

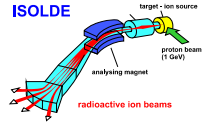
Shutdown 2006-2007

ISOLDE

Mats Lindroos, Erwin Siesling



Key dates, ISOLDE and REX

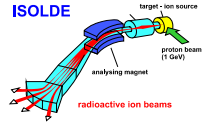


- On-line run stops: 19/11/2006
 - Off-line running stops: 10/12/2006
 - Power supplies are locked: 11/12/2006
-

- Power supplies are un-locked: 2/4/2007
- Cold-check out: 3/4/2007
- Off-line running starts: 9/4/2007
- Protons to ISOLDE: 16/4/2007
- Physics start: 19/4/2007



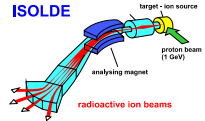
ISOLDE shutdown in subjects



- Facility maintenance:
 - TS
 - AT/Vacuum
 - AB groups (PO, CO, BDI)
 - ISOLDE (Robots, Front-ends, beamlines, hall infrastructure)
- REX
 - AT/vacuum
 - LINAC
 - EBIS&TRAP
- Installations (Beam Line Modification Requests)
 - RFQ cooler
 - Mini-move



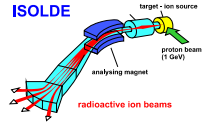
TS maintenance



- No de-mineralized water at ISOLDE: 11/12-2006 - 2/2/2007 (TO BE CONFIRMED)
- ISOLDE 18 KV maintenance: Not yet scheduled. Postponed?
- Emergency stop tests (AUG): Weekend in January.
- EDF/EOS switching tests: 18/12/2006 - 23/12/2006
- Ventilation: Will be done in December 2006 after off-line running stop (10/12/2006)
- Second transformer and distribution panel for ISOLDE, if budget can be allocated.



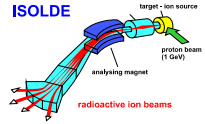
AT/Vacuum



- Week 6,7 and half of 8
 - RFQ cooler and mini-move installation, 5 days
 - Annual maintenance of ISOLDE vacuum system (postponed to next year), 20 days
 - REX low energy stage (already postponed last year), 3 days
 - REX linac, (postponed to next year), 5 days
 - Separation of water and vacuum for front-ends, 5 days



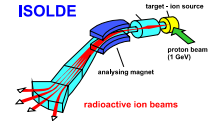
AB groups (PO, CO, BDI, BT)



- Improvement of ISOLDE control system response time (CO)
- New low level controls and application programs for scanners (OP, BDI)
- New low level controls and application programs for wire grid (OP, BDI)
- Scanner, wire-grid and faraday cup maintenance (BDI)
- Power supply maintenance (PO)
- Annual HV maintenance, 7 days (BT)



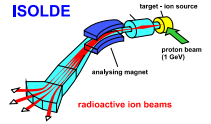
ISOLDE



- Annual robot calibration (safety requirement)
- Annual target area maintenance
 - Replace cameras
 - Front-ends
 - Transport of used target units
- Renovation of stepping motor controls for 15 systems, postponed
- Urgent repair and control integration of slit stepping motor controls
- New VISTAR for ISOLDE (OP, CO)
- Cleaning of compressed air system (AlO powder incident)
- Renovation of tape station electronics (OP, BDI)



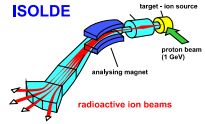
REX: EBIS/TRAP (ABP)



- General annual maintenance
- Intervention to reduce boil off time
- Cathode replacement
- EBIS control system migration
- New control for beam instrumentation (BDI, ABP)



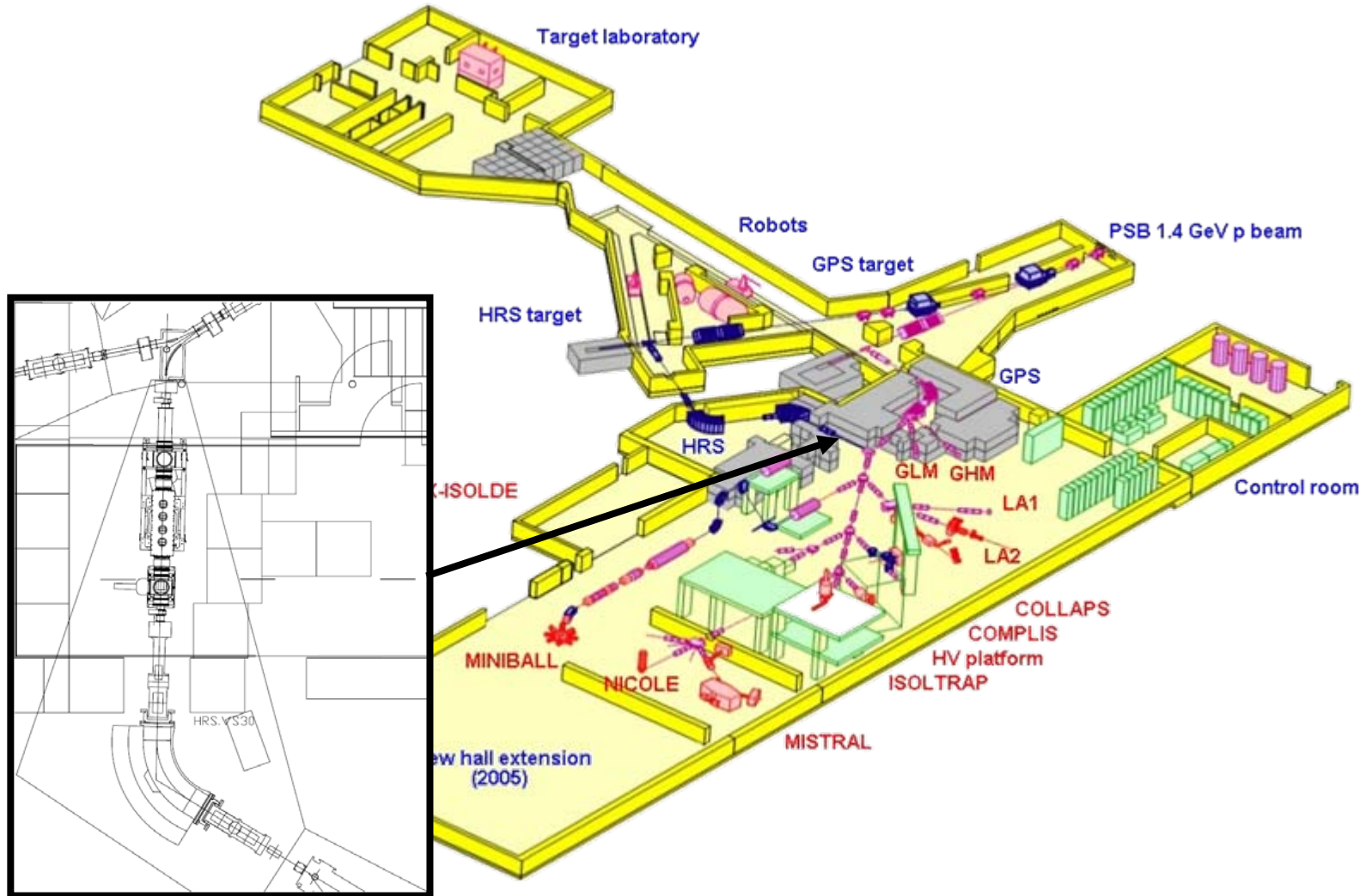
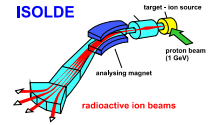
REX linac (RF)



- General annual maintenance
- Amplifier max power output tests (7GPs)
 - Possible change of RF tubes
- 200 MHz amplifier modification, 2 weeks
- IHS : check pick-ups and forbidden positions
- Maintenance and replacement of cavity tuner movement systems (7GPs)
- Maintenance of water cooling circuits and interlocks



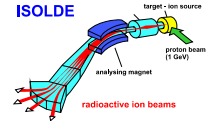
Lay-out: RFQ-cooler



Mats Lindroos, Erwin Siesling



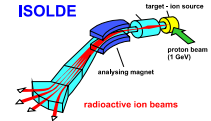
RFQ cooler installation



- HV cage, HV platform and interlocks
- Move RILIS AC unit
- Dismounting of existing beam-line and equipment
- Move of ISOLDE hall roughing pumps into HRS zone
- Installation of new fixed triplet
- Installation of RFQ cooler
- Control system integration
- Vacuum system integration



RFQ cooler budget

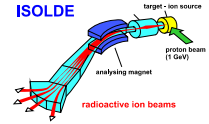


Item	Material kCHF	CERN staff FTE- years	In APT	Budget Code	ISOLDE Responsible	Comments
Off-line tests	5	3		T131900 35160	PD	Beam diagnostics: MCP and grids.
Drawings	25.5	-	-	63546	PD	500 hours draftsman TS
Alignment				LPC	PD	"Gabarit" designed and general plan made. To be discussed with TS alignment section
	4			T131900	PD	1 st Quadrupole triplet: Delivery 30/10/06
	2			Manchester Mainz U	PD	Welding in four way cross for 1 st triplet: CERN
Manufacturing	6			Manchester	PD	2 nd Quadrupole triplet: Delivery 10/11/06
	5			T131900	PD	Vacuum tube for 2 nd triplet: CERN
	5			Manchester	PD	Modification support of pumps: CERN/Mainz?
Gas system	1			Manchester	PD	Modification support for 2 nd triplet: CERN/Mainz?
HV and Power supplies	5			Birmingham	PD	Vacuum tubes; small valve. No mass spectrometer. HV feedthroughs
Instrumentation		0.05	No			Re-using existing equipment
Vacuum system	5	0.05	No			Section valves (2) PLC hardware: To be discussed with David Porret
Controls		0.05	No			
Faraday cage and HV platform	25				PD, ML	
Interlock system	5				ML	To be discussed with TS
Boris tube	10					
Installation	15				ML	
Total 2006	33+25.5=58.5					19kCHF still available UK grant, 14kCHF from T131900, 25.5 from 63546
Total 2007	60					To be funded

Mats Lindroos, Erwin Siesling



Planning

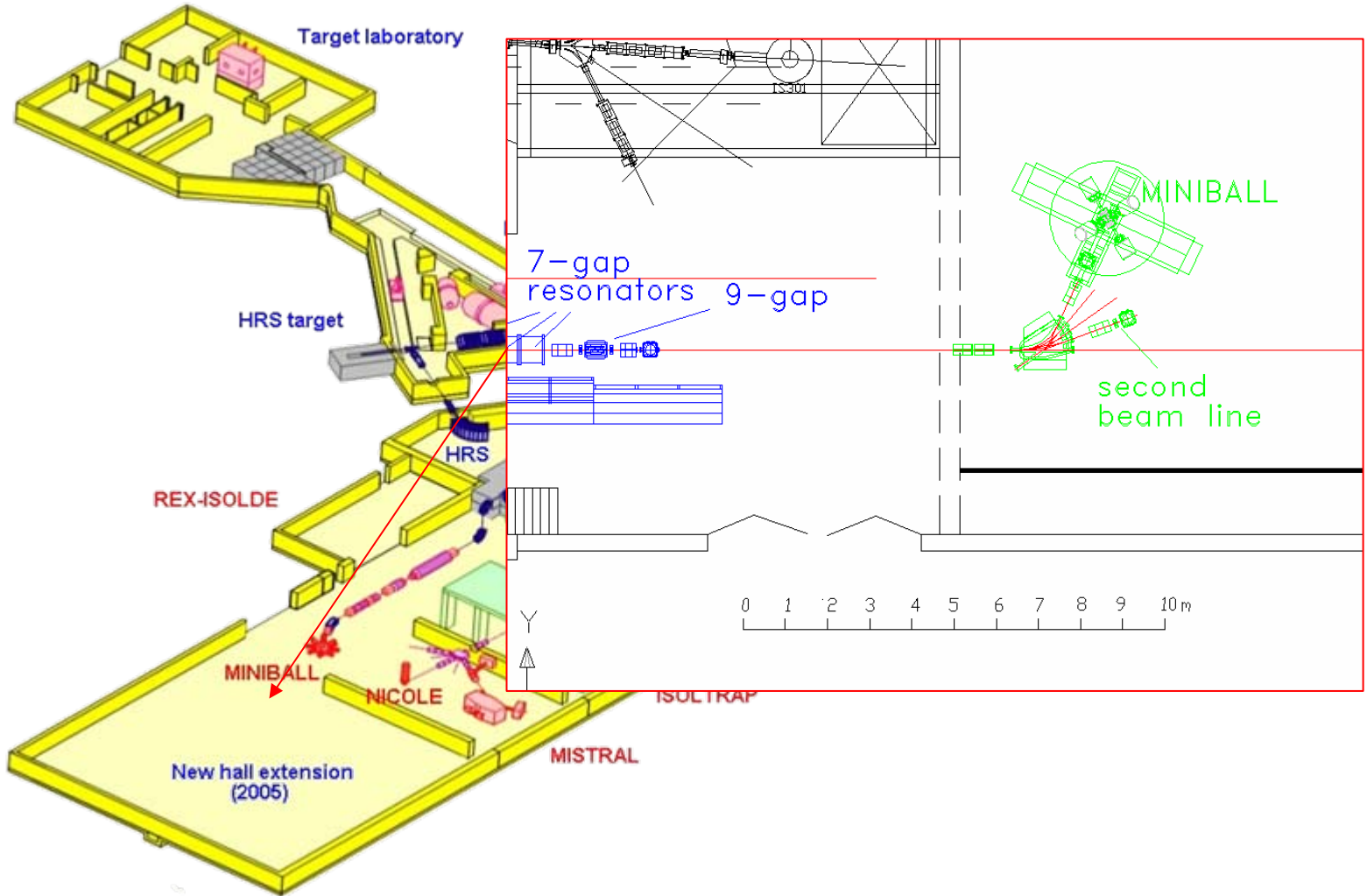
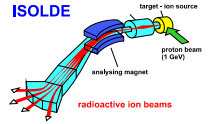


ID	Task Name	Duration	June 1	July 1	August 1	September 1	October 1	November 1	December 1	January 1	February 1	March							
			6/4	6/18	7/2	7/16	7/30	8/13	8/27	9/10	9/24	10/8	10/22	11/5	11/19	12/3	12/17	12/31	1/14
1	Off line tests	120 days																	
2	First beam	29 days																	
3	First cooled beam	5 days																	
4	Emittance measurement	11 days																	
5	CW mode	20 days																	
6	Bunched mode	24 days																	
7	Report	10 days																	
8	Drawings	65 days																	
9	Manufacturing	55 days																	
10	Quad T1	20 days																	
11	Quad T2	22 days																	
12	Support T2	22 days																	
13	Vacuum chamber T2	22 days																	
14	Vacuum chamber T1	22 days																	
15	Support pumps	36 days																	
16	HV platform	101 days																	
17	Mechanics	86 days																	
18	HV connection	30 days																	
19	Faraday cage	101 days																	
20	Mechanics	86 days																	
21	Interlocks	30 days																	
22	Installation of parts in situ	25 days																	
23	Installation of RFQC in h	15 days																	
24	Installation triplets	10 days																	
25	Connection to Infrastruct	10 days																	
26	Alignment	110 days																	
27	Design	40 days																	
28	Alignmnet in-situ	5 days																	
29	Vacuum system	130 days																	
30	Controls	130 days																	
31	Controls	130 days																	
32	Power supplies	130 days																	

Mats Lindroos, Erwin Siesling



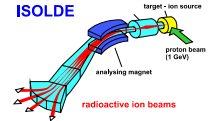
Lay-out: mini-move



Mats Lindroos, Erwin Siesling



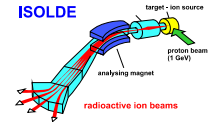
Mini-move



- Alignment system, completed
- Drawings and manufacturing, 10 October
- Renovation of GSI quadrupoles
- Installation of new elements in extension
- Infrastructure installation (AC power, Ethernet, cable trays, pump-line, water lines...)
- Move existing elements
- Final installation and leak test
- Power supply installation and test
- Control system integration
- Install 2 new pump groups
- Vacuum system integration



Mini-move, budget

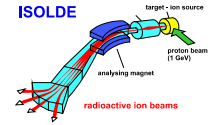


MINI-MOVE PHASE 1 (kCHF)

Item	provisional	quote	spent	Comments
Cooling water	10.0			extension 10l/min, pipe dimension for 250l/min
Forevacuum + N2	4.1	15.8		
Compressed air	1.7			
Electricity	10.0			
Cable trays	5.0	3.6		
Vacuum	40.0		31.6	2 pumping groups, isolation valves, bellows, control
Power supplies	45.0	35.8	5.3	4 Heinzinger power supplies + DC cabling
Control	20.0		3.7	
Alignment				see EDMS document No.708596
Beam observation	20.0			
Drawings+fabrication	25.0		24.6	Vacuum pipe and supports drawings and follow-up
Installation (MP)	28.0			2 FSU for six months (all installation)
Revision GSI quads				
Total	208.8	120.5		



Mini-move planning



ID	Task Name	Mar 12, '06			Apr 23, '06		Jun 4, '06		Jul 16, '06			Aug 27, '06		Oct 8, '06		Nov 19, '06			D	
		M	F	T	S	W	S	T	M	F	T	S	W	S	T	M	F	T		
1	Survey REX linac																			
2	Drawings for supports																			
3	Mechanical Fabrication																			
4	Geometry REX floor lines																			
5	Geometry REX points and wall target																			
6	Cable Trays (Extension & Power Supplies)																			
7	Cooling Water, compressed air, vacuum tubes																			
8	Network installations																			
9	Power																			
10	Refurbish QP magnets																			
11	Installation of Heinzinger power supplies																			
12	Installation of supports and QP																			
13	End of REX runs																			
14	Move of BEN.MD60 and installation of vacuum pipes																			
15	installation of vacuum and vacuum control																			
16	move of Miniball																			

Mats Lindroos, Erwin Siesling