

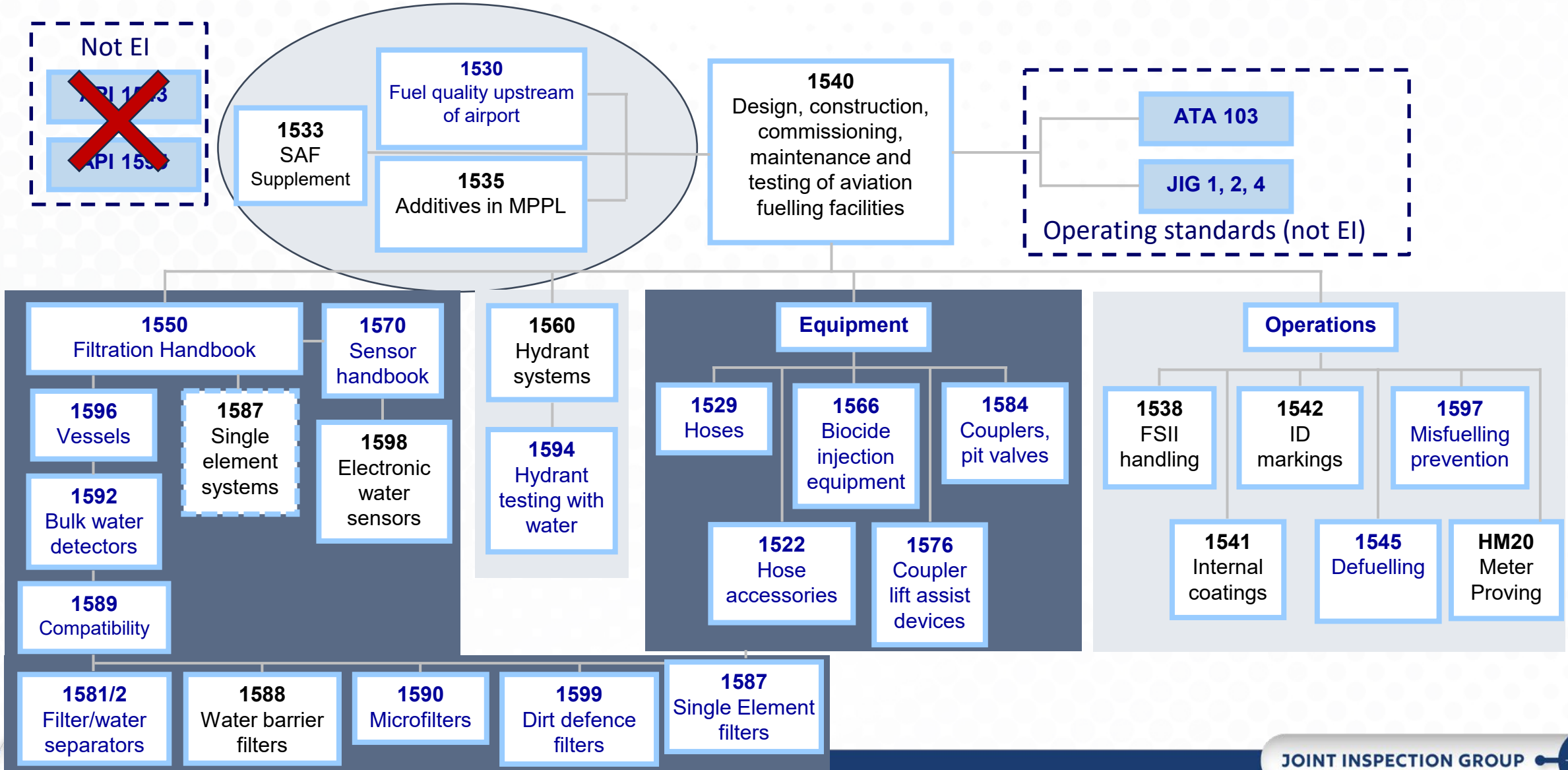


EI/JIG 1530 3rd edition & EI 1533

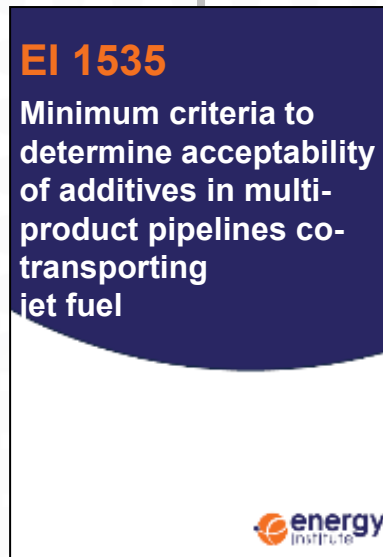
Gianni Allegretta, Enilive – Member of the EI SCFQSC

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Supply Chain Fuel Quality Sub-Committee



1 st Edition
Current Edition
Planned Update

November 1997

4th edition Nov
2024

Review 2029



October 2013

2nd edition May
2019

3rd edition Q4 2026



November 2024

2nd edition Feb
2025

3rd edition Q2 2027



Some key points

EI/JIG 1530 is not a detailed Operating Manual, focused on product quality integrity

- EI/JIG 1530 describes how to meet and maintain the requirements of the major international jet fuel specifications in terms of properties and “fit for service” through the supply chain.
- Incorporates requirements of JIG 3 direct supply to airport service tanks
- Content was also aligned with those in API 1595 (*for pre-airfield storage terminals*) and API 1543 (*Documentation and laboratory testing*)
- A global standard that defines minimum requirements and provides good practice from point of manufacture to delivery to airport.
 - Conformance recognises the concept temporary variations (*Alternative Means of Conformance*) and permanent variations (*Derogations*) with 1530 requirements and provides a definition of the process to be followed.
 - EI/JIG 1530 is currently supported by the EI 1533 Supplement on Semi-synthetic jet fuel and synthetic blending components



1st Edition published in 2013

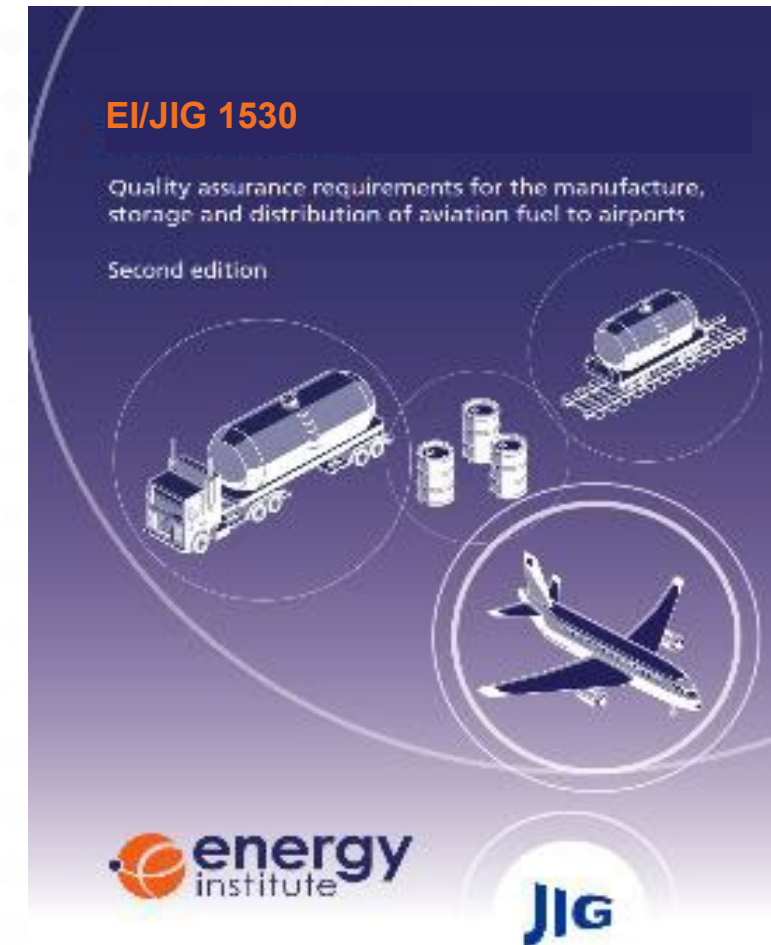
Consultation for 2nd edition resulted in:

- **1198** comments/ proposals
- and a further **423** from the wider industry review of the draft.

2nd Edition published in May 2019.

Consultation for 3rd edition has resulted in:

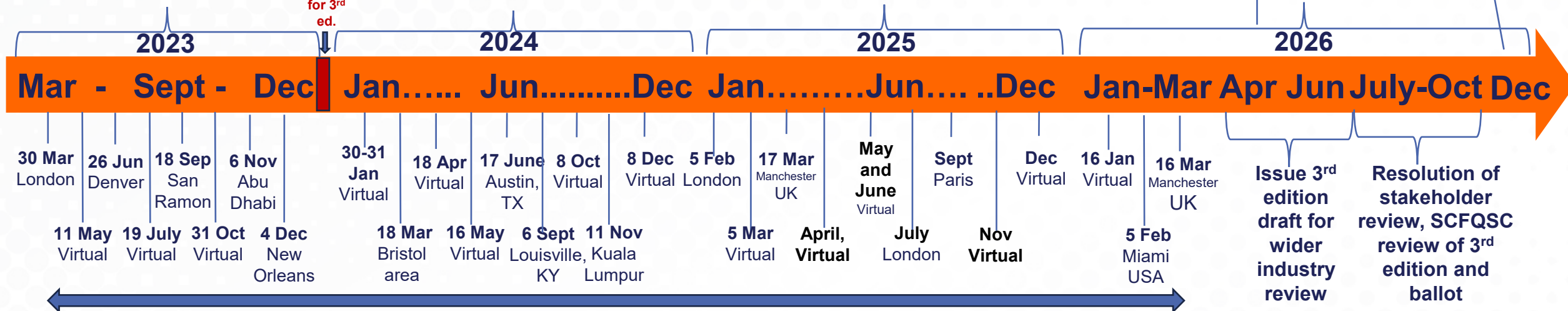
- approximately **250** comments/ proposals.
- The review by Supply Chain Fuel Quality Sub-committee over the last 3 years has included 29 meetings (15 F2F and 14 Virtual)



EI/JIG outreach seeking feedback

- UK MoD AFC (London, 29 March)
- CRC (Seattle, 2 May)
- IATA Energy Forum (Seattle, 18 May)
- JIG Forum (Budapest, 13-14 June)
- ASTM (Denver 26 June)
- JIG JV Managers workshop (Singapore, Oct)
- IATA Energy Forum (Abu Dhabi, early-Nov)

Stakeholder review period



Supply Chain Fuel Quality SC resolving feedback

Extended period due to EI1533 priority



General Introduction and Ch.1 –

- Includes EI 1533 and SAF,
- CoQ replaces RCQ, use of “governing fuel standard.”
- Definition of fungible extended to cover comingled systems

Ch 2 QA and Traceability

- revised 2.3 with tabulated certificate requirements to help understanding
- new 2.5 all the document requirements in a single place.

Ch 3 MoC –

- Clarification that MoC doesn't only apply to refinery ops, although this Chapter does focus on that.

Ch 4 Sampling and Testing

- better definitions on recertification testing,
- CoA may be run, but variability shall be completed



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Ch 6 Refineries

- New avgas grades,
- “new” Table 5 and
- major update on processing slops, returns, cracked stocks, salt driers and clay treaters

Ch 7 Additives

- for SDA/MDA where initial dose not known assume max initial.
- Other changes involve FSII and reference to EI 1538 and EI 1566

Ch 8 Receipt, Batching, Certification and Release

- Sampling of tanks (inert atmosphere),
- import/export alignment with EI 1533.
- sampling and testing prior to release - some focus on layered tanks.
- Avgas static stock may require more frequent testing.

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Ch 9 Design and Handling

- revision on fine filtration section.
- update on greases,
- update on water management (cone-up tanks and QFTs), minimum suction height with floating suctions, positive segregation, tank cleaning.
- JIG TID#1 referenced.

Ch10. Transportation, facilities and procedures.

- Alignment with EI 1533 on ship selection,
- clarification on materials and labelling requirements for rail tank cars and road tankers.
- ISO Tanks and IBCs defined vs Drums. Table 21 consolidated into Table 19 (Change of grade).
- Dead-legs and low points should be removed/ should be drained (on q.ly bases)

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Ch11 Synthetic fuels.

- Complete rewrite indicating replacement by EI 1533 and summarising content.

Annexes General

- reordering into logical groups to simplify reader access.
- Annex D adds soak testing of unlined systems.....and clarifying the reference to 275°C breakpoint for soak testing
- Annex E references Automatic Particle counting as the referee method (planned for DS19-091 Issue 19)
- Annex G and H major update to detail on salt dryers and clay treaters.
- Annex R – New annex (D4) on transloading.

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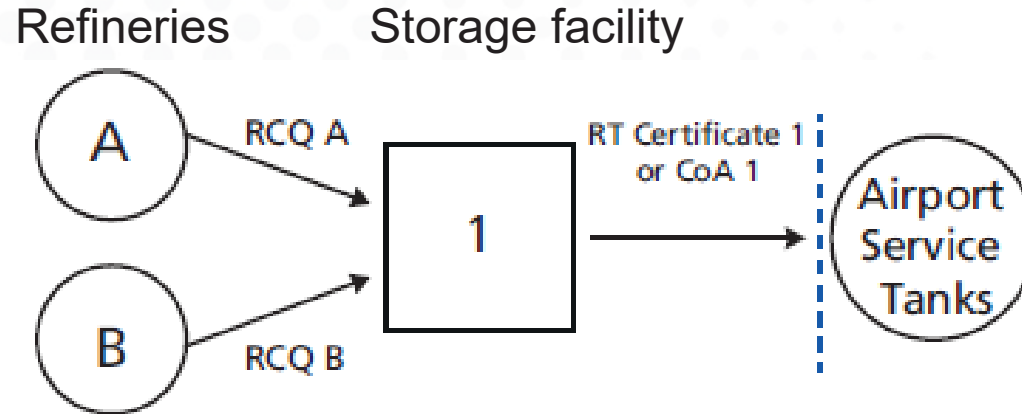
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Scenario 1 Document Requirements



	Receives Document	Issues Document	Comment
Refinery A	NA (unless imports received)	COQ A + Tank Release Certificate	COQ mandated. No layered tanks
Refinery B	NA (unless imports received)	COQ B + Tank Release Certificate	COQ mandated. No layered tanks
Terminal 1	COQ A and COQ B and the Release Certificates	CoA/ RT + Tank Release Certificate	Apply 8.4.3.4 if tank layered
Airport	COA/RT from Terminal 1 and Release Certificate	Tank Release certificate	

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Recertification testing

- The test results shall be checked
 - to confirm that the specification limits are met, and
 - no significant changes have occurred in any of the properties, and
 - variability limits apply for CoA testing where recertification is permitted.
- Results of key properties shall be compared with the linear calculation of expected results.
 - Use the weighted average of the results from each fuel batch used to form the new batch. (Up to three new batches onto an existing heel.)
 - Note that but not all properties blend linearly.
- Where test results have changed significantly from their expected values (outside of the permitted variability limits)
 - an investigation into possible contamination should seek to identify cause and
 - may include but not necessarily be limited to CoA testing.
- New guidance on non-linear blending parameters in Ch. 8

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EI/JIG Standard 1530 CH.8 Example

Where results of the upper, middle and lower samples **do not fall within the limits defined in the Table**, contamination may have occurred and the tank shall be quarantined. An investigation into the cause of the variation shall be performed and this may require resampling and also full testing of the problem sample(s).

Where results of the upper, middle and lower samples **are within the limits defined in the Table**, a single tank composite sample shall then be submitted for laboratory testing, i.e. CoA or recertification test.

All results shall be recorded including a declaration that a comparison against variability limits has been made where recertification testing is permitted.

Test ¹	Jet Fuel	Avgas	Blending Information of property
Density ²	X	X	Linear blending
Distillation ³	X	X	Non-linear blending
Freezing Point ⁴	X		Non-linear blending
Flash Point ⁵	X		Non-linear blending
RVP ⁶		X	Non-linear blending
Octane rating (lean mixture) ⁷		X	Non-linear blending

Notes:

¹ All test results of the upper, middle and lower samples shall be within the limits of the governing specification.

² Densities shall be within the limits of the maximum and minimum batch densities of the composite batches, plus/minus test method repeatability.

³ Final boiling points shall not exceed the highest final boiling point of the composite batches + 8°C

⁴ Freeze point shall not be higher than the highest freeze point of the composite batches plus 3 °C

⁵ Flash points shall not be lower than the lowest flash point of the composite batches minus 3°C

⁶ RVP shall be within the limits of the maximum and minimum RVPs of the composite batches, plus/minus test method repeatability.

⁷ Octane rating shall be within the limits of the maximum and minimum Octane ratings of the composite batches, plus/minus test method repeatability.

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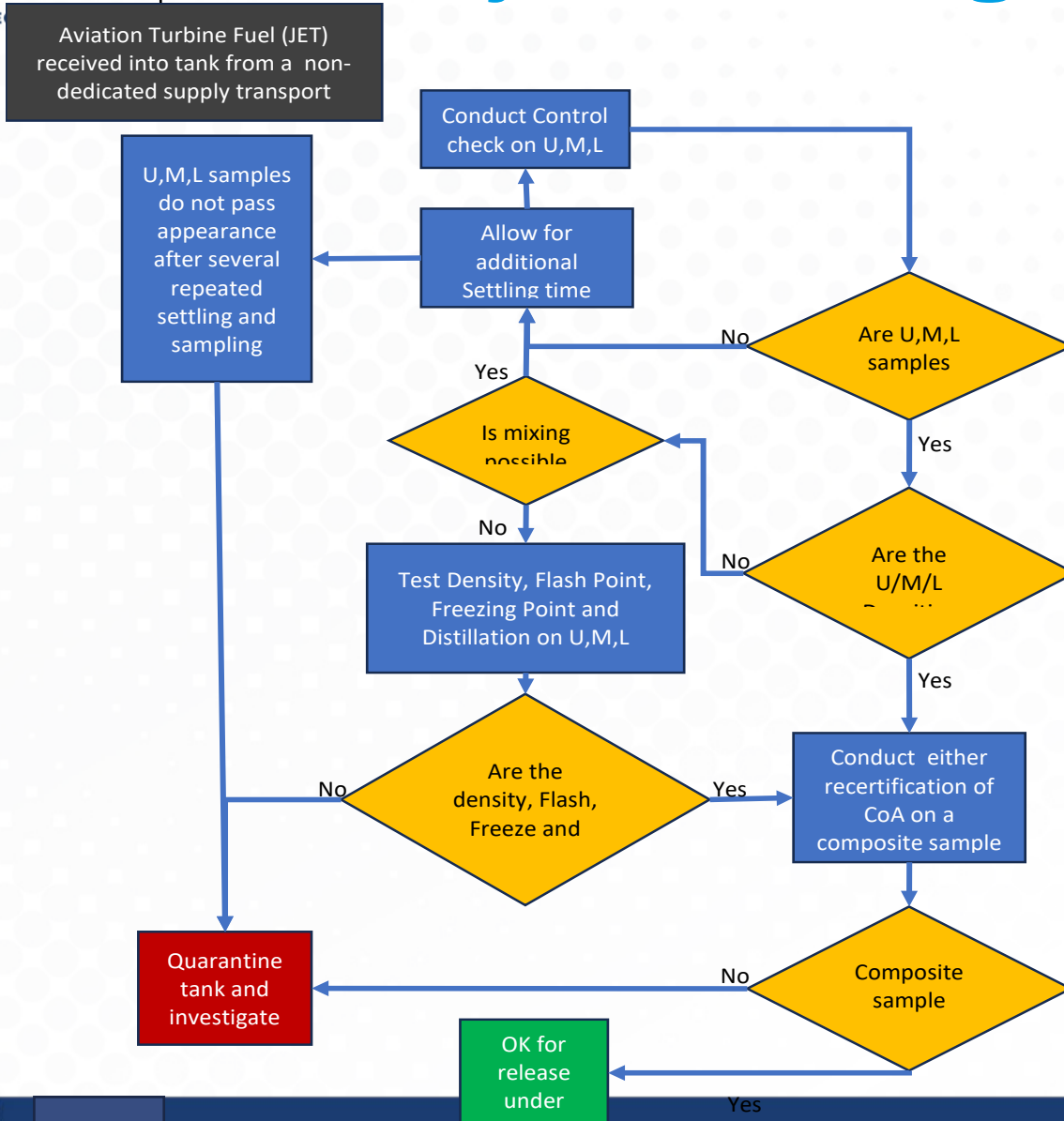
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CH.8 Layered Tank Logic



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New Table XX – Sump Sample Guidance

Filter and sump sample point	Expected sump sample	Abnormal sump sample	Comment
Microfilter. Sample from inlet sump drain point	Clear and bright fuel and possibly some Particulate	Continuous hazy fuel. Water and/ or evidence of microbial contamination.	Investigate supply source/ transport system if abnormal samples are found.
Filter Water Separator. Sample from clean side sump (Between coalescer and separator)	Clear and bright fuel and possibly some coalesced water	Continuous hazy fuel Particulate Large quantity of free water	Continuous hazy may indicate coalescer disarming, element damage or bypass. Internal vessel inspection required. Particulate may indicate element damage or bypass or vessel damage. Internal vessel inspection required. Large quantity of free water indicates supply source/ transport issues. Investigation required.
Dirt Defence Filter Sample from inlet sump drain	Clear and bright fuel and possibly some Particulate	Continuous hazy fuel. Water and/ or evidence of microbial contamination.	Investigate supply source/ transport system if abnormal samples are found.
Water Barrier Filter. Sample from inlet sump drain	Clear and bright fuel and possibly some coalesced water /particulate	Continuous hazy fuel Large quantity of particulate or Large quantity of free water	Investigate supply source/ transport system if abnormal samples are found.

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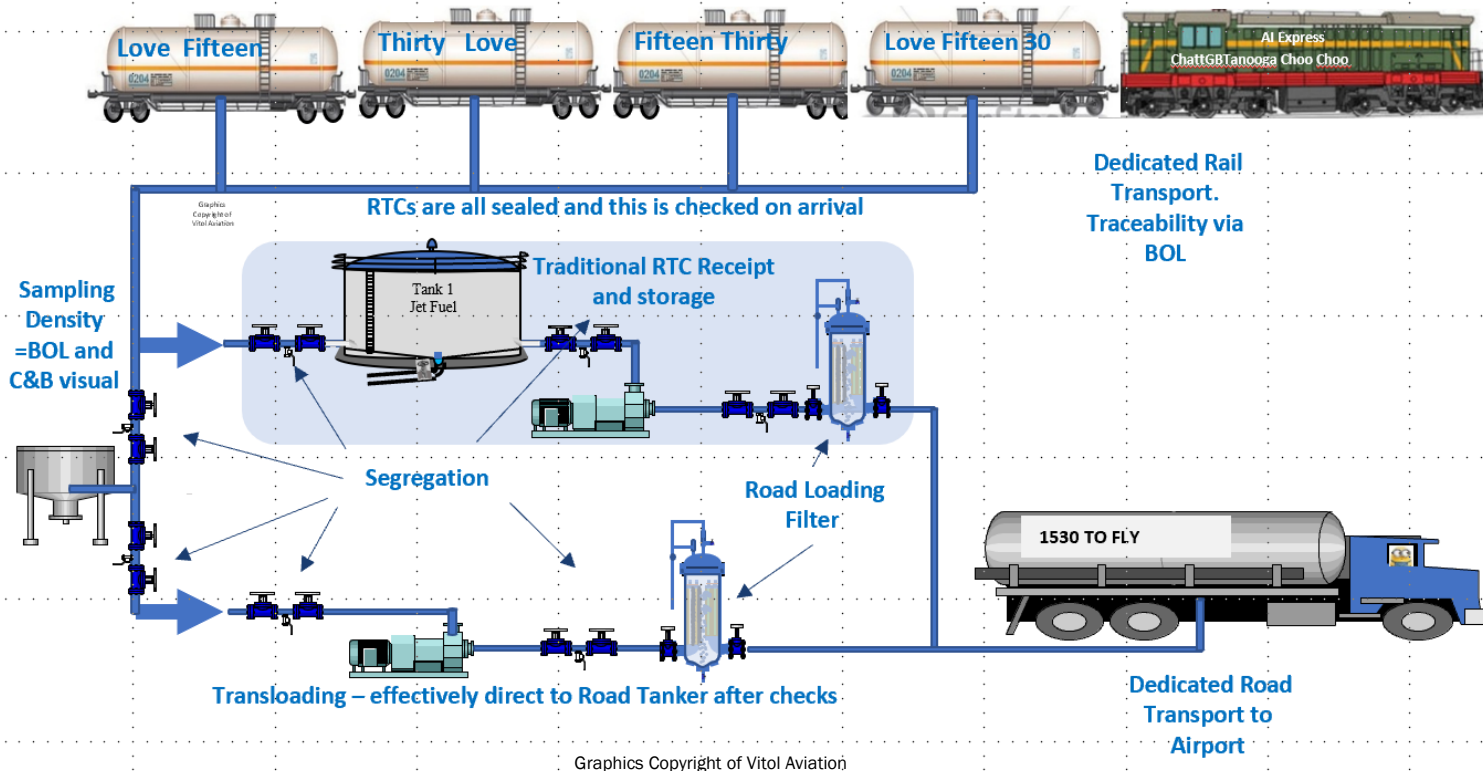
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New annex D4 on transloading as per Phillips 66 cross-referenced to 10.3 and glossary

A selection of issues identified so far.

Transloading needs to be added with some detail.



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Suggestion made below to reorganise Annexes more logically.

Annex	Title	Logic/ Grouping
A	<u>Glossary and Abbreviations</u>	<u>Key Information</u>
B	<u>Implementing 1530. AMC/Derregs</u>	<u>How to comply</u>
C1	<u>Authorised Signatories</u>	<u>Laboratories (mainly)</u>
C2	<u>Data Integrity Management</u>	<u>Laboratories (mainly)</u>
C3	<u>Example Certificates</u>	<u>Laboratories (mainly)</u>
D1	<u>Equipment Preconditioning</u>	<u>Key Operations</u>
D2	<u>Long term storage / return to use</u>	<u>Key Operations</u>
D3	<u>Pipeline Breakout / Staging Tankage</u>	<u>Key Operations</u>
D4	<u>Transloading</u>	<u>Key Operations</u>
E1	<u>Jet fuel conductivity</u>	<u>Product Characteristics</u>
E2	<u>Fuel cleanliness/ Particle Counting</u>	<u>Product Characteristics</u>
F1	<u>Salt Driers & bulk water removal</u>	<u>Refinery Process</u>
F2	<u>Clay Treaters</u>	<u>Refinery Process</u>
G1	<u>Referenced Publications</u>	<u>Additional Information</u>
G2	<u>Summary of routine test frequencies</u>	<u>Additional Information</u>
G3	<u>Field Equipment Calibration</u>	<u>Additional Information</u>
G4	<u>Unit Conversion Factors</u>	<u>Additional Information</u>
H	<u>Requirements for segregation</u>	<u>Probably needs to be last for printing</u>

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A selection of issues identified with ongoing discussion.

- Challenges to the max 7 compartments for a ship's MTC. We are currently reviewing the history of this requirement (JIG 3 had a maximum of 5 compartments). There is pressure to go to 8 or 10 or unlimited on business risk.
- More clarification needed on mandatory positive segregation requirements and also separation of thermal relief spill lines on pipework
- Clarification of the difference between a "Tank Release Certificate" and a "Transport system Release Certificate" and challenging to get full compliance
- Refineries releasing hot product which results in water precipitation downstream. Very difficult to control due to supply timing and mandates
- Derogations in Annex M. Extremely difficult to understand, so there is a need for some simplification and perhaps some more examples.

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2 components – conventional kerosene and synthetic kerosene

Conventional kerosene

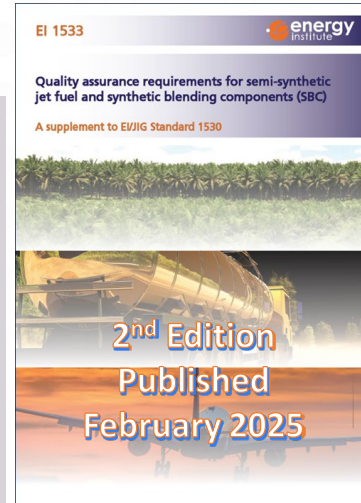
- Multiple types of crude so kerosene soup. (Chemically diverse)
- Contains sulphur, aromatics, smooth distillation typically between 140-280°C
- In general terms, a well known and defined performance specification with over 70 years experience

Synthetic kerosene (SBC)

- Currently 8 annexes.....in D7566 and Co-processing are approved.
- No sulphur, main approvals are paraffinic, some have very narrow distillation range
- Very tightly controlled specification to control feedstocks and production “so no surprises!”

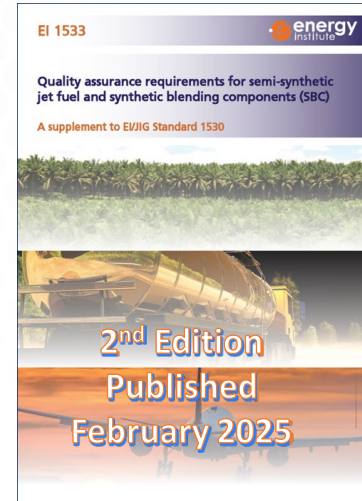
The SAF Blend (mix of the above two components)

- Maximum of 50% SBC, but some 10% Max and Co-processing currently 10%
- The mixture has to meet an extended current Jet fuel specification – based on 70 years of expertise. So simple. Yes?



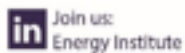
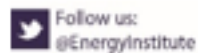
Some key concerns

- Impossible to predict some properties of the blend due to non-linear aspect of many specification properties – flash point, freezing point, distillation, thermal stability..... So trial blends essential
- Currently shipping small quantities of SAF and SBC in chemical carriers, so potential for unusual/ unexpected contamination / impact on properties
- Point of blending is the manufacturing location and can be anywhere from refinery to airport. Manufacturing expertise is at refinery, and disposition of non-conforming product becomes difficult close to/ on airport
- Facilities used for SAF blending have some prescribed design considerations to protect product quality of the SBC and SAF
- Certification requirements for SAF are more stringent – laboratories need to be capable
- Education is one of the keys – EI1533, EI/JIG 1530 and the EI animations

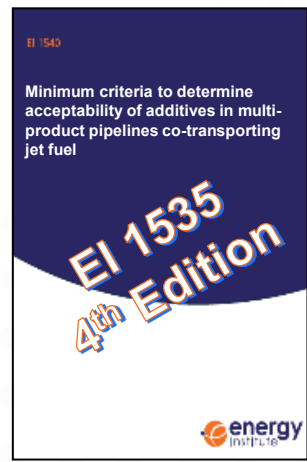
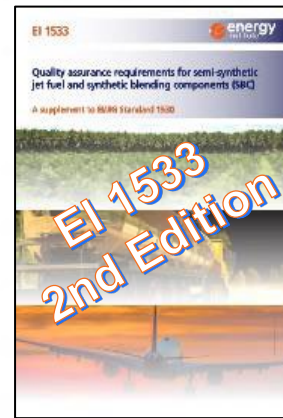
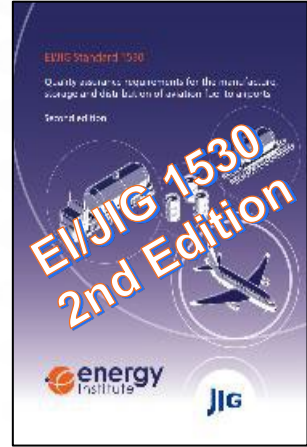


- In-line blending proposals
- Definitions around dedicated vessels, change of grade – need to harmonise with residual heels
- More on co-processing and (hopefully) later this year a new animation
- New annexes from ASTM D7566 (probably) to be included
- Harmonisation with EI/JIG 1530 on refinery reprocessing of semi-synthetic stocks and SBCs
- Updates to FAQs (probably)

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QUESTIONS?



Thank you for your attention

