2	6	12	21	10					12
Run plan PAC hours	12	24	24	72	144	252	120	7	14	7	13	144
Proposal hours	12	24	24	70	130	200	100	7	14	7	13	144
Proposal Data +systematics				76	141	216	108	4	8	4	8	
Efficiency: (proposal+syst.) / run plan				1.05	0.98	0.86	0.90					
Proposal 4.8 / 6						0.65	0.70					
Run plan 4.8 / 6						0.57	0.60					
Proposal / run plan 4.8 / 6 ratios						1.14	1.17					
Reduced longitudinal polarization acceptable						94%	95%					

