Standard Guide for
D02.B0 Surveillance Panel Chairs' Handbook[1]
Version: Nov 2024

1. Scope

1.1 This handbook covers the information and responsibilities necessary for the effective management of surveillance panels under ASTM Subcommittee B.[1] While this handbook was developed primarily to aid Surveillance Panel Chairs with the execution of their duties, it can also serve as a resource for any panel member or stakeholder. A task force under ASTM D02.B0.08 Executive Committee, Technical Guidance Committee Subcommittee was responsible for the creation of this document. The Technical Guidance Committee Subcommittee is responsible for ongoing document maintenance.

1.2 This handbook is arranged as follows:

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[1] This handbook is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.B0.08 on Executive Committee, Technical Guidance Committee Subcommittee.

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2. Referenced Documents

2.1 *ASTM Standards*:

D4485 Specification for Performance of Active API Service Category Engine Oils

D4684 Test Method for Determination of Yield Stress and Apparent Viscosity of Engine Oils and Low Temperature

D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance

D6300 Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products, Liquid Fuels, and Lubricants

D8111 Test Method for Evaluation of Automotive Engine Oils in the Sequence IIIH, Spark-Ignition Engine

E178 Practice for Dealing with Outlying Observations

2.2 *API Standards:*

API 1509 Engine Oil Licensing and Certification System

3. Terminology

3.1 *Definitions:*

3.1.1 *American Chemistry Council (ACC), n*—an industry trade association that represents the leading companies engaged in the business of chemistry. ACC promotes improved environmental,

health and safety performance through Responsible Care®; common sense advocacy designed to address major public policy issues; and health and environmental research and product testing..

3.1.2 *American Petroleum Institute (API), n*—API has led the development of petroleum, natural gas and petrochemical equipment and operating standards. These represent the industry's collective wisdom on everything from drill bits to environmental protection and embrace proven, sound engineering and operating practices and safe, interchangeable equipment and materials.

3.1.3 *Automotive Oil Advisory Panel (AOAP), n*—this panel is a part of API and consists of two groups: the "automotive" group consisting of OEMs and the "oil" group which includes lubricant manufacturers/marketers and additive manufacturers. This panel develops the specifications against which engine oil marketers are licensed to use the API Service Symbol. The AOAP guides and facilitates the development and introduction of performance specifications for passenger car engine oils.

3.1.4 *American Society for Testing and Materials (ASTM), n*–now known as ASTM International. ASTM International is a globally recognized leader in the development and delivery of voluntary consensus standards. Today, over 12,000 ASTM standards are used around the world to improve product quality, enhance health and safety, strengthen market access and trade, and build consumer confidence.

3.1.5 *Base Oil Interchangeability Viscosity Grade Read Across (BOI/VGRA), n*—guidelines and system that allows for reducing test costs by allowing the interchangeability of certain base oils and different viscosity grades without completing a full engine and bench test program for each change. These guidelines are described in API 1509 Annex E (BOI) and Annex F (VGRA). The BOI/VGRA Task Force is responsible for developing these guidelines which typically occurs during category upgrades.

3.1.6 *Category Life Oversight Group (CLOG), n*—group that reviews existing data comparing relevant engine tests and determines steps needed to maintain or replace a test during the life of the engine oil specification category.

3.1.7 *Central Parts Distributor (CPD), n*—Part supplier for Engine Tests.

3.1.8 *Coordinating European Council (CEC), n*—a European organization that represents the motor, oil, petroleum additive and allied industries in the development of test methods to evaluate the performance of transportation fuels, lubricants, and other fluids.

3.1.9 *Dependent Laboratory, n*–a laboratory that is associated with an additive manufacturer, oil marketer, or OEM.

3.1.10 *Diesel Engine Oil Advisory Panel (DEOAP), n*—a committee under API that is comprised of representatives from API and EMA member companies who deal with heavy-duty lubricant matters affecting the two trade associations. This panel develops the specifications against which engine oil marketers are licensed to use the API Service Symbol. The DEOAP guides and facilitates the introduction of proposed heavy-duty performance categories.

3.1.11 *Truck and Engine Manufacturers Association (EMA), n*—a trade association that represents worldwide manufacturers of internal combustion engines and on-highway, medium, and heavy-duty vehicles.

3.1.12 *European Automobile Manufacturers Association (ACEA), n*—the main lobbying and standards group of the automobile industry in the European Union.

3.1.13 *Heavy Duty Motor Oils (HDMO), n*—term for engine oils developed for heavy duty vehicles primarily powered with diesel fuel.

3.1.14 *Heavy Duty (HD), n*–term for engine oils developed for heavy duty vehicles commonly powered with a diesel engine.

3.1.15 *Heavy Duty Engine Oil Class Panel (HDEOCP), n*—liaisons with API, ACC, EMA, DEOAP/NCDT/NCET and coordinates category development with critical industry stakeholders. Classification panels are responsible for maintaining existing API performance categories, the tests used in the performance specifications, and for developing new ones as needed. Please refer to 5.2 for an organizational chart.

3.1.16 *Independent Laboratory, n*–a laboratory that is not associated with an additive manufacturer, oil marketer, or OEM.

3.1.17 *International Lubricant Specification Advisory Committee (ILSAC), n*—an organization through which global passenger car OEMs develop minimum performance standards for passenger car engine oils used in gasoline fueled engines. ILSAC standards are denoted by the terminology ILSAC GF-x. ILSAC is responsible for developing the 'needs statement' for a new ILSAC category and then works with AOAP to develop the Category.

3.1.18 *Japanese Automotive Standards Organization (JASO), n*—an organization that sets automotive standards in Japan, similar to ACEA in Europe.

3.1.19 *Light Duty (LD), n*– term for engine oils developed for light duty vehicles commonly powered with a gasoline engine.

3.1.20 *Lubricant Test Monitoring System (LTMS), n*–a statistical system used to administrate reference oil testing with the main purpose being to monitor test stand performance. The LTMS document is available at the Test Monitoring Center (TMC) website (https://www.astmtmc.org/ftp/docs/ltms/). The document details per-test statistical methods used to determine reference test performance and potential subsequent adjustments to candidate tests.

3.1.21 *Lubricant Standards Group, n*—a group within API that approves passenger car and heavy duty engine oil specifications.

3.1.22 *New Category Development Team (NCDT), n*—a team under API that is formed during Phase II of category development by API DEOAP. They are responsible for coordinating the new category working toward final approval within the timetable and budget.

3.1.23 *New Category Evaluation Team (NCET), n*—a team under API that is formed during Phase I of category development by API DEOAP. They are responsible for recommending the need, language, timing, and funding mechanism for a new category to the API Lubricants Group.

3.1.24 *Original Equipment Manufacturer (OEM), n*–primary company that manufactures engines, vehicles, or other major automotive components.

3.1.25 *Passenger Car Motor Oils (PCMO), n*—term for engine oils developed for passenger cars, light-duty trucks, and similar vehicles primarily powered with gasoline fuel.

3.1.26 *Passenger Car Engine Oil Class Panel (PCEOCP)*—an advisory technical body responsible for the following: (*1*) providing recommendations to D02.B to ballot technical changes or updates in Specification D4485 as it relates to passenger car engine oil; (*2*) providing a platform for Surveillance Panel Chairs to present updates regarding test maintenance and test development, share lessons-learned, and bring forward issues which may need industry guidance, and; (*3*) providing a platform for industry stakeholder groups to share specification/category development projects and concerns pertinent to passenger car engine oil test maintenance and development needs. Please refer to 5.2 for an organizational chart.

3.1.27 *Petroleum Additives Panel (PAP or ACC PAP), n*– The Petroleum Additives Panel was formed in 1990 to pursue the research and advocacy interests of developers, manufacturers, and marketers of additives used to enhance the performance of automotive and industrial petroleum

fuels and/or lubricants. The Petroleum Additives Panel accomplishes its objectives through the work performed by three Task Groups: the Fuel Additives Task Group (FATG), the Health, Environmental and Regulatory Task Group (HERTG) and the Product Approval Protocol Task Group (PAPTG).

3.1.28 *Product Approval Protocol Task Group (PAPTG), n*—part of ACC, this group focuses on research and advocacy efforts related to automotive lubricant additives and maintains the Petroleum Additives Product Approval Code of Practice for automotive engine oil testing.

3.1.29 *Test Sponsor, n*–the OEM that supplies hardware for an industry test. A test sponsor is typically a member of a test Surveillance Panel. In addition to hardware, the test sponsor may also provide guidance, direction, and technical expertise to aid the Panel with developing and managing the test.

3.1.30 *Society of Automotive Engineers (SAE), n*—a global association of more than 128,000 engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries. Their core competencies are life-long learning and voluntary consensus standards development.

3.1.31 *Test Monitoring Center (TMC), n*–offers reference oil distribution and data handling services to laboratories involved in lubricant testing. The TMC provides a reference-oil-based system for the calibration of ASTM Test Methods. Other services include laboratory inspections, rater calibration workshops and industry related registration services.

4. Significance and Use

4.1 *Handbook*—This handbook is meant to act as a resource primarily for Surveillance Panel Chairs to facilitate the effective management of panels. The information and guidelines contained herein were developed via input from industry members and stakeholders and

represent many collective years of experience. There are also references to external resources to provide additional information as well as to reference other guidelines or regulations that may be important to consider as a Panel Chair and member.

4.2 *Use*—This handbook is useful for the effective management of surveillance panels. Unless otherwise stated, the guidelines contained within are exactly that: guidelines and not strict regulations. However, these guidelines were developed through the collective experience and wisdom of numerous industry members and stakeholders. The Surveillance Panel Chair would be wise to seriously consider them when leading their panel.

5. History and Organization

5.1 *History of Engine Oil Standards and Surveillance Panels* – Since the dawn of motorized transportation, there has been a need for specialized lubricants. For automotive applications, these specialized lubricants include engine oils, transmission fluids, gear oils and hydraulic fluids. In North America, several groups were established for, or became involved in, the development and governing of these specialized automotive lubricants.

ASTM was established in 1898. SAE was established in 1905. API, The American Petroleum Institute, was established in 1919. These three groups have all been intimately involved with the automotive lubricants industry since the early 1900s.

Focusing on engine oils, there is over 100 years of history on the development and classification of engine oils, and over 50 years of licensing and certification of engine oils. In 1923 SAE first defined engine oils by thickness (viscosity). At this time no additives were used. In 1929 Standard Oil was the first to develop synthetic hydrocarbons. Then in the 1930s we saw the first use of additives in engine oils.

In 1947 API defined three categories of engine oils; Regular, which was straight mineral oil, Premium, which was mineral oil with oxidation inhibitors and Heavy Duty, which was mineral oil with oxidation inhibitors and detergents/dispersants. Not long after, API created its first separate categories for gasoline and diesel engine oils. Starting in 1952 and progressing to 1970, there were a total of three API categories, ML, MM and MS for gasoline engine oils and three API categories, DG, DM and DS for diesel engine oils. This is when API added Sequence Testing to their requirements. In the 1950s we also saw the first use of multi-grade engine oils.

Then in 1970 API, ASTM and SAE worked together to develop an engine oil classification system for gasoline and diesel engine oils. S Category for service gasoline engine oils and C Category for commercial diesel engine oils. This classification system is still in use today.

In the 1950s, the North American automobile manufacturers developed the first Sequence engine tests. GM developed the Sequence I, II and III, Chrysler developed the Sequence IV and Ford developed the Sequence V. Around the same time, the North American diesel engine manufacturers developed the first standardized HD engine tests. The initial Sequence and HD engine tests were incorporated into the API ML, MM, MS, DG, DM and DS categories. Over the past 8 decades these engine tests have been updated and used in the numerous API C, F and S engine oil categories, as well as in ILSAC, ACEA and JASO engine oil categories.

Along with the development of standardized testing for automotive lubricants, came the need to monitor and update these tests. Under the wing of ASTM, surveillance panels were formed for this task. To this day, the surveillance panels are not ASTM sanctioned bodies, but follow many of the ASTM practices and principles.

In the early years, the surveillance panels were Chaired by the test sponsor. This included General Motors, Ford, Caterpillar, Mack and others. This was the norm until the mid-1970s. In the mid-1970s non-test sponsor Chairs started to appear. Also, until the early 1980s the surveillance panels did not have access to or monitor reference test data. This was due to many of the test sponsors not wanting to make reference data public. At that time in our industry, only the test sponsor had access to industry reference data for their test type(s). Without access to reference data, the surveillance panel did not monitor test severity or precision.

So, in the early years, the surveillance panels primarily monitored and updated test hardware, test fuel and test operations. It was the surveillance panels that established batch control for test samples, critical hardware and test fuel.

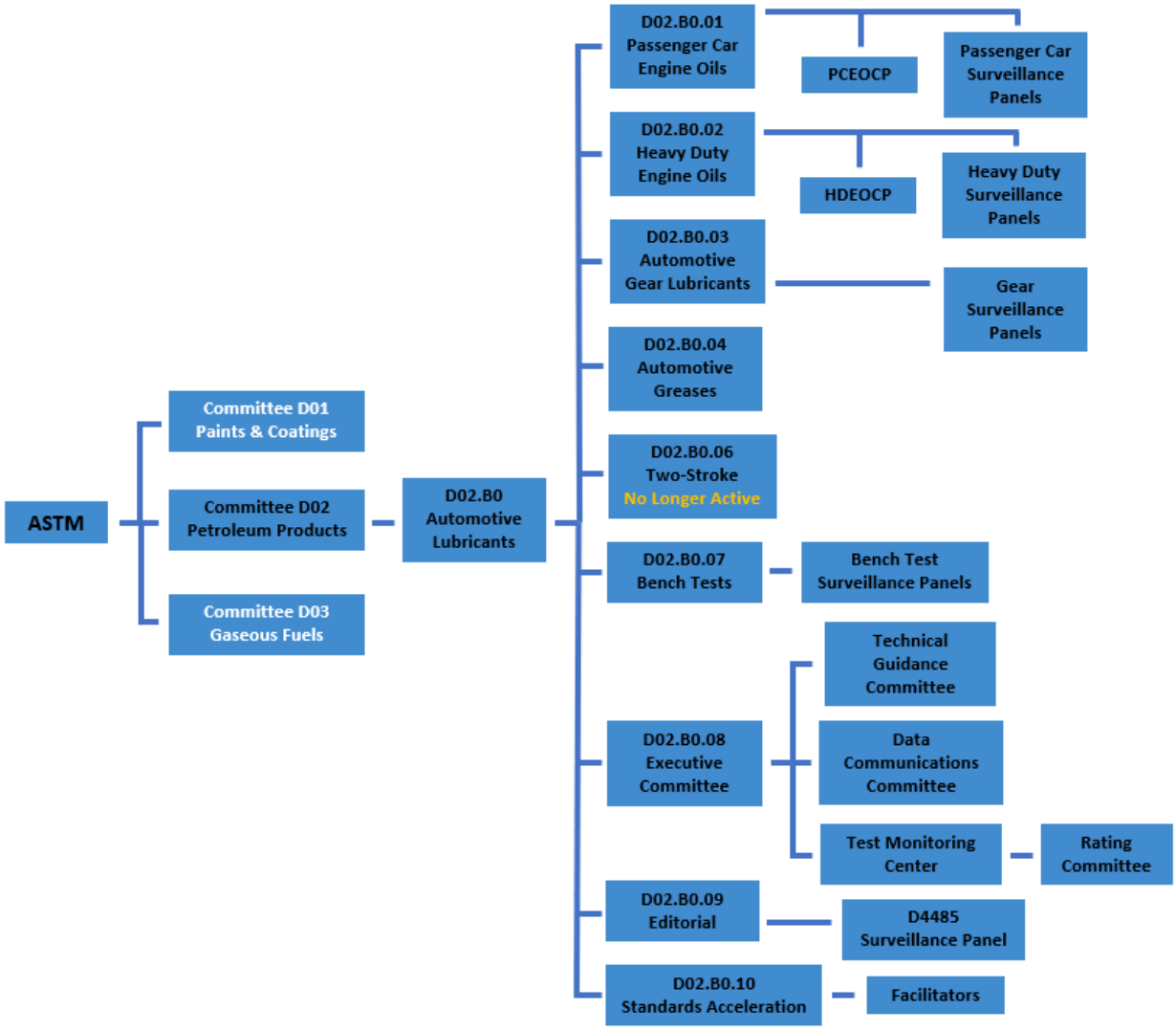
In 1976 the Test Monitoring Center (TMC) was established as an unbiased group within ASTM D02.B. The primary purpose of the TMC is to monitor the calibration of engine test stands through the use of ASTM reference oils. The reference oils are assigned to the test laboratory in a blind fashion and the test results reported back to the TMC to be used to track the precision and bias of the test methods. The TMC also has the responsibility of auditing the test laboratories to ensure that they are conducting the tests as defined by the ASTM procedure. Procuring, storing and distribution of reference oils is also handled by the TMC. With the TMC now as the keeper of the test data, surveillance panels were granted access to the data and they started to monitor test severity and precision.

In the early 1990s the LTMS was established and introduced. Surveillance panels were immediately involved with the LTMS. This system introduced robust reference data monitoring, severity, precision and CUSUM charting, the severity adjustment system, the information letter system and more. From the 1990s through today the surveillance panels are responsible for monitoring the LTMS and taking action when needed.

In the past 100+ years we have seen the birth and the evolution of the automotive industry and the lubricants industry. Part of this evolution has been the introduction and evolution of standardized testing and the surveillance panels which are responsible for the monitoring and updating of these standardized tests. The surveillance panel has evolved too, from initially being controlled primarily by the test sponsor, with limited responsibilities centered around hardware, fuel and operation to becoming open industry panels, controlled by all industry participants, and responsible for the surveillance and continued improvement of all aspects of the standardized tests that they are responsible for.

5.2 *ASTM Committee Hierarchy within D02.B0 Automotive Lubricants:*

(https://www.astmtmc.org/ftp/docs/ASTMOrganizationChart.pdf)



5.3 *Subcommittee B*—Promotes the knowledge, specifications, methods of test, and nomenclature for automotive lubricating oils. This will include those lubricants used in the power train and chassis components of self-propelled wheeled vehicles including passenger cars, trucks, buses, high-speed diesels, and tractors.

5.4 *Sections*—D02.B01, D02.B02, D02.B03, D02.B04, D02.B06, D02.B07, D02.B08, D02.B09, D02.B10.

5.4.1 Some of these sections receive reports from panels under their oversight and are responsible for the promotion of knowledge of, and specifications, test methods, and terminology for automotive lubricants and fluids. Some committees provide updates to Subcommittee B.

5.5 *Class Panels B01,B02*—PCEOCP and HDEOCP (Passenger Car and Heavy Duty Engine Oil Class Panels):

5.5.1 Each panel is responsible for maintaining existing API 1509 Passenger Car Engine/Heavy Duty Oil Performance categories and for developing new ones as needed. Definition and documentation of performance limits for these categories in ASTM D4485 (in coordination with the D4485 Surveillance Panel) is also the responsibility of the panels. Consistent with proper maintenance of categories the panels interprets, Surveillance Panel recommendations regarding severity shifts, procedure changes, test usefulness, precision issues, test availability, and any other matters having a bearing on performance limits and specifications.

5.5.2 For definition of new engine oil performance specifications, the panels approve the suitability of tests for inclusion and the designs of test matrices intended to establish precision and other measures of test usefulness. To facilitate accomplishment of this responsibility, class panel may form special task forces to develop and interpret data from new tests, recommend test matrix designs, appoint matrix managers, and recommend limits as appropriate. The panels recommend appropriate action regarding revisions to D4485 through Subcommittee B for balloting or the Information Letter system, and are governed by a set of operating guidelines established by PCEOCP and HDEOCP members.

5.5.3 PCEOCP liaisons with API, ACC, ILSAC, AOAP: These bodies make the final decisions on the specifications for Passenger Car engine oil. In addition, the PCEOCP and the HDEOCP must work together to share resources and in some cases share tests between categories.

5.5.4 HDEOCP liaisons with API, ACC, EMA, DEOAP/NCDT/NCET to coordinate category development with critical industry stakeholders.

5.6 *D02.B03 – Automotive Gear Lubricants*:

5.6.1 This Section is responsible for the promotion of knowledge of, specifications, and test methods and terminology for automotive gear lubricants and fluids. This includes gear lubricants used in rear drive axles and power dividers. Also included are fluids used in manual and automatic transmissions of wheeled or track laying vehicles such as passenger cars, recreation vehicles, taxicabs, trailers, trucks, buses, tractors, and construction and farm vehicles.

5.7 *D02.B04 – Automotive Greases*:

5.7.1 This section is responsible for the promotion of knowledge of, specifications, test methodologies, and terminology for automotive lubricating greases. This includes but is not limited to greases used in wheel bearings, universal and constant velocity joints, chassis, and suspension components.

5.8 *D02.B06 – Two-Stroke Cycle*:

5.8.1 Currently not active

5.9 *D02.B07 – Bench Tests*:

5.9.1 Section D02.B.07 consists of the numerous bench test surveillance panels, enabling a single forum for discussion on various topics and issues related to the monitored bench tests used

in the ILSAC and API passenger car and heavy duty categories. Each surveillance panel will review performance of existing tests, maintain appropriate reference oil volumes with the support of the ASTM Test Monitoring Center (TMC), and make recommendations for appropriate action. Discussion on monitoring additional test methods or development of new monitored bench test methods are in scope for this section. The bench tests within this section include but are not limited to TEOST, MTEOS, elastomer compatibility, corrosion, filterability, volatility, high temperature foam, sulfated ash, ball rust, oxidation, homogeneity and miscibility, emulsion, and fuel dilution tests with the most current list of tests on the ASTM TMC website (https://www.astmtmc.org/Default.aspx).

5.10 *B08—ASTM Test Monitoring System Executive Committee:*

5.10.1 The committee has the responsibility for setting the technical direction policies, procedures, and for providing guidance for carrying out the purpose of the Test Monitoring System and all of its regulations. The committee has oversight of a surveillance panel's developed system that uses reference material tests to calibrate test stands and testing laboratories.

5.10.2 The committee also provides guidance on the annual budget and general operations of the ASTM Test Monitoring Center as well as the hiring of staff.

5.10.3 *Test Monitoring Center (TMC):*

5.10.3.1 Operates an independent calibration system to ensure that all tests performed using test procedures published by ASTM and/or monitored by the Center are conducted in a valid manner so that they can be interpreted properly. Additional services provided by the TMC include reference material distribution and test registration.

5.10.4 *Technical Guidance Committee (TGC)*:

5.10.4.1 The Technical Guidance Committee shall consist of the Chair of the Surveillance Panels of monitored tests, a representative of each of the test developers/sponsor who are responsible for the test procedures and the Director. The Technical Guidance Committee will advise the Director in technical matters concerning test procedures. This will involve working with the surveillance panels, test developers, critical parts suppliers, fuel suppliers, and testing laboratories across all testing types to improve the repeatability and reproducibility of the test procedures. The TGC will provide guidance for future test developments.

5.10.4.2 The TGC Chair will liaise with the ACC PAPTG Chair.

5.10.4.3 *Data Communication Committee (DCC)*:

5.10.4.3.1 The purpose of the Data Communication Committee is to provide a forum for discussion and development of technical solutions for standardizing industry wide data communications systems and other computer applications relating to these systems.

5.10.4.4 *Subcommittee B Data Analyst List*—See DataAnalystList.pdf (astmtmc.org) and Group Email Link.

5.10.5 *Test Availability Guidelines:*

5.10.5.1 The ASTM Technical Guidance Committee has approved the following guidelines to assist surveillance panels when notifying that a specific test may be available or unavailable for testing purposes. The intent is that all stake holders are informed in a timely manner of any possible continuation/disruption in test availability.

5.10.5.2 *Guidelines:*

5.10.5.2.1 Each surveillance panel is responsible for ensuring adequate supplies of acceptable test components, fuel, or any other item necessary to conduct a test. If a condition arises that would prevent a laboratory from procuring materials to conduct a registered or reference oil test, the Surveillance Panel Chair should be notified immediately. The surveillance panel is to then meet and discuss possible redistribution of the resource, alternative suppliers, etc. to help resolve the procurement issue. If no resolution is found, the Surveillance Panel Chair is to inform at a minimum the stake holders shown below under the heading notification list. It is hoped in situations when a test is facing a shortage of material(s) that immediate notification can focus industry expertise on finding suitable replacements and or develop/initiate protocol to handle approval of oils. In the case of sole-source/critical parts, it is advisable that the surveillance panels establish an equivalency testing protocol in anticipation of the event that material can no longer be procured. If material procurement conditions change enabling a registered or reference oil test to be run, the Surveillance Panel Chair is to also immediately notify stakeholders. www.astmtmc.org - /ftp/docs/technicalguidancecommittee/minutes/Surveillance Panel Chair Handbook/

5.10.5.2.2 For ASTM Test Monitoring System purposes, a test is deemed available as long as one calibrated independent laboratory is able to run tests.

5.10.5.2.3 *Notification List*:

Organization	Position
ASTM	D02.B0 Chair
	Test Monitoring System Executive Committee Chair

	Test Monitoring Center Director
	PCEOCP Chair
	HDEOCP Chair
	D02.B0.01 Chair
	D02.B0.02 Chair
	D02.B0.03 Chair
	D02.B0.07 Chair
	Membership of Effected Surveillance Panel
ACC	Product Approval Protocol Task Group Manager
	MAAG Chair
API	API Representative
Auto Alliance	
JAMA	
EMA	EMA Staff
API	AOAP Chair
API	DEOAP Chair
ACC-MA	Manager

5.10.5.2.4 *Notification:*

5.10.5.2.5 From the TMC website (https://www.astmtmc.org/TestStatusNotification.aspx), a notification email can be generated with the current notification member emails. Surveillance Panel Chairs will need to append a letter describing the situation using the current D02 letterhead (a link is on the TMC notification page) and a notification comment to the body of the email prior to sending.

5.11 *B09—Editorial*:

5.11.1 The section's primary responsibility is to resolve any Form and Style/editorial matters that exist or arise in Subcommittee D02.B0's standards and update the D4485 Specification (coordinating with the D4485 Surveillance Panel) as necessary.

5.11.2 Specific tasks may include the following:

5.11.2.1 Correct Form and Style/editorial errors;

5.11.2.2 Ensure that SI units are appropriately used.

5.12 *B10—Standards Acceleration*:

5.12.1 The section on Standards Acceleration maintains a staff of facilitators to expedite the establishment of standards relating to automotive lubricants. Facilitators' activities include upgrading test procedures to ASTM test methods, and revising standards as needed once they are adopted; the *Form and Style for ASTM Standards* to be followed in all cases.

5.13 *Surveillance Panels:*

5.13.1 *Some examples of surveillance panels include: Sequence III, Sequence IV, Caterpillar, Cummins, ROBO, TEOST, L-42, L-60, etc.*

5.13.2 Surveillance Panels are responsible for the surveillance and continued improvement of their test(s) documented by specific ASTM Standards as updated by the Information Letter System. When a new test has been developed, a decision will be made to incorporate it into an existing Surveillance Panel or to create a new Panel. The typical process for creating a new Panel occurs at the conclusion of test development. During development, an OEM typically works with a laboratory, and possibly a Task Force, to develop a new test. Once the test has been developed, a new Chair is chosen and potential industry stakeholders are contacted to form the new Surveillance Panel. Typical objectives of Surveillance Panels include:

5.13.2.1 Keeping existing performance tests operational and at historic severity and precision levels.

5.13.2.2 Ensuring that performance test parts and reference oils are available in adequate supply and of a consistent quality.

5.13.2.3 Developing and maintaining performance tests for lubricant categories.

5.13.2.4 Maintaining surveillance of test procedures under section jurisdiction.

5.13.2.5 Working to improve test precision and correlation with field service.

5.13.2.6 Maintaining active liaison with related organizations (CEC, SAE, API, etc.).

5.13.3 Improvements in rating technique, test operation, test monitoring, and test validation will be accomplished through continual communication with the Test Sponsor, ASTM Test Monitoring Center, ASTM B0.0X, Passenger Car or Heavy Duty (whichever is appropriate) Engine Oil Classification Panel, ASTM Rating Task Force, and ASTM Committee B0.0X. Actions to improve the process will be recommended when deemed appropriate based on input

from the preceding. Industry transition to new engine hardware batches will be monitored and redistribution of existing hardware facilitated to accomplish uniform industry implementation.

5.13.4 Development and correlation of updated test procedures with previous test procedures will be reviewed by the panel. This process will provide the best possible test procedure for evaluating automotive lubricant performance.

5.13.5 *Operations and Hardware (O & H) Panel* – An O&H (Operations and Hardware) Chair and task force may be appointed for each panel to monitor the supply and integrity of the test hardware and monitor any operational issues with the test stands. It is recommended that the candidate for O&H Chair be a test engineer for that particular test type. The O&H Chair is responsible for a report to the surveillance panel at all panel meetings. The O&H task group is composed of members of each test lab conducting the test, the test sponsor and a TMC representative. This working group conducts meetings as required to address any matters needing attention in hardware and operations. Data studies, workshops and round robins are the fundamental tools that this group uses to find root causes and solutions to operational problems. The task force works closely with the test sponsor to anticipate hardware shortages or parts changes to the test hardware.

6. Panel Housekeeping

6.1 *Maintaining a Current Active Membership List:*

6.1.1 A list of Surveillance Panel Chairs is posted to the Test Monitoring (TMC) website (www.astmtmc.org/SurveillancePanelList.aspx). Surveillance Panel Chairs shall maintain a contact list of panel members including industry affiliation (employer or other relevant organization) and contact information. It is recommended that the roster be reviewed and updated annually. This contact information shall be included in meeting minutes, unless

otherwise specified by a given participant. The meeting minutes will be uploaded by TMC contact to the website (www.astmtmc.org/Minutes.aspx). When transitioning responsibilities from one Chair to the next, it is critical that this distribution list be transferred for maintenance and communication of events.

6.1.2 Some panels require a list of voting and non-voting members to ensure all parties of interest are represented. The Panel Chair shall monitor affiliation representatives voting status, alongside TMC verification so no duplicate votes or conflicts of interest occur.

6.2 *Communication with Industry Stakeholders*:

6.2.1 Industry stakeholders include, but are not limited to, organizations and laboratories that participate in the panel, suppliers of reference fluids, fuels, engine parts, statisticians, and distributors of these materials.

6.2.2 TMC contacts will maintain inventory status of each consumable required for stand/rig calibration and discloses this information biannually in the Executive Summary report (www.astmtmc.org/SemiReports.aspx). It is recommended, however, that consumables at a critical inventory level shall be monitored throughout report periods. Chairs shall remain up to date regarding inventory levels through the TMC contact and the suppliers of the materials if outside of the TMC organization. A list of contact points for suppliers shall be provided with any Chair transitions. It is recommended that an itemized list with supplier details and any other pertinent information are publicly stored using the Surveillance Panel Chairs' Handbook storage location on the TMC site. www.astmtmc.org - /ftp/docs/technicalguidancecommittee/minutes/Surveillance Panel Chair Handbook/

6.2.3 Chairs shall also include updates in semi-annual reports regarding any industry or test changes pertaining to the test methods under the panel's jurisdiction. This should also include

any discussions held at D02 semi-annual, TGC, or interim meetings. All interested stakeholders shall have knowledge of discussions brought forth to the panel. It is strongly recommended that semi-annual reports be reviewed at the panel level prior to ASTM and/or TGC meetings.

6.3 *Responding to ASTM Ballots*:

6.3.1 It is required that the Surveillance Panel Chair be an ASTM member. This allows the Chair to respond to ballots and view comments associated with those ballots. A Chair must respond to all ballots, even those not directly associated with their panel's activity. Accessing ballots and comments can be accomplished through the ASTM site under the MyCommittees section of the Chair's individual account. The Chair should receive an e-mail alerting them to new ballots or comments that have been issued (https://compass.astm.org/).

6.4 *Liaison with Other Chairs*:

6.4.1 The Surveillance Panel Chairs have created a collaboration area to retain and share critical documents. This section may be used as a repository for notes specific to administrative items for panel activities. As designated in the link above, a list of Surveillance Panel Chairs is available on TMC's website. The TMC Committee B0 engineers list can be found at (https://www.astmtmc.org/pdfforms/Contacts.pdf). TMC contacts shall ensure that new Chairs receive access to all information required to continue the activities of the last Chair.

6.5 *Liaison with TMC, TGC, OEM, and CPD:*

6.5.1 All Surveillance Panel Chairs are members of Technical Guidance Committee (TGC). Active participation in the TGC meetings and activities is strongly encouraged, regardless of involvement with engine testing. As designated in the link above, TMC contacts will ensure that new panel Chairs are included in the distribution lists for TGC activities

(www.astmtmc.org/TechnicalGuidanceCommittee.aspx). Project status regarding TGC activities can be found on TMC's website (DataAnalysisProjects.xlsx (live.com)).

6.5.2 Panel Chairs are to be up to date regarding OEM and CPD supply statuses. TMC's website has a list of suppliers and contacts for hardware.

6.6 *Responding to Test Procedure Questions:*

6.6.1 Surveillance Panels for both engine testing and bench testing are monitored and managed by TMC yet are under the ASTM D02.B0 designation. In addition to maintaining contact with the TMC engineers, the Chair is responsible for maintaining a current knowledge of industry activities regarding tests under their panel jurisdiction.

6.6.2 Regarding TMC calibration questions, Chairs can consult the LTMS guidelines (www.astmtmc.org/ftp/docs/ltms). TMC has provided a best practices library of documents (www.astmtmc.org/ftp/docs/technicalguidancecommittee/minutes/BestPractices/).

6.6.3 Regarding test standards questions, Chairs can consult the ASTM subcommittee or section Chairs (www.astm.org/get-involved/technical-committees/committee-d02/officers-d02). To access meeting minutes and documents for a given test method, the subcommittees and standards designations can be found on ASTM's website (www.astm.org/get-involved/technical-committees/committee-d02/subcommittee-d02). The TMC website also has a list of the designated standards for the methods under its jurisdiction (https://www.astmtmc.org/ftp/docs/ASTM_Test_Methods_Designations.pdf). The regulations governing ASTM technical committees, version April 2015, is posted on TMC's website (www.astmtmc.org/ftp/docs/astminternational/ASTMTechnicalCommitteeRegulations.pdf). This document is intended to provide the base requirements of standards management, including form and style notes, frequency of review, definitions, and balloting processes. It is

recommended that Surveillance Panel Chairs be up to date on guideline requirements and standards activities prior to the June and December meetings.

6.6.4 Another critical item to be maintained on a panel-by-panel basis is the inclusion or reference to TMC calibration requirements in the ASTM standards. For example, when bench test results are to be submitted for the intention of licensing a product, the requirements must be included or referenced in the ASTM standard. Test Method D5800 is an example of this type of reference and requirement explanation.

6.7 *Review of the ASTM Standard:*

6.7.1 ASTM requires the review of each ASTM Standard, hereafter referred to in this section as "test method" or "the method," every 5 years to ensure the method is still relevant and accurate. Each test method is under the jurisdiction of a specific ASTM committee and it is the responsibility of that subcommittee to review the method and make suggested changes or reapproval with no changes. If a test method exists outside Subcommittee B jurisdiction, the other subcommittee is responsible for the method review. If a method exists within Subcommittee B jurisdiction, the Surveillance Panel Chair or designate is responsible for completing the method review in a timely manner. Recommendations could include revisions which are needed or accepting a reapproval with no changes. Revisions or reapprovals are communicated to the Section Chair and Subcommittee Chair to request approval to ballot before a ballot is submitted to ASTM. ASTM provides training for issuing a ballot and handling negative votes through their member training (https://www.astm.org/products-services/training-courses/member-training.html). If no action is taken on a method after 8 years, ASTM will withdraw the method due to inactivity. If there is activity, the method will not be withdrawn.

6.8 *Stewarding New or Re-blended Reference Oils*:

6.8.1 There are various scenarios in which a new or re-blended reference oil may be required for a given test. Among these scenarios are critically-low inventories, increased consumption of a given material, antiquated or non-representative technology, hardware modifications, test modifications, etc. The process of onboarding a new or re-blended calibration or reference fluid requires the advisement of a trained statistician (https://www.astmtmc.org/ftp/docs/DataAnalystList.pdf).

6.8.2 The basic guidelines are detailed in the appendixes of the LTMS guidelines (https://www.astmtmc.org/ftp/docs/ltms/ltms.pdf). Appendix F contains an adaptation of the process for section B03 as a general guideline for B0. Because each panel may have unique requirements for a calibration or reference fluid, there is no single prescribed process to implement new or re-blended fluids to cover all tests. It is recommended that a checklist for each panel be established and that all files regarding new or re-blended fluids be submitted to a repository (such as the ASTM collaboration area) for transfer of knowledge and processes followed. A panel-by-panel process may be delineated by Chairs. An example of the re-blend process for the Noack D5800 test under the Volatility Surveillance Panel is stored in the collaboration area.

6.8.3 When new or re-blended fluids are implemented, bulletin/memo (https://www.astmtmc.org/Memo.aspx) is generated, and a TMC information letter (www.astmtmc.org/informationLetters.aspx) may be issued, if a technical revision is required. An index of all reference oils are located on TMC's website (https://www.astmtmc.org/ftp/docs/ASTM_Reference_Oils.pdf).

6.9 *Review and Update Scope and Objectives:*

It is not required that all panels have a scope and/or objective statement. However, it is encouraged so that all panel members understand the acceptable topics of discussion and relevance of voicing their opinions during panel meetings. Examples of a scope and objective statements are posted in the TMC surveillance panel handbook resources section https://www.astmtmc.org/ftp/docs/TechnicalGuidanceCommittee/Surveillance%20Panel%20Chair%20Handbook/

7. Running Meetings

7.1 *Meeting Frequency*—There is no defined meeting frequency that is applicable to all surveillance panels. Meetings should be held on an as-needed basis, decided by the Surveillance Panel Chair. Issues that have an immediate or significant impact should be dealt with in a timely manner. If a meeting is concluding with unresolved action items, a timely follow-up meeting should be scheduled to ensure all issues are resolved. If possible, coordinate scheduling the follow-up meeting at the end of the current meeting. A maximum meeting frequency of once per week has been found to be effective for significant topics. It is recommended that the Surveillance Panel Chair communicates the surveillance panel report to the panel prior to the Semi-Annual ASTM D.02 Committee Week, either via a surveillance panel meeting or email.

7.2 *Running Meetings*—It is the responsibility of the Surveillance Panel Chair to set up and run meetings. Meeting lengths of 1 to 1.5 hours have been found to be effective depending on the agenda. It is recommended that meetings include the following: an agenda, Minutes from the previous meeting, a review of the membership list, and attendance taken. An agenda should be created prior to a meeting based on the last meeting's action items as well as any new items that have arisen in the time between meetings. The agenda should be distributed prior to the meeting

and should include any relevant supporting materials, such as presentations. It has been found that the most effective meetings result from members coming prepared to discuss versus learning new information in the meeting and then attempting to make decisions.

7.2.1 A Secretary should be appointed for each panel with the responsibility of taking attendance and meeting Minutes. Attendance should be taken at the beginning of each meeting. Minutes should be taken, reviewed, and posted within 1-2 weeks of the meeting. The Minutes from the previous meeting should be approved at the beginning of the following meeting, via a Motion (typically moved by the Surveillance Panel Chair). If a secretary is not available, the Surveillance Panel Chair is responsible for taking the meeting minutes. However, it is highly recommended that a Secretary is appointed so the Surveillance Panel Chair can focus on running the meeting.

7.2.2 It is recommended that the ASTM Anti-Trust and Recording Policy be reviewed at the beginning of each meeting. It may be a desirable practice to review the Surveillance Panel membership list at the beginning of each meeting. If there are members of the Panel who have been inactive for a significant period of time, it is the responsibility of the Surveillance Panel Chair to contact that member and discern their continued interest to be included in the Panel. If no response is given after multiple attempts, the Surveillance Panel Chair is free to remove that party from the Panel.

7.2.3 It is the responsibility of the Surveillance Panel Chair to keep the meeting on track and ensure agenda items are addressed. This can involve finding a balance between allowing enough discussion to adequately address topics versus allowing too much leeway for tangents and off-topic discussions. The discussion should always be technically focused. Market or business

considerations are not within the purview of the panel and must be discussed in a different venue as dictated by the specific scenario.

7.2.4 At the end of a meeting, if applicable, state all the action items that resulted from that meeting, including responsible parties and follow-up expectations.

7.3 *Motions*—A Motion is used to introduce an item to the panel or to propose a decision or action. A Motion can be made by any participant on the panel and must be seconded by another participant. After discussion, the group should move to vote on the Motion. Only one Motion should be made at a time. A resolution should be made on the outstanding Motion prior to moving to other topics. After a Motion has been made and seconded, there is a discussion period before voting on the motion. Ensure all viewpoints have the opportunity to be heard before moving to a vote. It has been found that there can be an inconsistent understanding of Motions amongst the Panel as discussions evolve. Therefore, it has been found to be beneficial to restate (or ask to be restated) a position on a motion to ensure there is clarity amongst the group. It can also be helpful to discuss the implications of a Motion's outcome to ensure there is no ambiguity regarding consequences amongst voting members. It is recommended to write out the Motion and let the participants view the written motion or ask the Secretary to state it verbally. This ensures that voting members know exactly for what they are voting.

7.3.1 E-mail ballots (E-ballots) have also been used for non-controversial Motions (i.e. editorial changes, etc.). The Surveillance Panel Chair emails the Motion to all Surveillance Panel members. The E-ballots typically include a two-week timeframe for vote submission and member comments. One method of conducting an E-ballot includes asking for any negative votes or waives by a specified deadline. If there are no negatives, the Motion is considered approved.

7.3.2 Robert's Rules Tools is an additional helpful resource for running meetings (https://sn.astm.org/how/robert%E2%80%99s-rules-tool-nd18.html?_gl=1*6iryew*_gcl_au*NzAxOTE2MDk5LjE2OTk0NTQzNTA).

7.4 *Technology*—The virtual meeting space is at the discretion of the Surveillance Panel Chair. Generally, Surveillance Panel Chairs choose the platform their company commonly utilizes, provided that platform is easily accessed across the Panel. If there are any questions regarding conferencing technology, it can be helpful to schedule a "practice meeting" in advance to verify all participants can use the technology effectively.

7.5 *Scheduling Meetings*—There are a variety of online polling tools that help with scheduling. This could be ideal for panels that do not meet frequently. Industry experience exists regarding available scheduling tools. For panels meeting on a more regular basis, it is recommended to schedule the next meeting at the end of the current meeting. Additionally, finding a consistent day and time for meetings can help participants become accustomed to that cadence.

8. Information Letter Process

8.1 The Information Letter process is a special authorization given to ASTM D02.B0 to, among other things, allow for critical method changes regarding parts, fuel supply, or reference oil that are needed to allow continued valid operation of the tests. These changes were allowed to keep the product qualification system running and not have long periods of unavailability of tests while waiting for balloting and publication of test revisions. Authorization was given by the ASTM Committee on Standards (COS) (or Committee on Technical Committee Operations (COTCO)). Information Letters are used by Surveillance Panels under Subcommittee D02.B0 to

make immediate changes to test methods and are subject to Subcommittee D02.B0 and Committee D02 ballot.

8.2 *Case A*—Information letters are issued with an effective date when there is unanimous consent at the panel level prior to balloting of the changes to the test method.

8.3 *Case B*—In situations where unanimous consent is not obtained, the information letter will need to be balloted at Subcommittee D02.B0 and any negatives resolved before it can be issued.

8.4 Information letters are drafted and maintained by the Test Monitoring Center. Information letters will consist of a cover letter and an attachment which shows the updated/revised text. The cover letter will normally include a brief description detailing the reason for the change(s), revised or updated sections, and date when the information letter becomes effective. The information letter is signed by the TMC Director; and the Test Sponsor, Surveillance Panel Chair, or other panel-approved representative. Information letters will carry a numbering system consisting of the year issue and a consecutive number issued that year and the test type. A sequence number, which is running count of information letters, is also provided in the cover letter.

8.5 The revised text attachment will include a statement “Revises Test Method D XXXX-XX as amended by Information letter XX-X”, except where the information letter has been balloted through subcommittee D02.B0. Revised Sections will have the section number highlighted in bold, any deleted text highlighted in Blue and struck through. New text will be highlighted in red and all formatting, numbering, etc. is to conform to ASTM Form and Style Manual (Blue Book) standards.

8.6 The TMC Director forwards all issued information letters to ASTM for concurrent balloting through subcommittee D02.B0 and Main Committee D02 Ballot. The Technical Contact for any issues, such as negatives or comments, will be the Surveillance Panel Chair, or in the case where the Chair is not an ASTM member, then the contact will be the Subcommittee D02.B0 Chair.

8.7 Negatives which occur at Subcommittee or Main Committee ballot are handled in the following manner. The first step in addressing the negative is for the Surveillance Panel Chair to contact the negative voter and attempt to resolve the negative. The Chair may solicit the help of the TMC, Test Sponsor, and surveillance panel to attempt to resolve the negative voter's concerns.

8.8 Possible outcomes from Discussion with Negative Voter:

8.8.1 Voter withdraws negative vote in writing. Action: Report to D02.B0 Chair to close out ballot and publication moves forward.

8.8.2 Voter Maintains their positions. Action: SP Chair reviews with the SP to determine if the voter's position is agreeable to the panel.

8.8.2.1 If the panel supports the position of the voter, then the Information Letter (if already effective) is rescinded and the ballot is closed, failing to achieve consensus.

8.8.2.2 If the panel does not support the position of the voter, then a clear statement of why the voter is non-persuasive or the issue raised is not-related should be drafted and submitted to the D02.B0 Chair in support of a motion to be made at the next subcommittee meeting.

8.9 Depending on the outcome of 8.8.2.1 or 8.8.2.2, the subcommittee will handle the negative according to ASTM regulations. Any actions taken as a result of the information letter

that was issued ‘in good faith’, that is issued with unanimous support of the surveillance panel will remain in place, but no further actions on the information letter changes will take place. The procedure changes will not be retroactively removed.

9. Semi-Annual Reports

9.1 Semi-Annual reports are written and presented by Surveillance Panel Chairs at the ASTM D02 Committee Week in June and December. The information presented is largely based on the Surveillance Panel meetings from the previous semester and the Semi-Annual Reports that are made available by the TMC. The Semi-Annual Reports are put together in presentation form, typically with PowerPoint. The final information included in the Semi-Annual Reports is up to the discretion of the Surveillance Panel Chair. It is advised to seek input from the Class Panel or Section Chair for any specific requirements.

9.2 *Required Information for Semi-Annual Reports:*

9.2.1 Title slide with test name, date, location, and who prepared the presentation.

9.2.2 Information letters that went out since last ASTM D02.

9.2.3 Any updates that have been made to the method and when it was published (if applicable).

9.2.4 LTMS updates (if any).

9.2.5 Current maintenance of test.

9.2.6 How many labs perform the test.

9.2.7 How many calibrated stands.

9.2.8 How many total calibration tests.

9.2.9 Pass rate of calibration tests.

9.2.10 Fail rate of calibration tests and reasoning.

9.2.11 Industry statistics including bias and precision.

9.2.12 Reference oil/fuel/hardware supply.

9.2.12.1 Re-blends.

9.2.13 CUSUM Severity Analysis (if applicable).

9.2.14 EWMA Severity Analysis (if applicable).

9.3 *Optional Information for Semi-Annual Reports:*

9.3.1 List members with respective companies including any changes made to membership.

9.3.2 Precision and bias graphs.

9.3.3 Comment on the frequency of meetings and how active the panel is.

9.3.4 Scope and objectives of the panel.

10. Statistics

10.1 *Getting Statistical Support*:

10.1.1 From initial test development through test maturation and monitoring, statistical tools and considerations are present at each stage. It is important that industry stakeholders have a good foundational knowledge of these statistical tools in order to optimize test method stability and performance. The industry statisticians group, at the time of development of this document, have determined that it is inappropriate to provide in-depth statistical recommendations here, as many of the statistics topics cannot be placed into a “one-size-fits-all” solution or recommendation. However, several resources exist to aid Surveillance Panels Chairs and other industry stakeholders, including:

10.1.1.1 *Internal Company Statistician*:

10.1.1.2 *Sub B Data Analyst Group (Statisticians Group*)—A list of statisticians who volunteer their company time to support Subcommittee B statistical considerations is available on the home page of the Test Monitoring Center (TMC) website (astmtmc.org). On the right-hand side a link entitled "Data Analyst List" opens a pdf document with names, emails, phone numbers, and company affiliation for statistics group members. For new requests, it is recommended to use the group email link provided to contact the entire group. As this is a volunteer group, a member with available time and resources will reply to your request.

10.1.1.3 *Industry Statistical Training*—From time-to-time there may be a need to refresh the entire industry or a subset of the industry (such as Surveillance Panel Chairs and test sponsors only) on key statistics topics of interest at the time. A request for this training to occur can be routed to the statistics group or through the Chair of the Technical Guidance Committee (TGC). Some examples of topics which can be covered in the training include:

(1) Control charts and their proper creation, application and interpretation,

(2) Guidelines for taking action resulting from control chart activity,

(3) Precision matrix design considerations,

(4) Guidelines for updating targets vs. correction factors,

(5) Understanding severity adjustments,

(6) Recommendations for introducing new hardware or critical test items such as fuel,

(7) Lessons Learned.

These presentations are stored under the meeting minutes section of the TGC (https://astmtmc.org/ftp/docs/technicalguidancecommittee/minutes/). An example of a presentation given in October of 2022 is also provided in this Surveillance Panel Handbook.

10.2 *The LTMS Document:*

10.2.1 The Lubricant Test Monitoring System (LTMS) is an industry reference testing system to monitor and control non-reference testing and provide best tools and actions to give accurate and equitable oil evaluation. It is a tool used to identify differences among industry test results and to assist the industry to level the playing field for non-reference testing. No matter where or when a non-reference is tested, the goal of LTMS is to bring all results to parity.

10.2.2 As test stands and test laboratories are calibrated by the ASTM TMC, the LTMS document defines the calibration in terms of test severity and precision and is checked by the application of control charts to reference test results. The LTMS document explains how to use the control charts for all ASTM Standards. (https://www.astmtmc.org/ftp/docs/ltms/ltms.pdf)

10.3 *Relevant ASTM Statistics Methods:*

10.3.1 All ASTM methods are required to provide precision and bias statements according to ASTM Form and Style Guidelines (Form and Style Manual for ASTM Standards or "Blue Book"). Precision is commonly referred to as "repeatability" and "reproducibility". For the majority of tests in ASTM Committee D02, the precision statements are developed following practice Practice D6300. However, since the minimum testing requirements of this practice are often too cost prohibitive to be feasible for tests falling under D02 Subcommittee B, Sub B tests do not typically use this practice, but instead follow the guidance of the industry statistics group and industry stakeholders who consider optimal precision matrix designs with the available

resources at the time. From the precision matrix data, the repeatability and reproducibility statements are generated.

10.3.2 For control charts, ASTM Committee D02 tests with high test volumes generally follow practice Practice D6299. Sub B tests do not typically use this practice, but instead use control charts outlined in the LTMS document (linked above).

10.3.3 For outlier testing of a data set, a popular method is Practice E178. This practice has been used for Sub B test methods in certain situations, but Sub B statisticians often use other appropriate methods and reasoning based on sample size or other situational considerations.

11. Developing New Tests & Procedures/Standards

11.1 *General Process for Creating a New Test:*

11.1.1 Surveillance Panels are responsible for starting a task force for test development activities as it relates to replacing a current test or creating a new test. These activities could range from moving to an updated version of the current engine, utilizing a different engine platform altogether (either within the same OEM or a different OEM), to correlating to field issues. The request to start a task force will be communicated to the Surveillance Panel Chair by the PCEOCP Chair, an OEM, or other industry member. The task force should include test laboratories, oil suppliers, OEMs, industry associations, and other interested parties to develop a new test.

11.1.2 Each test will be developed according to the needs of the industry and each test development will be unique when considering those needs. Resources are referenced in 11.4.1.2 and 11.4.1.3 that the panel can utilize to aid in the test development process.

11.1.3 At the conclusion of every test development, a Research Report should be created. This report details the development process for future reference. A guide to creating a Research Report can be found in 11.4.1.6.

11.2 *General Process for Developing a New Procedure:*

11.2.1 Determine the test need or objective for a new procedure: The request for a new procedure should include details on the industry problem, new technology, or impetus for development. , The task force should evaluate whether the defined need could be met by a modification to an existing procedure or if a new procedure is required.

11.2.2 Create a draft procedure with the intention of addressing the stated need. The draft should be developed with as much detail as possible so laboratories can run the test as written. Changes to this draft will likely occur and need to be well documented.

11.2.3 Collect and evaluate data to decide if the test need is met. Potential parameters to evaluate test quality are demonstrating that performance parameters are met, test discrimination is possible, and demonstrating acceptable test precision. Hardware availability and reference oil inclusion are additional considerations. The laboratories running the initial procedure will generate data to show if the results are addressing the test objective. If the results are meeting the test needs, then the task group can proceed with developing the precision matrix. If the initial data does not meet the test objective, then additional revision of the procedure must follow until the performance parameters are acceptable. This process could include modification of the initial procedure, creation of a root cause group to evaluate large changes to the conditions in the initial procedure, or development of a new initial procedure. In order to move to the precision matrix or interlaboratory study (ILS), the task group should consider the Test Development Readiness

Template items are met at the end of matrix or ILS. A link to this template can be found in 11.4.1.3.

11.2.4 Conduct a precision matrix or ILS. The design of the precision matrix or ILS is critical in generating the precision of the procedure and identifying performance of reference oils. The task force should consult with the data analysts group to help generate the matrix. Matrix considerations include sufficient oils and repeat tests and performing data analysis on the precision matrix or ILS results. A coordinator will need to handle collecting oils from oil suppliers, and pouring out, labeling, coding, and shipping out samples for laboratories. The procedure and report form or instructions will need to be sent to the test laboratories.

11.2.5 Finalize test method- Once the data is collected from the test labs, the results should be analyzed to generate a precision statement on repeatability and reproducibility. The procedure shall be revised and written to comply with a recognized test standard organization such as ASTM, CEC, or ISO, and follow the process to become an official standard.

11.2.6 Historically, standards have been created after completion of the Precision matrix. The draft of the procedure used to complete the matrix is used as the starting point for developing the test method. However, the decision to create the standard can be made at any time.

11.2.7 Once it is decided to create a standard, the Surveillance Panel Chair will contact Section D02.B0.09, to assign a facilitator for the purpose of writing the procedure in ASTM format and seeing it through the balloting process. The surveillance panel will be responsible for approval of the final draft of the standard and addressing any comments and/or negatives that occur during the ballot process.

11.2.8 When directed by the panel, the Chair will contact the Director, ASTM Test Monitoring Center who will contact D02.B0.09 to assign a facilitator for writing and balloting the standard.

11.2.9 Once the draft standard is approved by the appropriate subcommittee in D02.B0, the facilitator and ASTM editor will send it to the full committee for approval. It is at this point a D-XXXX number will be assigned.

11.2.10 Where changes to the draft procedure are needed during the standard generation process, the surveillance panel may issue information letters against the draft procedure. These will be balloted through the appropriate D02.B0. subcommittee and any negatives at the B0 committee level will be addressed before the information letter can be issued. Once the standard is approved, another information letter will be issued against the standard to incorporate these changes.

11.3 *Consideration for Sub-Tests in New Standards:*

11.3.1 It is sometimes necessary for a new standard to utilize equipment or testing from an existing standard in order to accomplish the intended purpose of the new standard. One example is Appendix X1 in Test Method D8111 (Sequence IIIHA), which incorporates Test Method D4684.

11.3.2 In such cases, it is recommended that, if suitable, existing standards be specified in the new standard so that the precision of the existing standard can be utilized without need for additional testing. Additionally, as the testing from an existing standard is typically for used oil samples, it is recommended that D02.96 be contacted for support when incorporating sub-test standards.

11.4 *Useful Links:*

11.4.1 The below are some useful links to be aware of when developing a test:

11.4.1.1 ACC Code of Practice Resources—https://www.americanchemistry.com/industry-groups/petroleum-additives/product-approval-protocol-task-group-paptg/code-of-practice-resources

11.4.1.2 Engine Test Development Project Management Considerations—https://www.americanchemistry.com/industry-groups/petroleum-additives/resources/engine-test-development-considerations

11.4.1.3 Engine Test Development Readiness Template—https://www.americanchemistry.com/industry-groups/petroleum-additives/resources/engine-test-development-readiness-template

11.4.1.4 Guidelines for Creating an ASTM Standard—

Form and Style Manual for ASTM Standards or "Blue Book"

11.4.1.5 Draft standard templates—https://www.astm.org/get-involved/technical-committees/lead-template.html

11.4.1.6 Guidelines for creating an ASTM research report—https://www.astm.org/get-involved/technical-committees/interlaboratory-studies-program.html

12. Chair Change Management

12.1 New Surveillance Panel Chairs will need to be selected to either replace outgoing Chairs or serve a newly created panel. The following guidelines should be strongly considered as part of the selection process.

12.2 A potential new Chair should have some knowledge of the test and be familiar enough to speak to and advocate for the method. The candidate should also understand and accept all responsibilities assigned to Chairs. No single company should hold a large majority of Chair positions. When selecting a new Chair, the current Chair may elect to ask the panel for nominations or directly solicit a potential new Chair. A final decision could be made by the Section Chair, by Surveillance Panel vote, or generally understood consensus amongst the panel. In the event a Panel Chair position is vacant, the Section Chair automatically becomes the acting Panel Chair and is responsible for finding a replacement. When finding a replacement for an engine test Surveillance Panel, the test sponsor's input and feedback should be sought before a final decision is made.

13. Legal Information

13.1 The ASTM Antitrust Policy can be found within the ASTM Regulations Governing ASTM Technical Committees document which is accessible online (https://www.astm.org/media/pdf/regs_Regulations.pdf).