

Booster TLM Installation September 2014 shutdown

T. Leveling

8/20/14

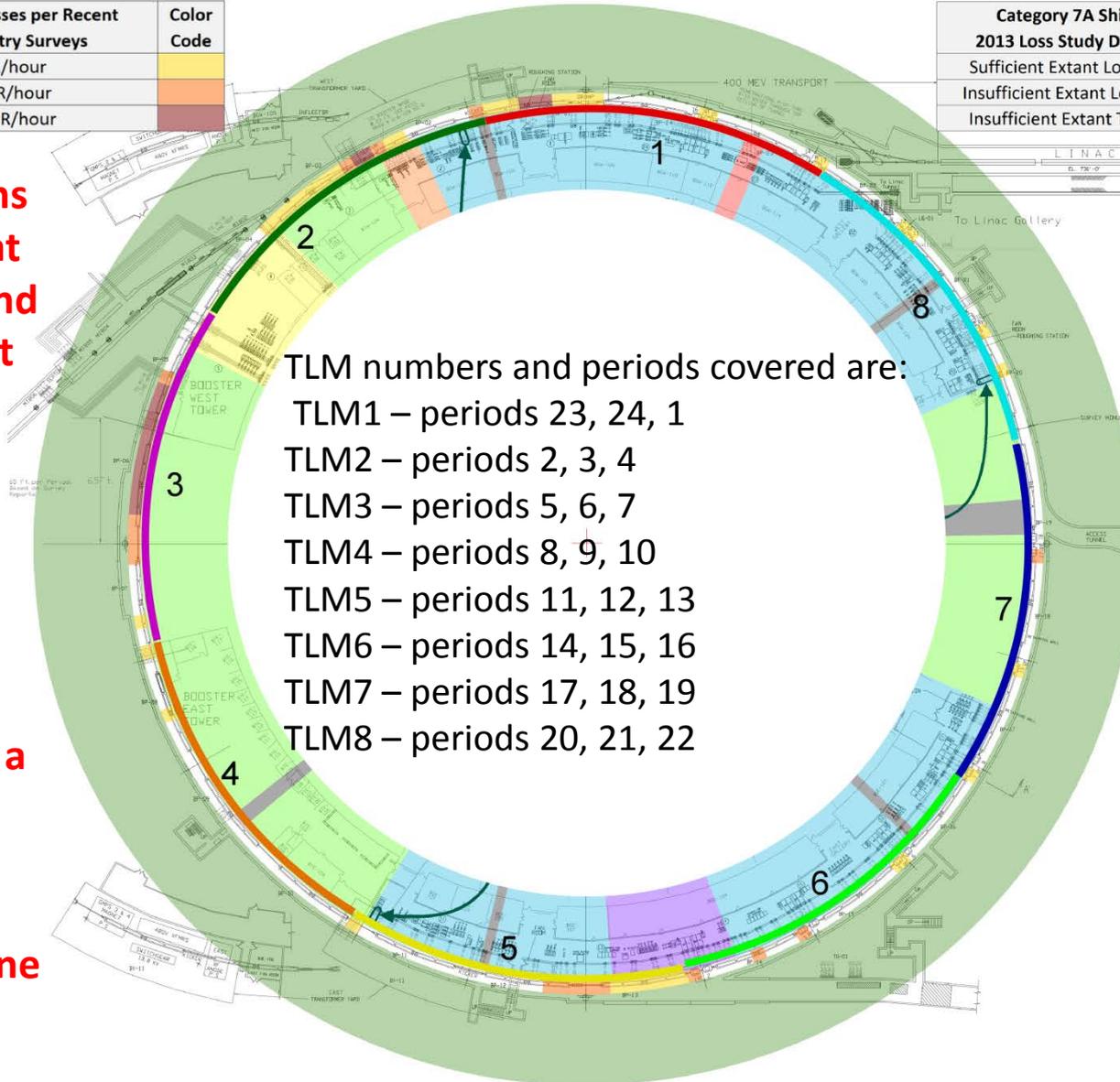
Penetration Type	Color Code	Total Number of Each Type	Description of Penetration	R (ft)	d (ft)	400MeV Exit Dose Rate (mrem/pulse)	8GeV Exit Dose Rate (mrem/pulse)	Notes on Exit Dose Rates
1		151	19' long single-leg 6.5" by 6.5" penetration	3.30	1.38	3.17E-03	3.48E-02	with 12' of poly beads (MARS attenuation for single pen. used)
2		4	16.6' long single-leg 6.5" by 6.5" penetration in ceiling of Period 23	4.60	1.33	1.84E-03	2.02E-02	with 12' of poly beads (MARS attenuation for single pen. used)
3		8	Four-leg, 6" diameter circular penetration in Period 2	3.30	1.38	4.42E-12	4.85E-11	for an empty penetration
4		17	16.25' long single-leg 6.5" by 6.5" penetration high on wall of Period 13	2.50	6.27	3.58E-04	3.93E-03	with 12' of poly beads (MARS attenuation for single pen. used)
5		12	Three-leg, 5" diameter circular penetrations from Periods 4 & 5 to West Booster Tower	3.30	1.38	4.15E-14	4.55E-13	for an empty penetration
None		N/A	No penetrations in this region	N/A	N/A	N/A	N/A	N/A
Labyrinth		N/A	Some kind of labyrinth	N/A	N/A	N/A	N/A	labyrinth calculations are not included here

Regions of Booster Losses per Recent AD ES&H Initial Entry Surveys	Color Code
Losses \geq 5 mR/hour	
Losses \geq 20 mR/hour	
Losses \geq 100 mR/hour	

Category 7A Shielding Based on 2013 Loss Study Data Scaled to 8GeV	Color Code
Sufficient Extant Longitudinal Shielding	
Insufficient Extant Longitudinal Shielding	
Insufficient Extant Transverse Shielding	

All detector runs start and end at the upstream end of long straight sections

One of the 8 TLMs will have a temporary, parallel, redundant detector for a one year period



BOOSTER
M. VINCENT
1 AUGUST, 2014
GREEN TREE COLOR

Preliminary Work

- Remove existing temporary period 10-12 TLM (Leveling, et. al. - 8/21/14)
- Determine radial position of each of the 8 detector cables (Leveling, Vincent, Ranson, et. al. - 8/21/14)
- Find suitable penetrations for TLM HV and signal cables (Sullivan, Leveling - RG58 – 2 for each detector)
- Pick rack locations for 9 TLM electrometers (Sullivan, Leveling)
- Determine all to/from locations for all RG58 and safety cable runs

Required materials

- HJ5-50 TLM detector cable, 1600'
 - Order has been placed
 - Promised delivery is 8/29/14
- RG58 cable – red and green
 - On hand by interlocks group
- Safety cable (2 shielded twisted pair)
 - On hand by interlock group
- Heartbeat resistor assemblies (9)
 - Boxes are on hand
 - Resistors, ordered but not all here yet
 - Covers?
- Detector end caps
 - Under construction by interlocks group
- TLM electrometers (9)
 - Under construction by interlocks group
- Gas system plumbing parts (available from stockroom)
 - ¼" copper tubing (1065-0060)
 - ¼" mpt x ¼" compression fitting (1010-0225)

TLM installation tasks by resource

- Jim Ranson, T&M electricians
 - Install 8 detector cables (200' each)
 - Install red and green RG58 cable from galleries through penetrations to each detector
 - Run green RG58 cable to MUX or VME scalar crate
 - Run safety cable (2 shielded twisted pair) from TLM electrometers to rad cards
- Interlocks Group (Glenn Fed)
 - Terminate detector cables
 - Terminate all RG58 and safety cables
 - Install heartbeat resistors (9)
 - Make connections from detector to TLM electrometers to RSS
 - Move gas flow meter to new location in East Booster Gallery
 - Make gas line interconnections between detector cables
 - Perform initial system testing
- Booster Department?
 - Route supply & return gas tubing (1/4" soft copper) through SE Gallery penetration
 - Can be done by electricians
 - Coordinate cable installation in Booster penetrations (Kent)
- Leveling
 - Prepare ACNET device names and setup data logger
 - Check system for correct response/operation