ASTM Engine Oil Gelation Test (EOGT) WK86363 Update

EOFT and EOWTT Surveillance Panel Meeting

October 23, 2025

Yong-Li McFarland, Chair

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EOFT and EOWTT Surveillance Panel Membership

21 members

Sarah Fitzgerald, Afton Chemical
Robert Stockwell, Chevron Oronite
Quanchang Li, ExxonMobil
Michael Deegan, Ford
Melissa Chu, Infineum
Angela Willis, Infineum
Joe Franklin, Intertek
Karina Gil, Intertek
Yuliza Rocha, Intertek
Michael Johnscher, ISP
Michael Kunselman, KJA Group
Litchi Xie, Lubrizol Additive (Zhuhai) Co., Ltd.
Victoria Fein, Lubrizol
Jason Bowden, OH Technologies Inc
Clarence McCollum, Richful (Xinxiang Richful)
Greg Miiller, Savant Group
Sean Alston, SGS North America
Becky Grinfield, SwRI
Yong-Li McFarland*, SwRI
John Loop, TMC
Jared Cavaliere, Valvoline

*Chair

New EOGT WK86363, ILS# 1854

- Ford request for a new Engine Oil Gelation Test (EOGT): request to add a new test filterability test to better screen oils for field issues
- Status:
  - Method: 1 draft (Afton method V9.7) uploaded on ASTM Collaboration Area
  - Oils: 11 potential reference oils offered; 17 oils received at TMC
  - Screening Tests and ILS: ILS tests completed
  - Timing: test available in December 2025

Agenda:

- 1. Additional ILS data?
- 2. Check temp before and after shearing – additional info?
- 3. Reference process decision
- 4. Reference oil F batches

ILS Updates – any additional data?

- Afton: completed ILS
- SwRI: completed ILS
- Savant: completed ILS, estimate to complete Oct 31
- Intertek: completed ILS
- Valvoline: completed ILS
- Infineum: completed ILS
- Lubrizol: completed ILS
- Richful: completed ILS

Temperature of Sheared Samples

Run #	Before Shearing Temp (°C)	After Shearing Temp (°C)	Temp Increase (°C)	
1	22.5	33.0	10.5	1st sample, did not gel
2	22.6	33.5	10.9	
3	22.8	37.5	14.7	2nd sample, slight gel
4	22.8	37.3	14.5	
5	22.8	39.6	16.8	3rd sample, serious gel
6	22.8	39.8	17	

From another lab

Oil	Average Temperature Increase, °C
Oil U	7.6
Oil F	9.8
Oil P	12
Oil K	13.4
Oil M	15.9
Oil R	16.2
Oil E	18.7

From Intertek

EOGT Procedure

- ILS objectives:
  - 1) Determine report value: *Report the volume at 120 s for each of the duplicate runs.*
  - 2) Establish precision (determinability, repeatability, and reproducibility) statement:
  - *The difference between determinations shall be less than 8.2 mL of its duplicate run. Each determination shall reach 120 seconds (for reference oils only).*
  - *Repeatability—The difference between successive test results, obtained by the same operator with the same apparatus under constant operating conditions on identical test material, would in the long run, in the normal and correct operation of the test method, exceed the following value only in one case in twenty:*

    Repeatability= 15 mL
  - *Reproducibility—The difference between two single and independent results, obtained by different operators working in different laboratories on identical test material, would in the long run, in the normal and correct operation of the test method, exceed the following value only in one case in twenty:*

    Reproducibility= 21 ml

EOGT Procedure cont.

- ILS objectives:
  - 3) Select reference oil(s) for test: *Run reference oils F and M (blinded samples for both). If not acceptable reference run, need to rerun both oils. Acceptance criteria: the difference between the average result for Oil F and Oil M must be greater than 32. …~~each batch of candidate samples **or***
    Referencing is every 14 days (from start to start) and passing daily Oil F (only 1 run needed) (criteria of Oil F acceptance range from Stats group). Require attendance at annual workshop to build consistency. Need to build separate EOGT SP.
  - *Reference oil info listed in new section to be added to TMC LTMS document.*

- Select labs (Labs 1.1, 3.1, 5.2, 7.1) data used in ILS target generation

Labs calibration check (TMC)

- There are two labs which would have successfully calibrated based upon meeting all three of these criteria:
  - 1) All eight test runs (4 on EOGT-M and 4 on EOGT-F) reached 120 seconds
  - 2) All four couplets (determinants) were within the 8.2 repeatability range
  - 3) The "N" value [as determined by this equation: =(Sum(M1,M2,M3,M4) – Sum(F1,F2,F3,F4))/4] was greater than 33.
- Lab data

Lab 1.1 All valid tests reached 120s. No determinants > 8.2 different. N = 40.25
Lab 2.1 None of the four M's reached 120s.
Lab 3.1 All valid tests reaching 120s. One determinate > 8.2 different (oil F). N = 43
Lab 4.1 None of the four M's reached 120s. Three of four F's did not reach 120s.
Lab 4.2 None of the four M's reached 120s.
Lab 5.1 All valid tests reached 120s. One determinate > 8.2 different (oil F). N = 1
Lab 5.2 All valid tests reached 120s. No determinants > 8.2 different. N = 29.25
Lab 6.1.1 All valid tests reached 120s. No determinants > 8.2 different. N = -20.5 (YES! Negative "N" value indicating faster flow with F runs).
Lab 7.1 All valid tests reached 120s. No determinants > 8.2 different. N = 39.75
Lab 8.1 All valid tests reached 120s. One determinant > 8.2 different (oil F). N = 40.75

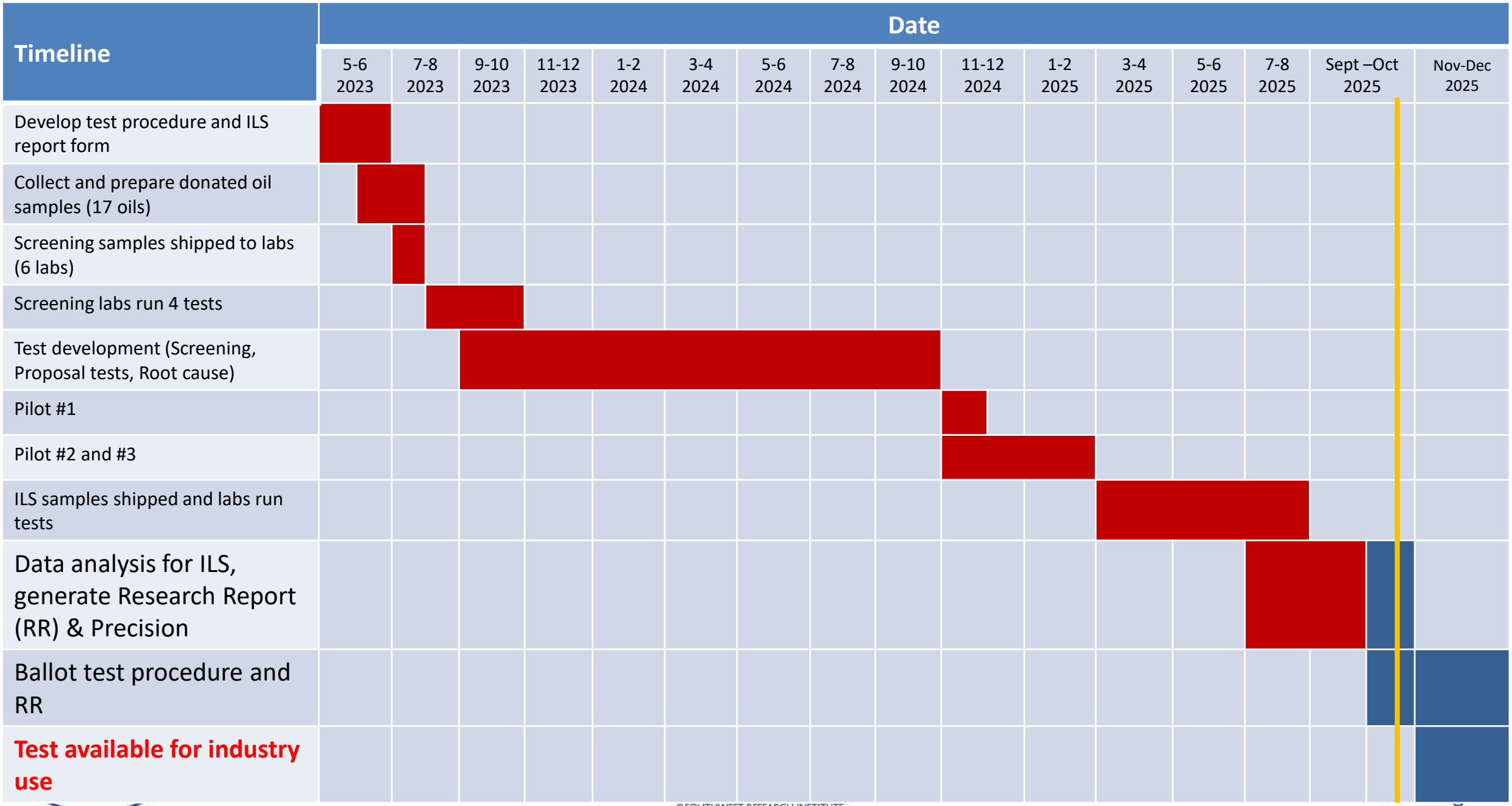
- Comments

Reference Oils M and F

Oil Name	Available as Reference Oil	Amount (gallons)	Comments
EOGT-F	Yes	3	(reblend available but not yet tested)
EOGT-K	Yes	0	(reblend available but not yet tested)
EOGT-M	Yes	9	
EOGT-P	Yes	9	

- Request for 2 labs to test Oil F batch 1 and reblend, 2 tests (4 runs) on each batch: Intertek and SwRI, John to sent out samples
- John to reach out to Oil F and Oil M supplier to get additional fluid

Timeline – updated Sept 17, 2025



Action Items and Next Meeting

- Jared and John to work on data dictionary
- All: all to give comments on procedure or video to Yong-Li
- All: review the precision and TMC Calibration requirements and provide any suggestions if disagree
- Savant: update on ILS rerun
- Afton and Infineum give graduated cylinder info to Yong-Li
- Statisticians to review ILS data to provide acceptance criteria for 1 run Oil F
- Yong-Li to make edits to EOGT method on precision and other sections
- John to draft EOGT LTMS and TMC calibration/referencing section
- John to reach out to Oil F and Oil M supplier to get additional fluid
- John to send 2 samples each of Oil F batch 1 and reblend to Intertek and SwRI
- Intertek and SwRI to run 2 tests each of Oil F batch 1 and reblend
- Send Yong-Li names for EOGT SP chair

- Next Meeting: Thur Nov 6 at 9am CDT for 1.5 hr

Thank you for your support!

Participants		
Method Development (11)	Oil Donations (9)	Testing Labs (10)
Afton ExxonMobil Ford Infineum Intertek ISP Lubrizol Oronite Savant SwRI TMC	Afton Ford Infineum Lubrizol OH Technologies (donate filters only) Oronite Subaru TMC (collection, shipping only) Toyota	Afton Infineum Intertek ISP Lubrizol Richful Savant SwRI TMC (monitoring system only) Valvoline