

Cummins M11 EGR Task Force

Meeting Summary

- ◆ **The task force reviewed the rocker pad hardness issue.**
 - **The task force agreed that the remaining matrix tests should be run on rocker arms that have been screened to a minimum pad hardness of 58 HRC. ACTION ITEM - Test Engineering**
- ◆ **The task force discussed test stand calibration and engine block issues.**
 - **Due to increased main bearing cap fretting on the older style blocks, the task force made the decision to replace the existing old style blocks with the newer style blocks with improved main bearing caps before proceeding with the matrix. Test Engineering will supply the labs with existing inventory ACTION ITEM - Test Engineering/Cummins**

Cummins M11 EGR Task Force

Meeting Summary

- ◆ **The task force reviewed the data from 6 matrix tests.**
 - **The task force asked that average EGR rates, number of shutdowns, and oil filter differential pressure traces be placed on the TMC website for review. ACTION ITEM - TMC**
 - **The motion was made to postpone a decision to invalidate one of the tests until the next task force meeting. The motion passed unanimously.**
 - **The motion was made to continue the matrix under the guidelines set by the TMC. The motion passed unanimously.**
- ◆ **Timing?**
 - **M11 EGR Matrix should be complete by mid-May.**

Preliminary (Non-validated) Matrix Data

Oil Code	250-hr Soot (%)	Average (EOT)		ASR	Liner Wear (microns)	FDP (EOT) (kPa)	EOT				
		CWL 9mg)	TRWL (mg)				Fe	Pb	Cu	Cr	Al
CMIR-38927	9.1	23.1	104.1	9	8.2	486 (706)*	359	10	6	29	3
CMIR-38928	7.9	19.5	143.7	8.9	9	138 (204)*	310	4	6	29	3
CMIR-38931	8.20	23.4	112.82	9.1	6.4	159 (210)*	224	X	X	18	4
CMIR-38932	9.10	51.0	172.03	7.4	4.2	165 (204)*	341	3	6	25	2
CMIR-38933	8	28.8	115.52	8	5.3	231 (330)*	221	3	5	19	2
CMIR-38936	8.50	42.3	147	8.7	3.7	230 (407)*	338	>10	>10	23	>10

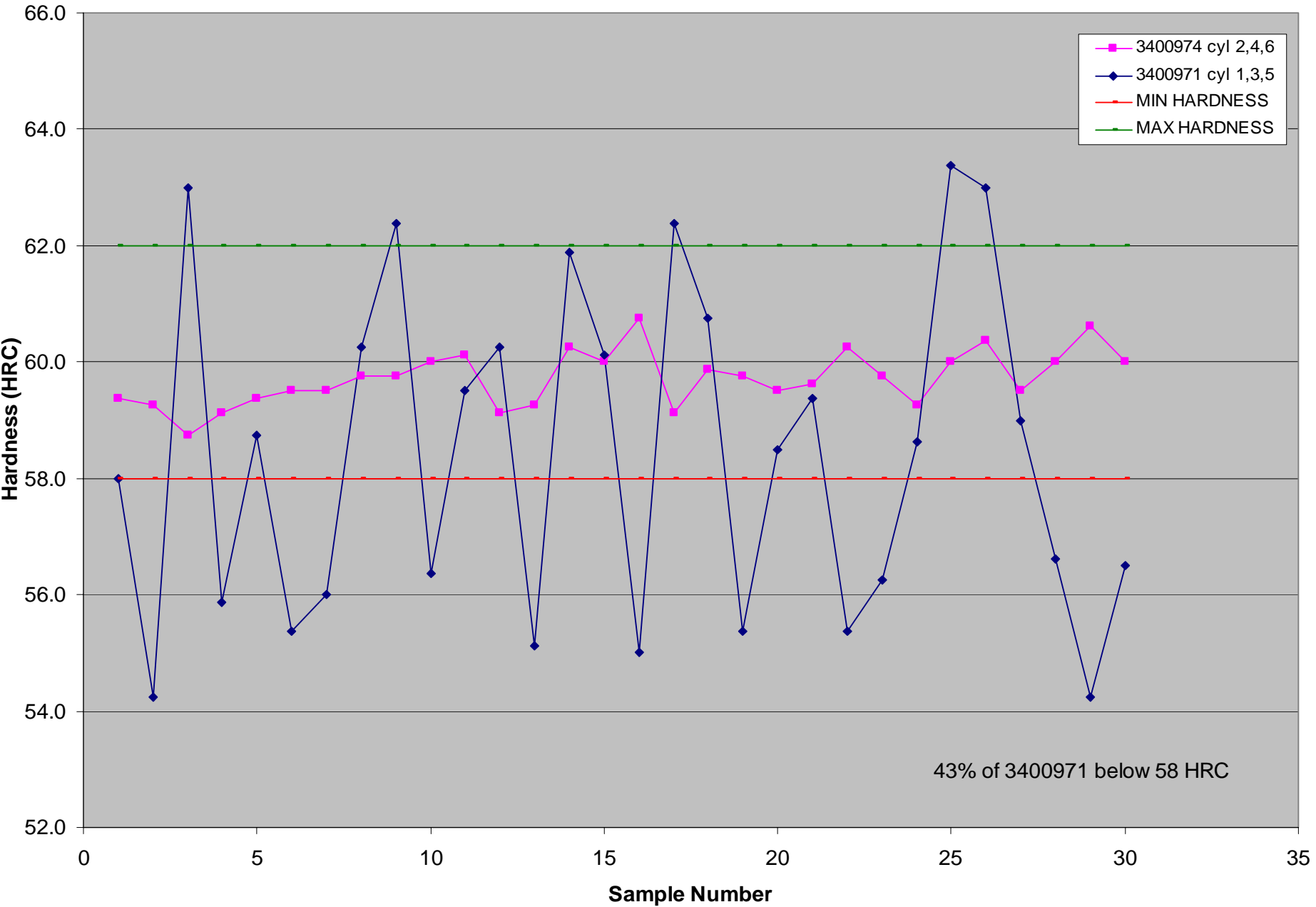
* corrected via M11 HST procedure

Crosshead Weight Loss

Screened by Rocker Hardness

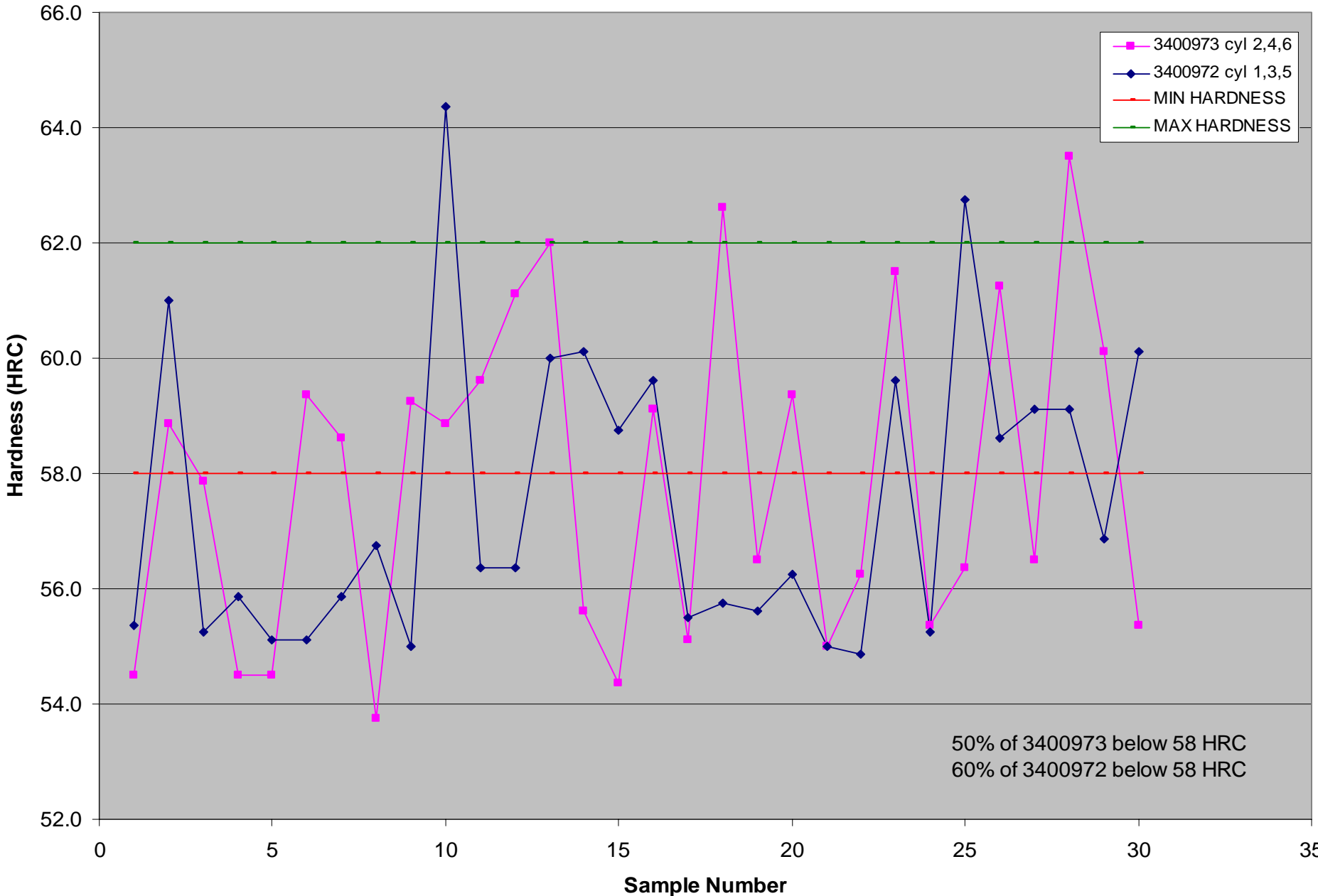
Oil Code	RAW AVERAGE	RAW Sdt Dev	Sorted Average	Sorted Sdt Dev	Soot % @ 250
CMIR 38927	20.71	7.84	19.42	7.44	9.1
CMIR 38928	17.66	9.47	17.70	9.62	7.9
CMIR 38931	23.39	16.49	19.90	14.79	8.2
CMIR 38932	51.02	25.24	38.08	16.26	9.1
CMIR 38933	28.77	21.15	13.11	9.99	8.0
CMIR 38936	42.28	35.60	40.47	21.69	8.5

Rocker Pad Hardness - Exhaust



43% of 3400971 below 58 HRC

Rocker Pad Hardness - Intake



50% of 3400973 below 58 HRC
60% of 3400972 below 58 HRC