



Test Monitoring Center

6555 Penn Avenue
Pittsburgh, PA 15206-4489

MEMORANDUM: 04-008
DATE: February 17, 2004
TO: Gordon R. Farnsworth, Chairman, Sequence VG Surveillance Panel
FROM: Richard Grundza
SUBJECT: Sequence VG Reference Oil Tests Statistics, Reference Oil 1009

The following are the statistics for Sequence VG reference oil 1009, based on twenty test results. These targets are effective for reference oil tests completing on or after February 17, 2004.

Parameter	Mean	Standard Deviation
AES	7.87	0.43
RAC	9.29	0.19
AEV	9.00	0.15
APV	7.80	0.29
OSCR	2.274	1.044
HSR	None Allowed	

Figures 1 through 5 plot the results by laboratory and the Shewhart acceptance ranges for AES, RAC, AEV, APV and OSCR, respectively. Hot stuck ring data was not plotted since no hot stuck rings are allowed and no tests exhibited hot ring sticking. Please note that laboratory results in Figures 1 through 5 have not been severity adjusted. Figure 6 summarizes the reported results, uncorrected, while Figure 7 tabulates the severity adjusted results, used to calculate the targets. All results are in reported units except Oil Screen Clogging (OSCR), which has been transformed using $\ln(1+\text{result})$ transformation.

Attachments

REG/reg

c: Sequence VG Surveillance Panel
Sequence VG Test Engineers
John Zalar, TMC
Frank Farber, TMC
<ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencev/memos/mem04-008.pdf>

Distribution: Email

Figure 1

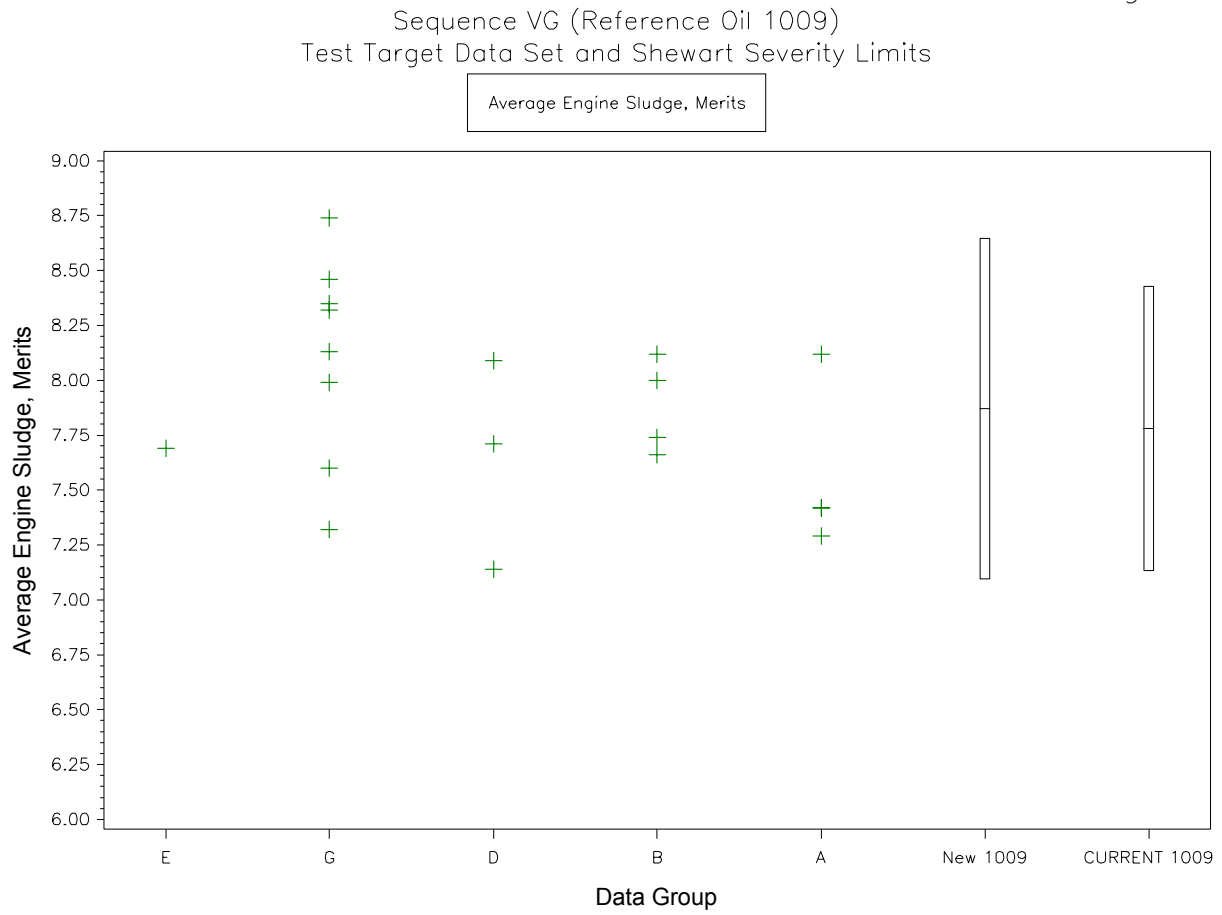


Figure 2

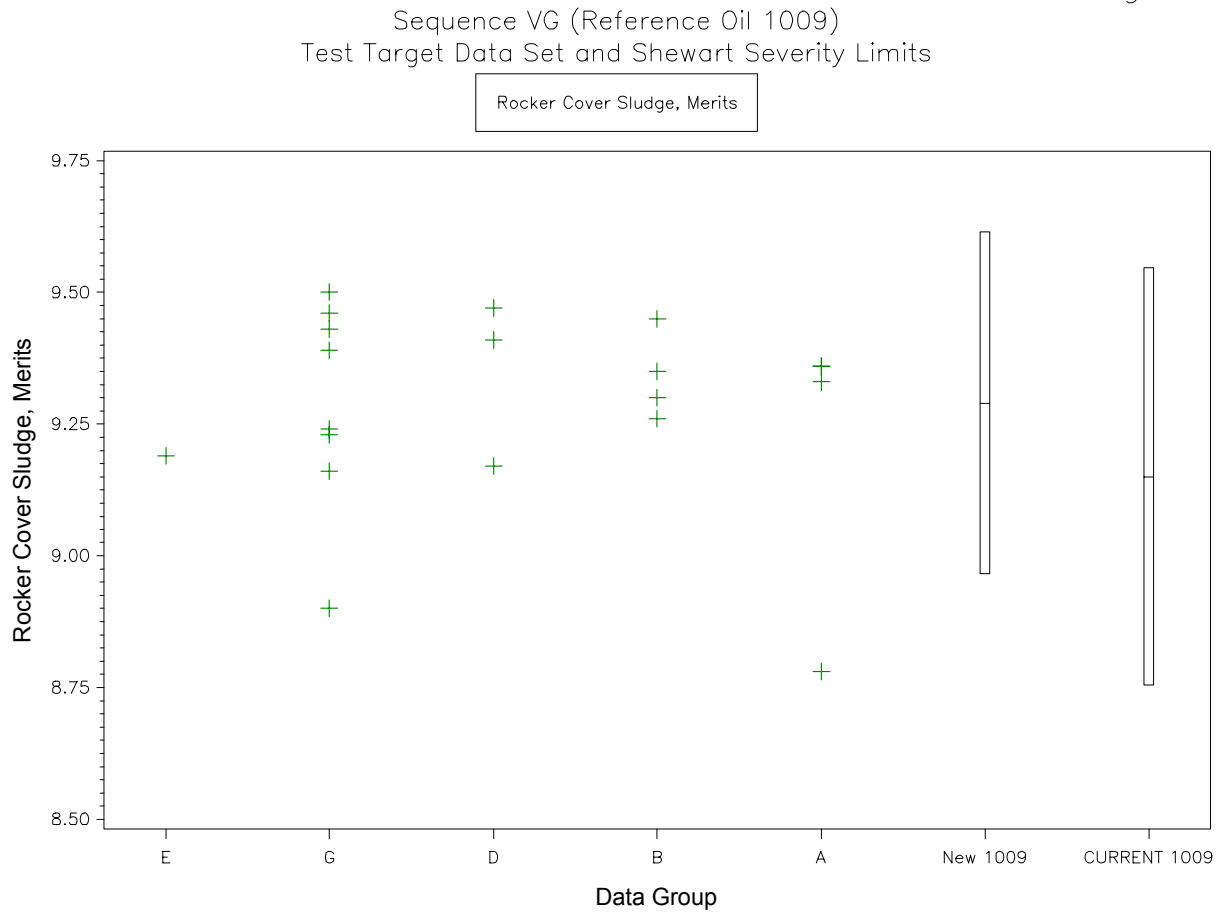


Figure 3

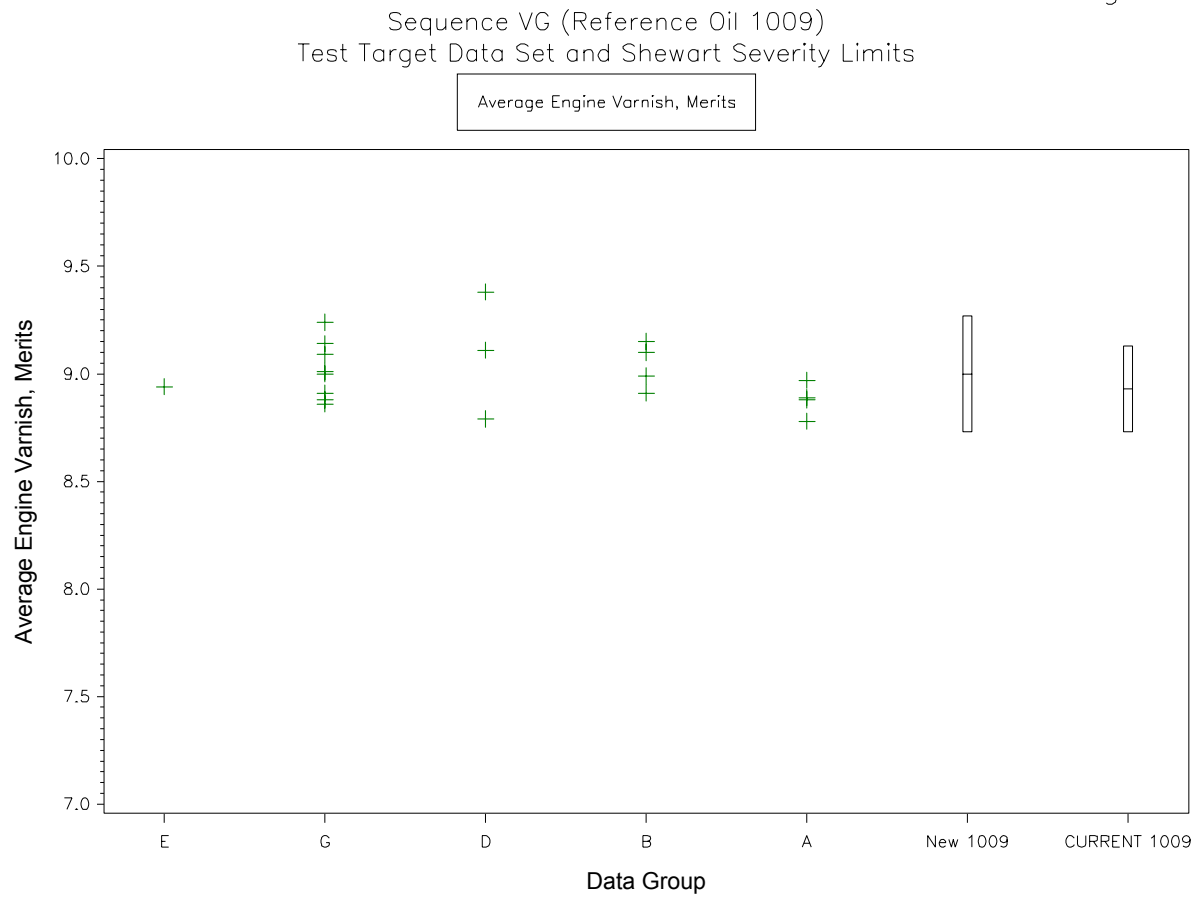


Figure 4

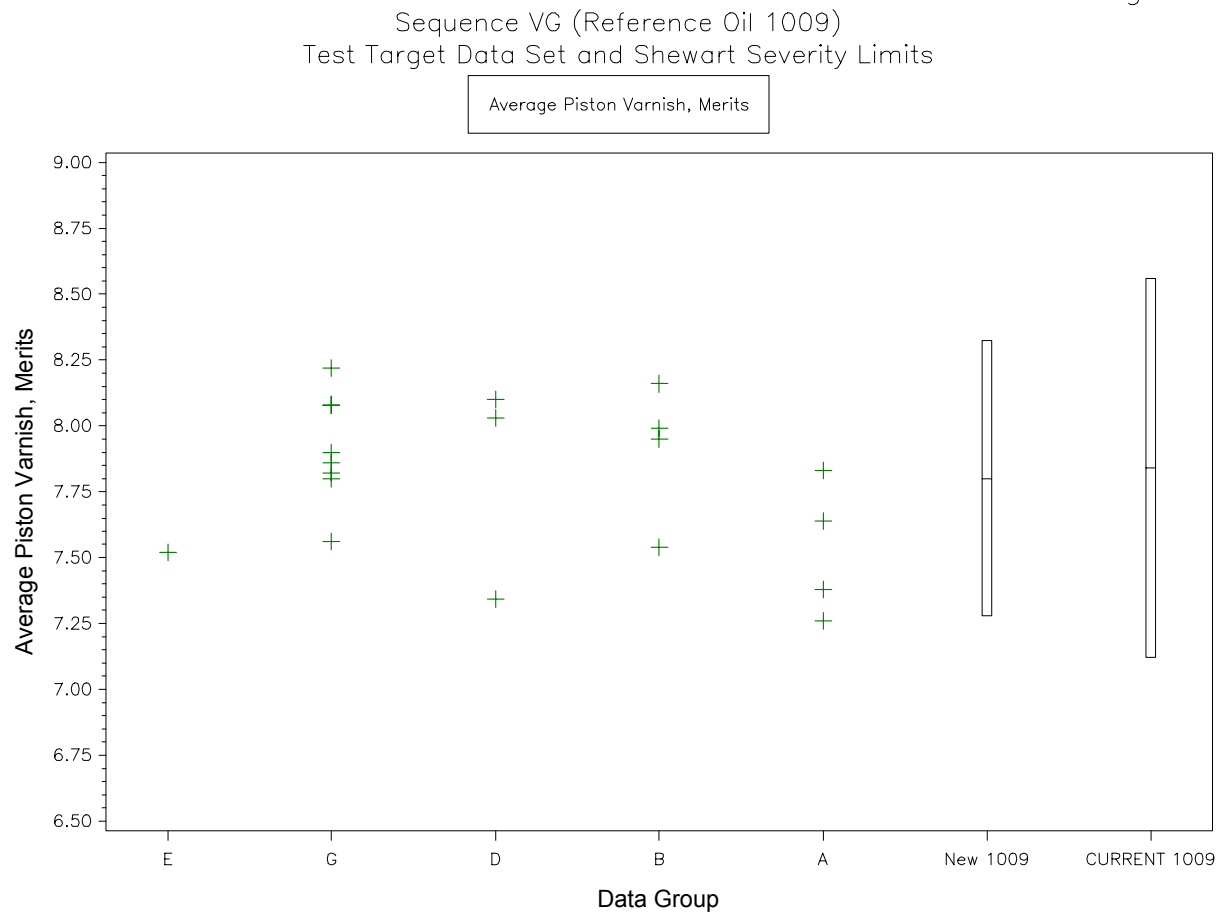


Figure 5

Sequence VG (Reference Oil 1009)
Test Target Data Set and Shewart Severity Limits

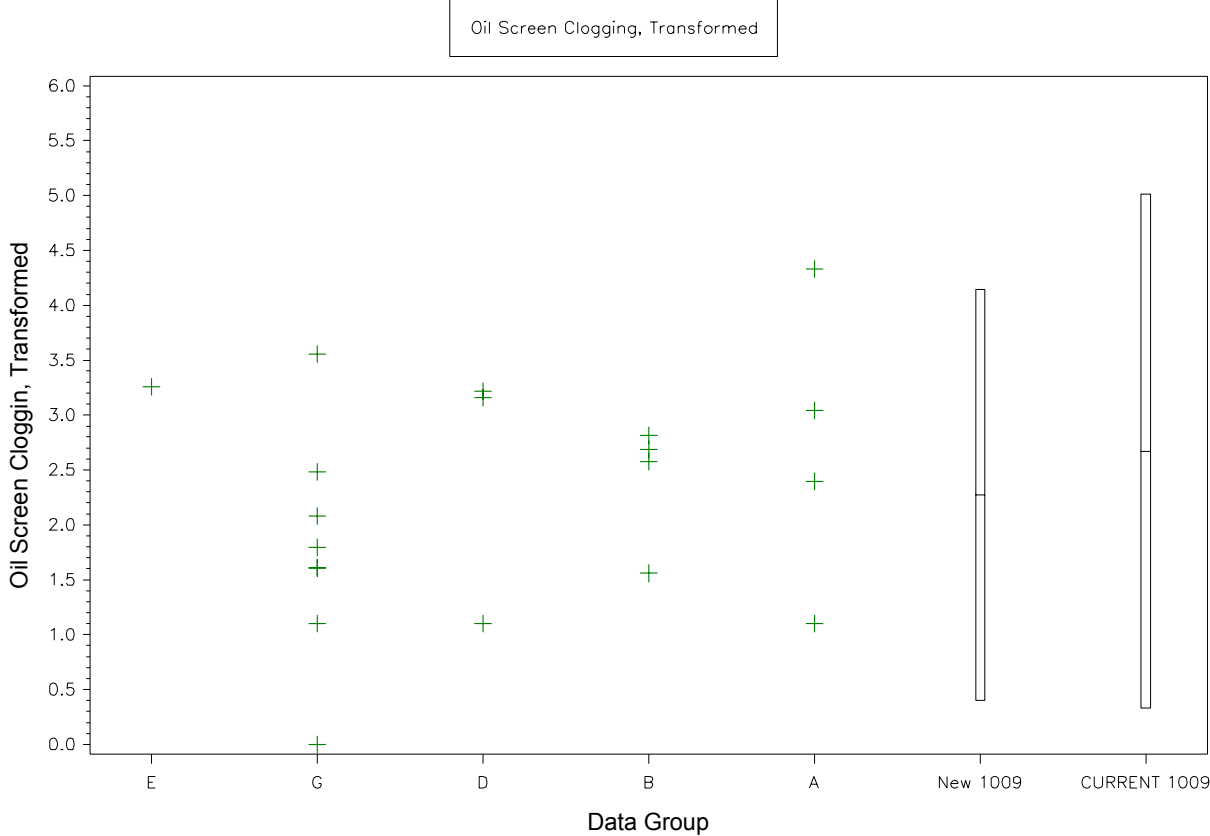


Figure 6

Lab	AES	RAC	AEV	APV	OSCR	HSR
A	8.12	9.33	8.78	7.26	1.0986	0
B	7.74	9.26	8.91	8.16	3.1355	0
G	8.13	9.16	9.09	8.22	1.7918	0
A	7.29	8.78	8.97	7.64	4.3307	0
G	7.60	9.23	8.91	7.90	3.5554	0
D	7.14	8.92	9.38	8.23	2.6391	0
B	7.66	9.30	8.99	7.54	3.2581	0
E	7.69	9.19	8.94	7.52	3.2581	0
G	8.74	9.43	9.01	8.08	0.0000	0
D	7.77	9.14	9.11	8.19	1.0986	0
D	7.71	9.14	8.86	7.50	2.6391	0
G	8.32	9.14	8.86	7.82	2.0794	0
G	7.99	8.90	9.00	7.80	2.4849	0
G	8.46	9.46	8.88	7.86	1.6094	0
B	8.00	9.45	9.10	7.99	3.3322	0
A	7.77	9.36	8.89	7.38	2.3979	0
A	7.42	9.36	8.88	7.83	3.0445	0
G	8.78	9.50	9.06	8.08	1.0986	0
G	7.78	9.24	9.24	7.56	1.6094	0
B	8.12	9.35	9.15	7.95	2.0794	0

Figure 7

Lab	AES	RAC	AEV	APV	OSCR	HSR
A	8.12	9.33	8.78	7.26	1.0986	0
B	7.74	9.26	8.91	8.16	2.5755	0
G	8.13	9.16	9.09	8.22	1.7918	0
A	7.29	8.78	8.97	7.64	4.3307	0
G	7.60	9.23	8.91	7.90	3.5550	0
D	7.14	9.17	9.38	8.10	3.2190	0
B	7.66	9.30	8.99	7.54	2.6880	0
E	7.69	9.19	8.94	7.52	3.2581	0
G	8.74	9.43	9.01	8.08	0.0000	0
D	8.09	9.47	9.11	8.03	1.0986	0
D	7.71	9.41	8.79	7.34	3.1591	0
G	8.32	9.39	8.86	7.82	2.0794	0
G	7.99	8.90	9.00	7.80	2.4849	0
G	8.46	9.46	8.88	7.86	1.6094	0
B	8.00	9.45	9.10	7.99	2.8122	0
A	7.42	9.36	8.89	7.38	2.3979	0
A	7.42	9.36	8.88	7.83	3.0445	0
G	8.35	9.50	9.06	8.08	1.0986	0
G	7.32	9.24	9.24	7.56	1.6094	0
B	8.12	9.35	9.15	7.95	1.5594	0