List for Sunglass BLMs

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Reminder...

Why sunglasses?

- shower losses from TCDIs, TDI, TCLIs trigger unnecessary dumps

Mitigation?

- shielding (TI 2, TI 8, planned for TDIs downstream)
- opening TCDI gap (done for TI 2)
- SPS scraping
- improve capture
- injection/abort gap cleaning (both operational)
- improved diagnostics in the injector chain
- **BLM sunglasses ...ignore monitor IL input while injection**

BLM selection

- RS01 losses at injection
- Good and bad injections taken into account
- Keep monitors only if more than 10% loss wrt dump threshold
- Count how often monitors are above 10%
- Remove monitors from P6 and P7
- No manipulation for filter monitors

Affected BLMs B2

# Count	Loss/threshold	Threshold	Monitor
1	0.11	2.317	BLMQI.03R8.B1I20_MQXA
1	0.11	23.170	BLMEI.04R8.B2E20_TDI.4R8.B2
1	0.10	11.580	BLMQI.07R8.B1I20_MQM
1	0.11	1.745	BLMQI.06L8.B2I20_MQML
3	0.14	23.170	BLMQI.03R8.B1I30_MQXA
4	0.10	6.950	BLMQI.05R8.B1I30_MQY
8	0.12	2.317	BLMQI.06L8.B2I30_MQML
10	0.15	4.600	BLMQI.07R8.B2E10_MQM
10	0.21	2.317	BLMQI.03R8.B2E10_MQXA
10	0.22	23.170	BLMEI.04R8.B2E10_MBXB
10	0.11	4.634	BLMEI.06R8.B2E10_MSIB
11	0.11	11.580	BLMEI.04R8.B2E10_TCTH.4R8.B2
11	0.11	13.800	BLMQI.05R8.B2E10_MQY
12	0.16	2.317	BLMEI.06L8.B2I11_TCLIB.6L8.B2
22	0.12	23.170	BLMEI.06L8.B2I10_TCLIB.6L8.B2
25	0.13	2.317	BLMQI.06L8.B2I10_MQML
34	0.20	2.317	BLMQI.06L8.B1E30_MQML
42	1.01	23.170	BLMEI.04R8.B2E10_TDI.4R8.B2

Affected BLMs B1

# Count	Loss/threshold	Threshold	Monitor	# Count	Loss/threshold	Threshold	Monitor
1	0.12	13.800	BLMQI.06L2.B1E20_MQML	7	0.12	2.317	BLMEI.08L2.B2I21_MBB
1	0.10	23.170	BLMEI.04L2.B1E20_TDI.4L2.B1	7	0.16	6.950	BLMQI.06L2.B2I20_MQML
1	0.14	23.170	BLMEI.04L2.B1E10_MBXA	7	0.15	2.317	BLMQI.05L2.B1E20_MQY
1	0.10	23.170	BLMEI.06R2.B1I10_TCLIB.6R2.B1	8	0.15	11.580	BLMQI.08L2.B2I30_MQML
1	0.12	11.500	BLMQI.08L2.B1E10_MQML	10	0.14	2.317	BLMEI.08L2.B2I30_MBB
1	0.11	13.800	BLMQI.08L2.B1E20_MQML	10	0.14	2.317	BLMEI.08L2.B2I22_MBB
1	0.11	6.950	BLMQI.05L2.B2I30_MQY	11	0.16	2.317	BLMEI.08L2.B2I21_MBA
1	0.12	13.800	BLMQI.05L2.B1E10_MQY	14	0.14	2.317	BLMQI.06R2.B1I10_MQML
1	0.11	2.317	BLMQI.05L2.B2I20_MQY	15	0.20	11.580	BLMQI.08L2.B2I20_MQML
2	0.11	4.600	BLMQI.07L2.B1E30_MQM	19	0.19	2.317	BLMEI.08L2.B2I22_MBA
2	0.11	2.317	BLMEI.06L2.B1E20_MSIB	20	0.21	2.317	BLMEI.08L2.B2I23_MBA
2	0.10	2.317	BLMEI.06L2.B1E30_MSIB	21	0.29	11.580	BLMQI.08L2.B2I10_MQML
2	0.12	2.317	BLMQI.03L2.B1E10_MQXA	24	0.35	4.634	BLMEI.06L2.B1E10_MSIB
3	0.10	6.950	BLMQI.06L2.B2I30_MQML	28	0.45	2.317	BLMEI.04R2.B2E10_TCTH.4R2.B2
4	0.13	11.500	BLMQI.08L2.B1E30_MQML	28	0.47	2.317	BLM2I.04R2.B1I10_MBRC_MBRC
4	0.12	6.950	BLMQI.06L2.B2I10_MQML	28	0.25	2.317	BLMQI.06R2.B2E30_MQML
5	0.16	4.600	BLMQI.06L2.B1E10_MQML	32	1.02	23.170	BLMEI.04L2.B1E10_TDI.4L2.B1

Conclusion

- No "surprise" monitors appearing
- B1 list longer because injections usually not as clean as for B2 due to MSE ripple and high dispersion TCDIs
- Needed asap because we regularly dump on such losses
- What might come into the list in the future due to
  - more bunches at injection
  - higher bunch intensity (although no linear loss increase because of rather constant brightness at the moment)
  - 25 ns bunch spacing with possibly worse capture
- Scenarios:
  - now needed: 50ns, 144 b injections, < 1.5e11 ppb
  - within 2012: 25 ns, 288 b injections, < 1.5e11 ppb   } same list for BLM team
  - after LS1: 25 ns, 288 b injections, > 1.5e11 ppb

BLMs B2: needed now

# Count	Loss/threshold	Threshold	Monitor
1	0.11	2.317	BLMQI.03R8.B1I20_MQXA
1	0.11	23.170	BLMEI.04R8.B2E20_TDI.4R8.B2
1	0.10	11.580	BLMQI.07R8.B1I20_MQM
1	0.11	1.745	BLMQI.06L8.B2I20_MQML
3	0.14	23.170	BLMQI.03R8.B1I30_MQXA
4	0.10	6.950	BLMQI.05R8.B1I30_MQY
8	0.12	2.317	BLMQI.06L8.B2I30_MQML
10	0.15	4.600	BLMQI.07R8.B2E10_MQM
10	0.21	2.317	BLMQI.03R8.B2E10_MQXA
10	0.22	23.170	BLMEI.04R8.B2E10_MBXB
10	0.11	4.634	BLMEI.06R8.B2E10_MSIB
11	0.11	11.580	BLMEI.04R8.B2E10_TCTH.4R8.B2
11	0.11	13.800	BLMQI.05R8.B2E10_MQY
12	0.16	2.317	BLMEI.06L8.B2I11_TCLIB.6L8.B2
22	0.12	23.170	BLMEI.06L8.B2I10_TCLIB.6L8.B2
25	0.13	2.317	BLMQI.06L8.B2I10_MQML
34	0.20	2.317	BLMQI.06L8.B1E30_MQML
42	1.01	23.170	BLMEI.04R8.B2E10_TDI.4R8.B2

BLMs B2: worst case

# Count	Loss/threshold	Threshold	Monitor
1	0.11	2.317	BLMQI.03R8.B1I20_MQXA
1	0.11	23.170	BLMEI.04R8.B2E20_TDI.4R8.B2
1	0.10	11.580	BLMQI.07R8.B1I20_MQM
1	0.11	1.745	BLMQI.06L8.B2I20_MQML
3	0.14	23.170	BLMQI.03R8.B1I30_MQXA
4	0.10	6.950	BLMQI.05R8.B1I30_MQY
8	0.12	2.317	BLMQI.06L8.B2I30_MQML
10	0.15	4.600	BLMQI.07R8.B2E10_MQM
10	0.21	2.317	BLMQI.03R8.B2E10_MQXA
10	0.22	23.170	BLMEI.04R8.B2E10_MBXB
10	0.11	4.634	BLMEI.06R8.B2E10_MSIB
11	0.11	11.580	BLMEI.04R8.B2E10_TCTH.4R8.B2
11	0.11	13.800	BLMQI.05R8.B2E10_MQY
12	0.16	2.317	BLMEI.06L8.B2I11_TCHB.6L8.B2
22	0.12	23.170	and possibly more…
25	0.13	2.317	BLMQI.06L8.B2I10_MQML
34	0.20	2.317	BLMQI.06L8.B1E30_MQML
42	1.01	23.170	BLMEI.04R8.B2E10_TDI.4R8.B2

BLMs B1: needed now

# Count	Loss/threshold	Threshold	Monitor
1	0.12	13.800	BLMQI.06L2.B1E20_MQML
1	0.10	23.170	BLMEI.04L2.B1E20_TDI.4L2.B1
1	0.14	23.170	BLMEI.04L2.B1E10_MBXA
1	0.10	23.170	BLMEI.06R2.B1I10_TCLIB.6R2.B1
1	0.12	11.500	BLMQI.08L2.B1E10_MQML
1	0.11	13.800	BLMQI.08L2.B1E20_MQML
1	0.11	6.950	BLMQI.05L2.B2I30_MQY
1	0.12	13.800	BLMQI.05L2.B1E10_MQY
1	0.11	2.317	BLMQI.05L2.B2I20_MQY
2	0.11	4.600	BLMQI.07L2.B1E30_MQM
2	0.11	2.317	BLMEI.06L2.B1E20_MSIB
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7	0.15	2.317	BLMQI.05L2.B1E20_MQY
8	0.15	11.580	BLMQI.08L2.B2I30_MQML
10	0.14	2.317	BLMEI.08L2.B2I30_MBB
10	0.14	2.317	BLMEI.08L2.B2I22_MBB
11	0.16	2.317	BLMEI.08L2.B2I21_MBA
14	0.14	2.317	BLMQI.06R2.B1I10_MQML
15	0.20	11.580	BLMQI.08L2.B2I20_MQML
19	0.19	2.317	BLMEI.08L2.B2I22_MBA
20	0.21	2.317	BLMEI.08L2.B2I23_MBA
21	0.29	11.580	BLMQI.08L2.B2I10_MQML
24	0.35	4.634	BLMEI.06L2.B1E10_MSIB
28	0.45	2.317	BLMEI.04R2.B2E10_TCTH.4R2.B2
28	0.47	2.317	BLM2I.04R2.B1I10_MBRC_MBRC
28	0.25	2.317	BLMQI.06R2.B2E30_MQML
32	1.02	23.170	BLMEI.04L2.B1E10_TDI.4L2.B1

BLMs B1: worst case

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1	0.12	11.500	BLMQI.08L2.B1E10_MQML
1	0.11	13.800	BLMQI.08L2.B1E20_MQML
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10	0.14	2.317	BLMEI.08L2.B2I22_MBB
11	0.16	2.317	BLMEI.08L2.B2I21_MBA
14	0.14	2.317	BLMQI.06R2.B1I10_MQML
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28	0.45	2.317	BLMEI.04R2.B2E10_TCTH.4R2.B2
			B1I10_MBRC_MBRC
28	0.23	2.317	BLMQI.06R2.B2E30_MQML
32	1.02	23.170	BLMEI.04L2.B1E10_TDI.4L2.B1

and possibly more…