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Reply to:

Scott Parke
ASTM Test Monitoring Center
6555 Penn Avenue
Pittsburgh, PA 15206

May 5, 2006

To: Single Cylinder Diesel Surveillance Panel

Enclosed are the minutes of the SCOTE Surveillance panel teleconference held April 17, 2006. Please address any corrections during the time allotted for minutes approval at the next meeting.

Scott Parke
Secretary SCOTE Surveillance Panel

Attachments

cc: <ftp://ftp.astmtmc.cmu.edu/docs/diesel/scote/minutes/TELECONFERENCE%202006-04-17.pdf>

distribution: Email

TELECONFERENCE MINUTES

SINGLE CYLINDER DIESEL SURVEILLANCE PANEL

HELD APRIL 17, 2006

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13:06cdt STATUS OF SEVERAL CATERPILLAR ENGINE PARTS

Chairman Jim McCord (Southwest Research) called the teleconference to order at 13:06cdt. The participant list is shown as attachment 1.

Britt Pulley (Caterpillar) reported on some parts changes in the pipeline for the 1Y-3700 (1P) engine. In 1Y-3735 Crankshaft Group, thrust bearing 7E-9262 was replaced by 253-1752 thrust bearing. Cat is also planning to change the purchasing of 1Y-3814 inlet valve, 1Y-3815 exhaust valve, and 1Y-3810 valve guide to direct-from-supplier rather than current system in which IMT buys them from the supplier, checks them and then sells them to Cat.

Britt also reported that Cat is currently trying to find a supplier of oval tubes for the 1K/1N/1M-PC engine heat exchangers. Round tubes won't fit into the same housing. There are issues with flows and heat transfer rates that all need to be resolved. Bob Campbell (Afton) suggested that an alternative generic, non-Cat heat exchanger be investigated.

13:13cdt PROJECTED SDTF2 FUEL AVAILABILITY

Bob Rumford (Dow/Haltermann) reported that the blend stocks intended for use for SDTF2 are en route from Europe. The initial batch of SDTF2 will be 17,000 gallons. Three weeks later, another 17,000 gallon batch should be available. Bob expects the fuel to be available by mid-May. He projects that 17,000 gallons should be a 6 month supply.

13:18cdt APPLICATION OF "ENGINEERING JUDGMENT" TO %OFF/OUT VIOLATIONS

Bob Campbell described recently asking TMC to express an opinion regarding the validity of a 1M-PC candidate test that exceeded the %Out allowance of 5% for fuel pressure for approximately one and a half hours. A fire alarm in the lab caused safety systems to trip that resulted in a fuel pressure drop to the test stand. Torque remained steady; fuel flow became a bit erratic; exhaust temperature increased 10°C; all remained within operational specs. Bob did not contend that the pressure drop was solely a data collection phenomena or that the stand did not see any change in its operation. His position was merely that allowing "engineering judgment" to override the %out limit would be a cost savings to the industry (attachment 2, page 1). TMC declined to concur that the operational deviations were inconsequential to the test.

Scott Parke (TMC) explained that TMC's opinion was based on a review of the data Bob provided (attachment 2, page 2) and the following:

1. Exhaust temperature history of the 1M-PC test – At the inception of the 1M-PC test, wide lab-to-lab variation in exhaust temperature was seen. In an effort to reach an exhaust temperature spec that all labs could operate under, the surveillance panel added exhaust barrels to the

required stand hardware and set the exhaust target such that all labs (low and high) would be able to meet it within a 30°C tolerance.

2. %Off/Out history – The %off/out criteria was devised for use in the then state-of-the-art IIIIE test. When the 1M-PC was developed shortly thereafter, industry wanted any new tests to adopt %off/out as a measure superior to simply keeping the overall test mean within spec. The control systems used on 1M-PC stands at the time, however, were nowhere near the level of sophistication of IIIIE stands (trip balances for fuel flow, manual wet and dry bulb temperatures for humidity; etc.). In consideration of this, the surveillance panel chose to a) keep operating spec tolerances at the old 1G2 levels (3°C on temperatures, for instance as opposed to the 1°C allowed in IIIIE), and b) widen the IIIIE %off/out limits such that 1M-PC data reviewed from all labs would meet them. TMC contends that allowance for “engineering judgment” was taken into account by both a and b.
3. Violation is rare – A review of 1M-PC test history shows 4 tests out of 529 that are specifically recorded as having exceeded %off/out. This seems to indicate that the limits placed on %off/out are not unduly harsh.
4. Violation is not unprecedented – Despite their rarity (3 above), the number of instances is not zero. There have been instances where 1M-PC, 1K, and 1N tests have been declared invalid either of the lab’s own accord or after consultation with TMC. It has happened at least once at nearly every lab.
5. Established precedent – TMC considers points 3 & 4 to constitute longstanding precedent and that it would, therefore, be unfair to the rest of the industry to now render a different opinion absent any surveillance panel-approved revision to the test procedure.

Pat Fetterman (Infineum), though not present, stated his position via email prior to the meeting that “...a general uncontrolled use of ‘engineering judgment’ does concern me. ...I don't want to give test operators cart blanche on test controls.”

Chuck Dutart (Caterpillar) stated his concern that opening %off/out to “engineering judgment” would lead to a slippery slope where the surveillance panel would be overwhelmed by continual requests for relief from every procedural requirement.

Bob Campbell moved that “engineering judgment” be permitted for %off/out deviations on 1K, 1N, and 1M-PC tests. Failing to receive a second, the motion was tabled.

13:38cdt 1N LINER STATUS

The group briefly discussed the status of 1N liner (1Y3998) data inflow. Scott Parke reported that no additional data has been received since the group’s last meeting.

The teleconference concluded at 13:40cdt.

Attendance:

Representative

Chuck Dutart
Britt Pulley
Mark Sutherland
Mike Griggs
Jim McCord
Bob Campbell
Chris Mazuca
Bob Rumford
Scott Parke
Frank Farber

Organization

Caterpillar
Caterpillar
Chevron
Lubrizol
Southwest Research
Afton Chemical
PerkinElmer
Dow/Haltermann
Test Monitoring Center
Test Monitoring Center

From: Campbell, Bob [Bob.Campbell@AftonChemical.com]
Sent: Monday, April 17, 2006 8:31 AM
To: Scott Parke; brys; rumford; conti; mazuca; mccord; dutart; cassim; gutzwiller; fetterman; sutherland; buck; pulley
Cc: Ellen young
Subject: RE: DATE FINALIZED: scote conference call to discuss sdtf2 fuel

All, for our conference call today, when discussions about sdtf2 are complete, I would like us to consider a small addition to the 1K/1N/1M procedures. I would like us to consider adding the ability for engineering judgment to be used if %off or %out limits are exceeded (analogous to the engineering judgment used for negative Qi's in other tests).

Recently we had a candidate 1M test that experienced fuel pressure problems for ~1.5 hours, causing %out to be greater than 5. We reviewed the data with TMC but their position was to simply fall back on the procedure which does not allow judgment.

Attached is a data file for illustration. As you can see, we experienced fuel pressure problems which were caused by a building malfunction. I'm not trying to make excuses for our control, but simply show an example where engineering judgment can save the industry some money. I've plotted the fuel pressure against other parameters to illustrate the extent of the problems. As you can see, the engine exhaust temperature rose ~10C but stayed within specification. Torque was solid and fuel flow became a bit erratic but also stayed within spec. All things considered, my opinion would be that while the engine did "see" the drop in fuel pressure, all other parameters stayed within specification and likely had no impact on test results.

thanks
bob

-----Original Message-----

From: Scott Parke [mailto:sdp@astmtmc.cmu.edu]
Sent: Thursday, April 13, 2006 2:48 PM
To: brys; rumford; conti; mazuca; mccord; dutart; cassim; gutzwiller; fetterman; sutherland; buck; Campbell, Bob; pulley
Cc: Ellen young
Subject: DATE FINALIZED: scote conference call to discuss sdtf2 fuel

i've heard no negative comments regarding scheduling of this conference call for the 17th.

i'll send another reminder monday morning.

-----Original Message (revised

date)-----
the surveillance panel chairman has requested that a conference call be scheduled to discuss the sdtf/sdtf2 fuel situation. the call is scheduled for monday, april 17, 2006 at 13:00cdt.

to participate in the conference call:
at 13:00 cdt, monday, april 17, dial: 412-380-2000; when prompted, dial:

