

## **Sequence III Surveillance Panel**

August 08, 2013

14:00 EDT

### **Meeting Minutes**

#### **1.0) Attendance**

1.1) Chris Taylor, VP Racing Fuels has asked to be on distribution list. Robert Bacchi and Jason Holmes, BASF have asked to be on distribution list.

1.2) The meeting attendance is shown in Attachment 1.

#### **2.0) Approval of minutes**

2.1) Minutes from May 1, 2013 teleconference distributed May 2 and revised May 8.  
The minutes were approved, as revised, without objection.

#### **3.0) Action Item Review**

3.1) Survey of Critical Parts at Test Labs and Chevrolet Performance. Glaenger  
This item has been completed and was distributed with corrections 07/24/2013. It was included in meeting announcement.

#### **4.0) Old Business**

4.1) Report from Sequence III Inventory Control Task Force. Bowden, J  
Jason Bowden indicated 3 conferences have been held to date and the work is still on-going. Right now the group is only focusing only on build materials acquisition, and not any re-manufacturing of test hardware. The task force believes the best approach is to have an allocation of hardware from GM Racing to the labs, and the method for determining what the allocations should be is currently being hammered out. Consumption rates from January 2009 forward are being used to establish allocation percentages. As part of this, an agreement will be worked out between the labs, GM Racing, and OHT regarding any possible future re-distributions.

#### **5.0) New Business**

5.1) Re-blend of RO 434. Grundza  
Rich indicated that the TMC inventory of oil 434-1 is down to about 139 gallons (~ 2 years supply). Rich sought consensus from the panel to obtain up to a 500 gallon re-blend, assuming it could still be supplied. The panel concurred with pursuing the re-blend. Rich also

mentioned that 433-2 has been received by the TMC and he will be introducing that oil, using the current blend's targets.

5.2) Experience with valve seat replacement. Leverett

Addison Schweitzer presented; shown in Attachment 2. After review of the presentation, Addison was asked how the valve guides have been holding up, and he indicated that the results so far have been promising. It was noted that the potential impact of test performance has not yet been examined.

5.3) Intake valve seat inserts and reconditioning of used heads. Matthews

Bruce Matthews stated that for the new heads, GM will be investigating put seats into the intake; he is hoping to have a head to each lab by October. The labs would need to run a reference oil test by October 31 (only 100 un-machined heads are predicted to be left in inventory by then, there are currently 329 fully machined heads in inventory). This spurred on a broad discussion. The resulting actions from the discussion:

- GM Racing will stop machining heads
- new heads with the new intake seats (seats to be identified) will be obtained and run by the labs by the end of October

For used heads, Bruce requested that a task force, led by Sid Clark, be formed to address the full re-man process and supply method. Sid indicated that the urgency and priority of this issue is understood and the task force will do everything to expedite results. It was noted that the intake seats to be used for re-manufacturing of head should be the same seats that are to be used for the new heads. Tentative plans were for a teleconference on August 13.

It was moved (Bowden, Glaenzer) that the remaining (329) GM Racing inventory of fully machined heads will be allocated to the labs according consumption rates dating back to January 2009. This motion approved without objection.

**6.0) Meeting Adjourned**

The meeting adjourned at 3:10 p.m.

# Attachment 1

*teleconference*




ASTM Sequence III Surveillance Panel (17 Voting members)

date: *08/28/13*

| Name/Address  | Phone/Fax/Email  |                   | Signature                                   |
|---|--|-------------------|---|
| Ed Altman<br>Afton Chemical Corporation<br>500 Spring Street<br>Richmond, VA 23219<br>USA                           | 804-788-5279<br>804-788-6358<br><a href="mailto:ed.altman@aftonchemical.com">ed.altman@aftonchemical.com</a> | Voting Member     | Present <input checked="" type="checkbox"/> |
| Art Andrews<br>ExxonMobil Products Research<br>600 Billingsport Rd.<br>Paulsboro, NJ 08066<br>USA                   | 856-224-3013<br><a href="mailto:arthur.t.andrews@exxonmobil.com">arthur.t.andrews@exxonmobil.com</a>         | Non-Voting Member | Present <input type="checkbox"/>            |
| Zack Bishop<br>Test Engineering, Inc.<br>12718 Cimarron Path<br>San Antonio, TX 78249-3423<br>USA                   | 210-877-0223<br>210-690-1959<br><a href="mailto:zbishop@tei-net.com">zbishop@tei-net.com</a>                 | Non-Voting Member | Present <input type="checkbox"/>            |
| Doyle Boese<br>Infineum<br>1900 E. Linden Avenue<br>Linden, NJ 07036<br>USA   | 908-474-3176<br>908-474-3637<br><a href="mailto:doyle.boese@infineum.com">doyle.boese@infineum.com</a>       | Non-Voting Member | Present <input type="checkbox"/>            |
| Adam Bowden<br>OH Technologies, Inc.<br>9300 Progress Parkway<br>P.O. Box 5039<br>Mentor, OH 44061-5039<br>USA      | 440-354-7007<br>440-354-7080<br><a href="mailto:adbowden@ohtech.com">adbowden@ohtech.com</a>                 | Non-Voting Member | Present <input type="checkbox"/>            |
| Jason Bowden<br>OH Technologies, Inc.<br>9300 Progress Parkway<br>P.O. Box 5039<br>Mentor, OH 44061-5039<br>USA     | 440-354-7007<br>440-354-7080<br><a href="mailto:jhbowden@ohtech.com">jhbowden@ohtech.com</a>                 | Voting Member     | Present <input checked="" type="checkbox"/> |
| Dwight H. Bowden<br>OH Technologies, Inc.<br>9300 Progress Parkway<br>P.O. Box 5039<br>Mentor, OH 44061-5039<br>USA | 440-354-7007<br>440-354-7080<br><a href="mailto:dhbowden@ohtech.com">dhbowden@ohtech.com</a>                 | Non-Voting Member | Present <input type="checkbox"/>            |





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date:

| Name/Address  | Phone/Fax/Email  |                   | Signature   |
|---|--|-------------------|---|
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| Jerome A. Brys<br>Lubrizol Corp.<br>29400 Lakeland Blvd.<br>Wickliffe, Ohio 44092<br>USA                                | 440 347-2631<br><a href="mailto:jerome.brys@lubrizol.com">jerome.brys@lubrizol.com</a>                             | Non-Voting Member | Present  _____   |
| Bill Buscher III<br>Southwest Research Institute<br>6220 Culebra Road<br>P.O. Box 28510<br>San Antonio, TX 78228<br>USA | 210-522-6802<br>210-684-7523<br><a href="mailto:william.buscher@swri.org">william.buscher@swri.org</a>             | Non-Voting Member | Present _____   |
| Bob Campbell<br>Afton Chemical Corporation<br>500 Spring Street<br>Richmond, VA 23219<br>USA                            | 804-788-5340<br>804-788-6358<br><a href="mailto:bob.campbell@aftonchemical.com">bob.campbell@aftonchemical.com</a> | Non-Voting Member | Present  _____   |
| Chris Castanien<br>The Lubrizol Corporation<br>29400 Lakeland Boulevard<br>Wickliffe, OH 44092<br>USA                   | 440-347-2973<br>440-944-8112<br><a href="mailto:cca@lubrizol.com">cca@lubrizol.com</a>                             | Non-Voting Member | Present _____   |
| Timothy L. Caudill<br>Ashland Oil Inc.<br>22 <sup>nd</sup> & Front Streets<br>Ashland, KY 41101.<br>USA                 | 606-329-1960 x5708<br>606-329-2044<br><a href="mailto:tlcaudill@ashland.com">tlcaudill@ashland.com</a>             | Voting Member     | Present  _____ |
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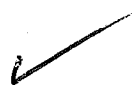


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date:

| Name/Address  | Phone/Fax/Email  | Non-Voting Member | Signature   |
|---|--|-------------------|---|
| Jeff Clark<br>Sequence III Secretary<br>ASTM Test Monitoring Center<br>6555 Penn Avenue<br>Pittsburgh, PA 15206<br>USA  | 412-365-1032<br>412-365-1047<br><a href="mailto:jac@atc-erc.org">jac@atc-erc.org</a>   | Non-Voting Member | Present    |
| Sid Clark<br>Southwest Research<br>50481 Peggy Lane<br>Chesterfield, MI 48047<br>USA                                    | 586-873-1255<br><a href="mailto:Sidney.L.Clark@swri.org">Sidney.L.Clark@swri.org</a>   | Non-Voting Member | Present    |
| Todd Dvorak<br>Afton Chemical Corporation<br>P.O. Box 2158<br>Richmond, VA 23218-2158<br>USA                            | 804-788- 6367<br>804-788- 6388<br><a href="mailto:todd.dvorak@aftonchemical.com">todd.dvorak@aftonchemical.com</a>   | Non-Voting Member | Present _____   |
| Frank Farber<br>ASTM Test Monitoring Center<br>6555 Penn Avenue<br>Pittsburgh, PA 15206<br>USA                          | 412-365-1030<br>412-365-1047<br><a href="mailto:fmf@astmtmc.cmu.edu">fmf@astmtmc.cmu.edu</a>   | Non-Voting Member | Present _____   |
| Gordon R. Farnsworth<br>Infineum<br>RR # 5 Box 211<br>Montrose, PA 18801<br>USA   | 570-934-2776<br>570-934-0141<br><a href="mailto:gordon.farnsworth@infineum.com">gordon.farnsworth@infineum.com</a>   | Non-Voting Member | Present  |
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| David L. Glaenzer<br>Afton Chemical Corporation<br>500 Spring Street<br>P.O. Box 2158<br>Richmond, VA 23218-2158<br>USA | 804-788-5214<br>804-788-6358<br><a href="mailto:dave.glaenzer@aftonchemical.com">dave.glaenzer@aftonchemical.com</a><br><b>Surveillance Panel Chairman</b> | Non-Voting Member | Present  |




ASTM Sequence III Surveillance Panel (17 Voting members)

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| Patrick Lang<br>Southwest Research Institute<br>6220 Culebra Road<br>P.O. Box 28510<br>San Antonio, TX 78228<br>USA | 210-522-2820<br>210-684-7523<br><a href="mailto:plang@swri.edu">plang@swri.edu</a>                               | Voting Member | Present   |
| Walter Lerche<br>GM M/C 482-A30-C71<br>100 Renaissance Center<br>Detroit, MI 48265<br>USA                           | 313-667-1918<br>313-667-4095<br><a href="mailto:walt.lerche@gm.com">walt.lerche@gm.com</a>                       | Voting Member | Present _____   |
| Charlie Leverett<br>Intertek Automotive Research<br>5404 Bandera Road<br>San Antonio, TX 78238<br>USA               | 210-647-9422<br>210-523-4607<br><a href="mailto:charlie.leverett@intertek.com">charlie.leverett@intertek.com</a> | Voting Member | Present  |
| Josephine G. Martinez<br>Chevron Oronite Company LLC<br>100 Chevron Way<br>Richmond, CA 94802<br>USA                | 510-242-5563<br>510-242-3173<br><a href="mailto:jogm@chevrontexaco.com">jogm@chevrontexaco.com</a>               | Voting Member | Present  |

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| Bruce Matthews<br>GM Powertrain<br>Mail Code 483-730-472<br>823 Jocyn Avenue<br>Pontiac, MI 48340<br>USA             | 248-830-9197<br>248-857-4441<br><a href="mailto:bruce.matthews@gm.com">bruce.matthews@gm.com</a><br><b>Test Sponsor Representative</b> | Voting Member     | Present    |
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| Mark Mosher<br>ExxonMobil Technology Co.<br>Billingsport Road<br>Paulsboro, NJ 08066<br>USA                          | 856-224-2132<br>856-224-3628<br><a href="mailto:mark.r.mosher@exxonmobil.com">mark.r.mosher@exxonmobil.com</a>                         | Voting Member     | Present    |
| Siamak Moshiri<br>Cad Railway Industries Ltd.<br>155 Montreal – Toronto Highway<br>H8S 1B4<br>Montreal, QC<br>CANADA | 1-634-3131, ext. 412<br><a href="mailto:smoshiri@cadrail.ca">smoshiri@cadrail.ca</a>   | Non-Voting Member | Present _____   |
| Bob Olree<br>5388 Hill 23 Drive<br>Flint, MI 48507<br>USA  | 248-689-3078<br><a href="mailto:olree@netzero.net">olree@netzero.net</a>   | Non-Voting Member | Present _____   |
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| Name/Address  | Phone/Fax/Email  |                   | Signature       |
|---|--|-------------------|-----------------|
| Allison Rajakumar<br>The Lubrizol Corporation<br>Drop 152A<br>29400 Lakeland Blvd.<br>Wickliffe, OH 44092<br>USA                    | 440-347-4679<br>440-347-2014<br><a href="mailto:Allison.Rajakumar@Lubrizol.com">Allison.Rajakumar@Lubrizol.com</a> | Non-Voting Member | Present _____   |
| Scott Rajala<br>Idemitsu Lubricants America Corp.   | <a href="mailto:srajala@ilacorp.com">srajala@ilacorp.com</a>   | Non-Voting Member | Present _____   |
| Andrew Ritchie<br>Infineum<br>1900 East Linden Avenue<br>P.O. Box 735<br>Linden, NJ 07036<br>USA                                    | 908-474-2097<br>908-474-3637<br><a href="mailto:Andrew.Ritchie@Infineum.com">Andrew.Ritchie@Infineum.com</a>       | Voting Member     | Present _____ ✓ |
| Ron Romano<br>Ford Motor Company<br>Diagnostic Service Center II<br>Room 410.<br>1800 Fairlane Drive<br>Allen Park, MI 48101<br>USA | 313-845-4068<br>313-32-38042<br><a href="mailto:rromano@ford.com">rromano@ford.com</a>                             | Voting Member     | Present _____   |
| Jim Rutherford<br>Chevron Oronite Company LLC<br>100 Chevron Way<br>Richmond, CA 94802<br>USA                                       | 510-242-3410<br>510-242-3173<br><a href="mailto:jaru@chevrontexaco.com">jaru@chevrontexaco.com</a>                 | Non-Voting Member | Present _____   |
| Philip R. Scinto<br>The Lubrizol Corporation<br>29400 Lakeland Boulevard<br>Wickliffe, OH 44092<br>USA                              | 440-347-2161<br>440-347-9031<br><a href="mailto:prs@lubrizol.com">prs@lubrizol.com</a>                             | Non-Voting Member | Present _____   |
| Greg Shank<br>Volvo   | 301-790-5817<br><a href="mailto:greg.shank@volvo.com">greg.shank@volvo.com</a>                                     | Voting Member     | Present _____   |



ASTM Sequence III Surveillance Panel (17 Voting members)

date:

| Name/Address  | Phone/Fax/Email  | Voting Member     | Signature     |
|---|--|-------------------|---------------|
| Thomas Smith<br>Valvoline<br>P.O. Box 14000<br>Lexington, KY 40512-1400<br>USA                                      | 859-357-2766<br>859-357-7084<br><a href="mailto:trsmith@ashland.com">trsmith@ashland.com</a><br>PCEOCP Chair               | Voting Member     | Present _____ |
| Don Smolenski<br>GM   | 248-255-7892<br><a href="mailto:donald.j.smolenski@gm.com">donald.j.smolenski@gm.com</a>                                   | Non-Voting Member | Present _____ |
| Mark Sutherland<br>Test Engineering, Inc.<br>12718 Cimarron Path<br>San Antonio, TX 78249-3423<br>USA               | <a href="mailto:msutherland@tei-net.com">msutherland@tei-net.com</a>   | Non-Voting Member | Present _____ |
| Adam Sworski<br>Ashland Oil Inc.<br>22 <sup>nd</sup> & Front Streets<br>Ashland, KY 41101<br>USA                    | <a href="mailto:aesworski@ashland.com">aesworski@ashland.com</a>   | Non-Voting Member | Present _____ |
| George Szappanos<br>The Lubrizol Corporation<br>29400 Lakeland Boulevard<br>Wickliffe, OH 44092<br>USA              | 440-347-2352<br>440-347-4096<br><a href="mailto:greg.seman@lubrizol.com">greg.seman@lubrizol.com</a>                       | Voting Member     | Present _____ |
| Haiying Tang<br>Chrysler LLC  | 248-512-0593<br><a href="mailto:ht146@chrysler.com">ht146@chrysler.com</a>   | Voting Member     | Present _____ |
| USA   |  |                   |               |
| Ben O. Weber<br>Southwest Research Institute<br>6220 Culebra Road<br>P.O. Box 28510<br>San Antonio, TX 78228<br>USA | 210-522-5911<br>210-684-7530<br><a href="mailto:bweber@swri.edu">bweber@swri.edu</a><br><b>Sub-Committee D02.B01 Chair</b> | Non-Voting Member | Present _____ |

| Name/Address | Phone/Fax/Email | Signature |
|--------------|-----------------|-----------|
|--------------|-----------------|-----------|

|  |  |                                 |
|--|--|---------------------------------|
| Tom Wingfield<br>Chevron Phillips Chemical Co. | <a href="mailto:wingftm@cpchem.com">wingftm@cpchem.com</a> | Non-Voting Member Present _____ |
|--|--|---------------------------------|

Chris Taylor VP Racing Fuels

Robert Bacchi BASF

Jason Holmes BASF

Robert Stockwell ✓

Karen SwRI ✓

Adrian Switzer ~~IAI~~ IAI ✓

Raymond Smart Alton Chem ✓

Scott Stapp ✓

Attachment 2

# Sequence III Cylinder Heads with Hardened Seats

**Intertek**

Automotive Research

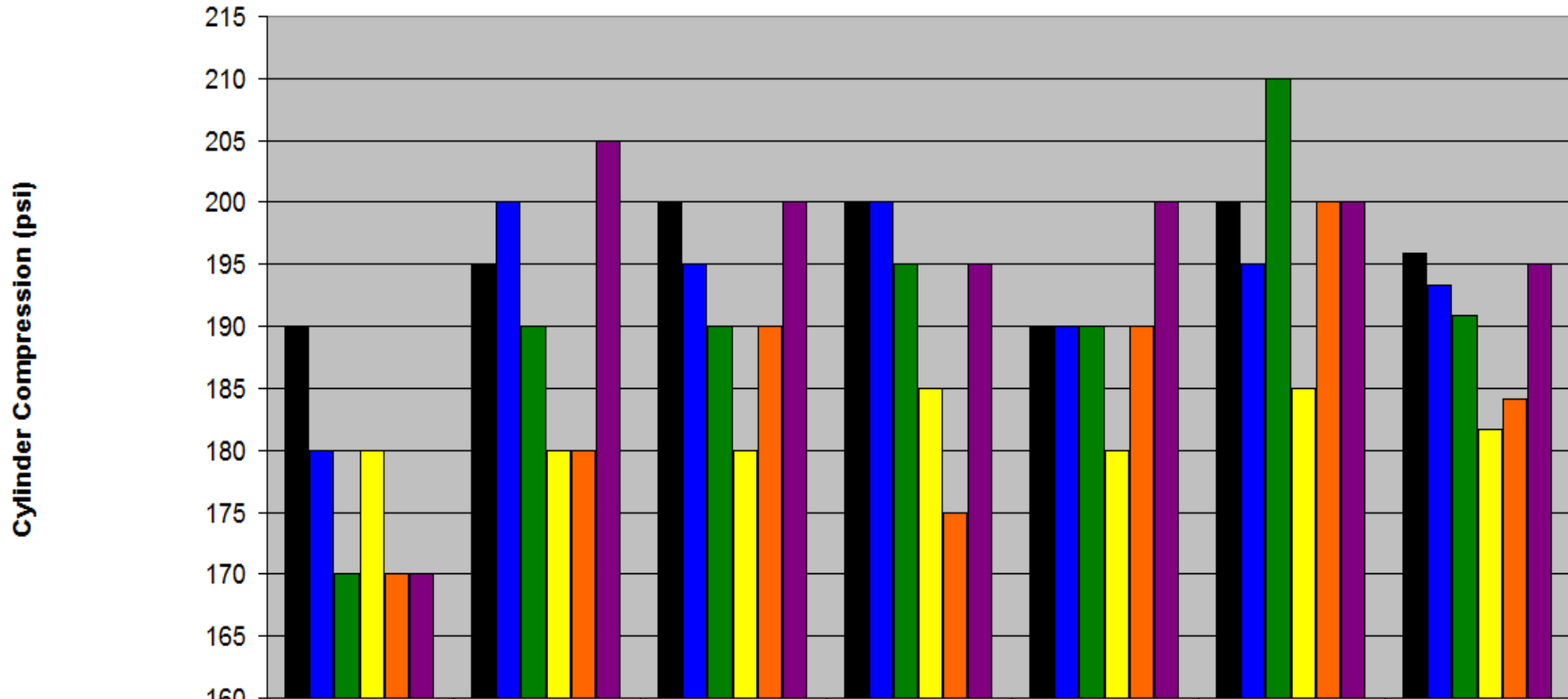


# Compression Testing Summary

- Compression Test Results from Cylinder Heads with Hardened Seats.
  - Tests 1-6 (398 Total Test Hours)
    - Average EOT Compression  $\geq 182$  psi
  - Tests 1A-4A (437 Total Test Hours)
    - Average EOT Compression  $\geq 175$  psi

# Post Test Compression Testing (III G Heads With Hardened Seats)

398 Total Test Hours



| Cylinder Number    | 1   | 3   | 5   | 2   | 4   | 6   | AVG |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| ■ Test 1 (43 Hrs)  | 190 | 195 | 200 | 200 | 190 | 200 | 196 |
| ■ Test 2 (105 Hrs) | 180 | 200 | 195 | 200 | 190 | 195 | 193 |
| ■ Test 3 (181 Hrs) | 170 | 190 | 190 | 195 | 190 | 210 | 191 |
| ■ Test 4 (266 Hrs) | 180 | 180 | 180 | 185 | 180 | 185 | 182 |
| ■ Test 5 (332 Hrs) | 170 | 180 | 190 | 175 | 190 | 200 | 184 |
| ■ Test 6 (398 Hrs) | 170 | 205 | 200 | 195 | 200 | 200 | 195 |

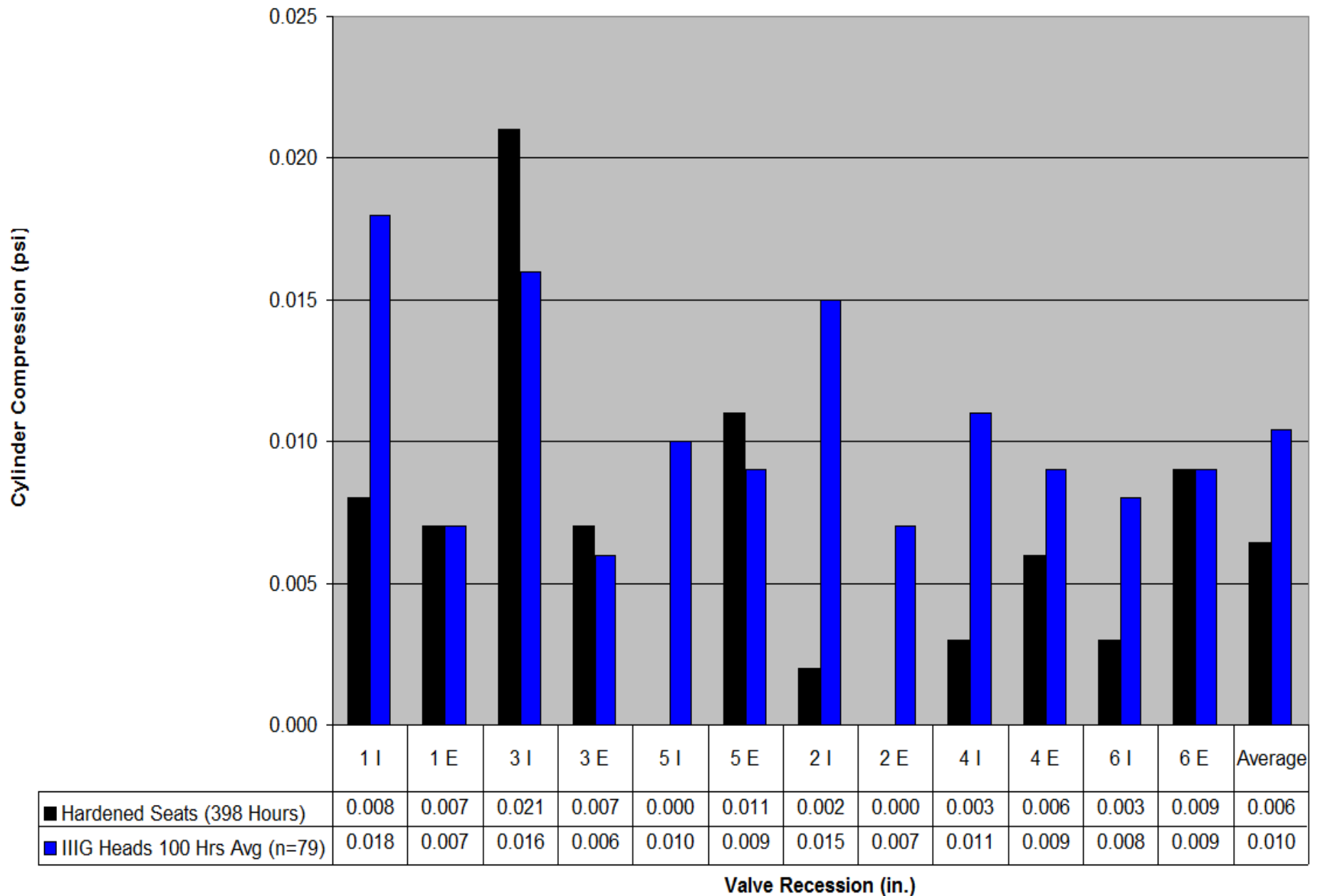




# Test 1-6 Valve Recession Summary

- Average Valve Recession After 6 Tests (398 Test Hours)  $\leq 0.006$  in.
- Average Valve Recession on seventy-nine 100 Hour IIIG Tests Utilizing Current Cylinder Heads  $\leq 0.010$  in.
  - Note: These measurements were not conducted in the same timeframe.

**Tests 1-6 Post Test Valve Recession (IIIIG Heads With Hardened Seats)  
398 Total Test Hours**







# Cylinder Heads with Hardened Seats

## Conclusion

- Compression Tests
  - Compression consistently above 170 psi for over 400 test hours with hardened seats installed in cylinder heads.
- Valve Recession
  - 398 hours of testing using cylinder heads with hardened seats installed had less valve recession than seventy-nine standard 100 hour IIG tests on existing cylinder heads.