The MICE Mtg.

J. Norem
ANL

NFMCC Mtg
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I tried to summarize the "risky" parts of MICE

Hardware	impact,	lost time,	probability
Target	10	10	3
Breaks – turns off ISIS			
Beamline			
Installation problems (polarity etc)	1	1	10
SC Solenoid	8	8	1
Counters + field + radiation	1	1	2
PID			
Problems in ISIS ring counters			
Interactions with x rays, ISIS target junk, B fields			
Absorbers			
Dark current beams drill through windows	6	6	1
Leaks or cracks	2	2	4
Absolute calibration and stability			
Can we do 10^{-4}?	2	1	4
Instrumentation for high precision measurements	1	1	3
Magnets			
Rogue quench	1	1	8
Cryosystem, cryocooler problems	2	2	5
RF			
E(B) worse than expected	10	5	5
Testing late	3	2	10
X Ray Backgrounds high - no reconstruction	5	5	5
Slow degradation of surface	3	10	2
Assembly slow	3	3	7
MICE & MANX integration			
Can it fit?			
Something left off this list	?	?	10

Some loose ends:

- Although the spectrometer is highly segmented, the TOFs are not and the ones downstream may be sensitive to radiation from the cavities.
- Extensive debate over what should define the aperture of the beam.
- Are cryocoolers the best way to go?
- How to finesse MANX & other geometries in the MICE hall, and in the proposal.
- etc.

We subsequently had a Target Review, which went well.

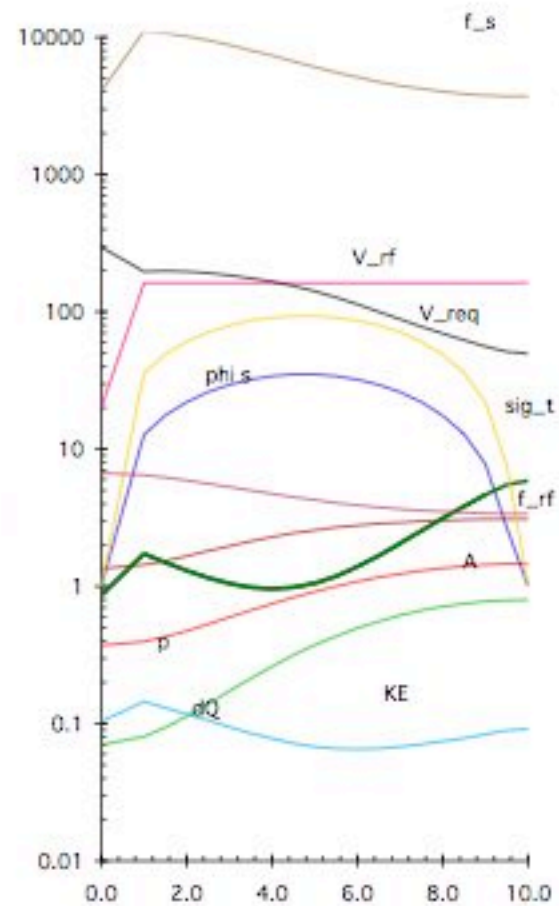
- They had looked at all the problems we had thought of.
- Mechanical failures, however would be awkward.
- They had done an extensive risk analysis.

The ISIS machine parameters (?)

EXCELERATE ISIS: normal operation

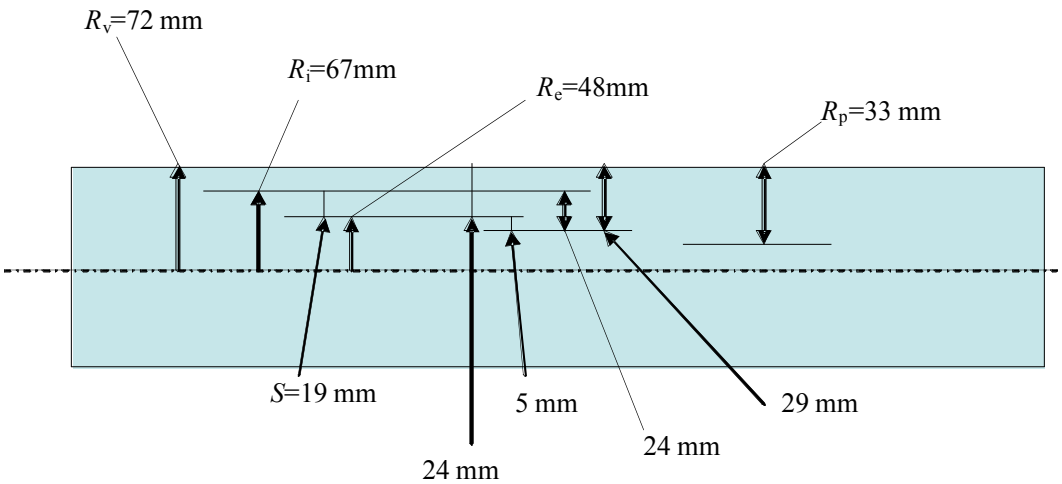
Mass =	0.938	GeV									
Radius =	26.00	m	C =	163.3	m						
K E inj =	0.0704	GeV	E =	1.01	GeV =	0.37	GeV/c				
K E ext =	0.8	GeV	E =	1.74	GeV =	1.463	GeV/c		1601	A	
Acc time =	10.0	ms	F =	50	Hz	Bdot Max =		5	ms		
step =	0.5	ms									
h =	2		d =	81.64	m =	272.13	ns				
gamma_t =	5.034										
r_p =	1.5E-18	m									
g_c =	2.39		note								
N =	4.0E+11	p/bunch		8E+11	p/fill					const	
e_n =	2.5E-05	pi rad m								0.3	

time ms	mom GeV/c	K E GeV	phi_s Deg	Vsin p kV	V_rf kV	letal	f_rf MHz	Area V sec	sig_t ns	f_s Hz	dQ	radius cm
0.0	0.37	0.070	1	1	20	0.826	1.35	0.863	296.5	4046	0.10	6.70
1.0	0.40	0.081	13	36	162	0.809	1.43	1.728	197.4	11144	0.14	6.47
1.5	0.43	0.094	18	49	162	0.787	1.53	1.493	198.8	10732	0.13	6.22
2.0	0.47	0.113	22	61	162	0.757	1.66	1.303	196.3	10186	0.12	5.92
2.5	0.53	0.139	26	71	162	0.718	1.81	1.156	191.2	9533	0.11	5.60
3.0	0.60	0.173	29	80	162	0.673	1.97	1.050	184.2	8811	0.09	5.28
3.5	0.67	0.214	32	86	162	0.624	2.13	0.985	175.7	8064	0.09	4.99
4.0	0.75	0.261	34	91	162	0.572	2.29	0.961	165.5	7335	0.08	4.72
4.5	0.83	0.315	35	93	162	0.521	2.44	0.983	153.9	6660	0.07	4.47
5.0	0.92	0.373	35	93	162	0.472	2.57	1.056	140.9	6059	0.07	4.26
5.5	1.00	0.434	34	91	162	0.428	2.68	1.188	127.1	5543	0.07	4.07
6.0	1.09	0.496	32	86	162	0.388	2.78	1.391	113.4	5108	0.07	3.91
6.5	1.16	0.557	29	80	162	0.354	2.86	1.677	100.3	4747	0.07	3.78
7.0	1.24	0.615	26	71	162	0.325	2.93	2.058	88.5	4452	0.07	3.67
7.5	1.30	0.667	22	61	162	0.302	2.98	2.544	78.1	4213	0.07	3.57
8.0	1.36	0.713	18	49	162	0.283	3.02	3.141	69.4	4025	0.07	3.50
8.5	1.40	0.750	13	36	162	0.269	3.05	3.847	62.0	3881	0.08	3.44
9.0	1.44	0.777	8	22	162	0.260	3.08	4.652	56.0	3779	0.08	3.40
9.5	1.46	0.794	3	7	162	0.254	3.09	5.535	51.1	3715	0.09	3.38
10.0	1.46	0.800	1	1	163	0.252	3.09	5.860	49.6	3701	0.09	3.37
19.5												6.70
20.0												6.70



The Amount of Beam in the Halo is unknown.

From their design.



Key:
R_v: inner vacuum vessel half height
R_i: beam half height at injection
R_e: beam half height at extraction
R_p: max p robe
S: beam shrinkage

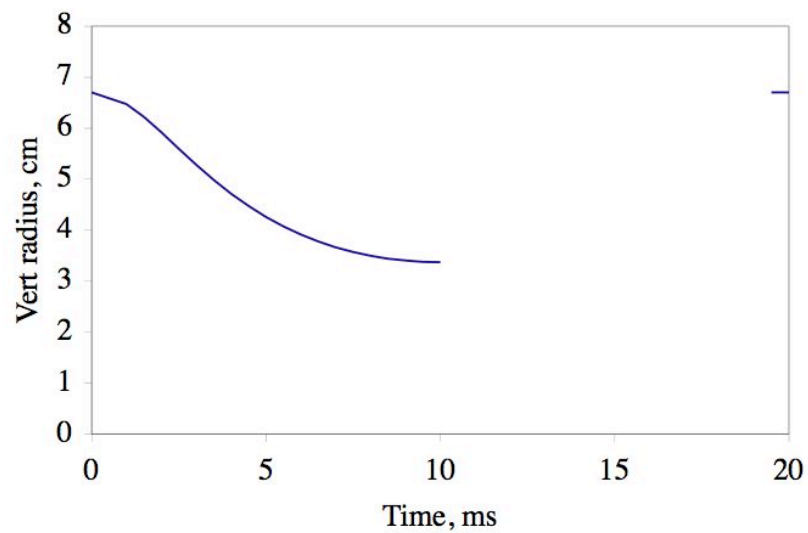


Fig 7.3-1 Beam and Target Positions

Summary

- Better summaries are on the web.
- Things are going well.
- People should be alert for problem areas.