

## **EI/JIG STANDARD 1530**

### **Guidance for locations which currently operate to JIG 3 Standards**

#### **Background**

JIG Bulletin 68 provided initial guidance to airport and distribution facility users of JIG Standards regarding the impact and progressive implementation of EI/JIG Standard 1530 (Quality assurance requirements for the manufacture, storage and distribution of aviation fuels to airports). This standard was produced in response to the need, identified by Members of JIG and the wider industry, for comprehensive guidance for adoption by any company or organisation involved in the manufacturing, testing, blending or handling of aviation fuel upstream of airports.

EI/JIG Standard 1530 was developed as a joint EI and JIG Publication to include the existing technical content of JIG 3 related to upstream storage installations, to update it, and to expand this to include manufacturing, testing and other supply and distribution operations. In addition, EI/JIG 1530 focuses specifically on product quality assurance upstream of airports, and has some differences from JIG 3, as outlined below;

1. EI/JIG 1530 updates some of the technical requirements of JIG 3 as part of the ongoing review and improvement of industry practices initiated by JIG with each previous review of the JIG 3 standard – there will be no Issue 12 of JIG 3, as EI/JIG 1530 supersedes it.
2. Some items included in JIG 3 are outside the scope of EI/JIG 1530 given its specific focus on product quality.
3. As EI/JIG 1530 covers the entire aviation fuel manufacturing and handling chain above airport, there are items included in EI/JIG 1530 of relevance to upstream of airport storage terminal facilities that were not previously included within the scope of JIG 3.

Bulletin 68 included guidance for JIG locations currently operating to JIG 3 (Aviation Fuel Quality Control & Operating Standards for Supply & Distribution Facilities) on how to formally adopt EI/JIG 1530 in place of JIG 3 and conduct documented Conformance Assessments to demonstrate conformance with the requirements of EI/JIG 1530.

The purpose of this JIG Bulletin is to provide additional guidance to distribution facilities which currently operate to JIG 3 Standard, on the differences between the requirements of the JIG 3 and EI/JIG 1530 standards, and what these locations need to do to continue to operate to JIG standards in addition to meeting the requirements of EI/JIG 1530. This includes details of how to address each of the 3 areas of difference between the two standards listed above.

**Managing the change from JIG 3 to EI/JIG 1530**

As explained in Bulletin 68, issue 11 is the last JIG 3 that will be published. Locations which are part of the JIG (JITS) inspection programme, and currently operate to JIG 3, shall adopt EI/JIG 1530 as their standard for the quality assurance of aviation fuels that they handle. These locations shall agree with their JV partners a 'switch-over' date on which they will formally adopt EI/JIG 1530 in place of JIG 3, having developed a plan to manage the change.

A requirement of EI/JIG 1530, Annex M, is that locations claiming conformance with the standard shall complete a Conformance Self-Assessment and establish any AMC's (Alternative Means of Conformance) in accordance with Annex M of EI/JIG 1530. Bulletin 68 requires this to be completed no later than year-end 2016. Each facility is required to complete its own self-assessment and the Energy Institute has published a checklist to facilitate this which locations may use. In addition to completing this self-assessment, the plan to manage the change from JIG 3 to EI/JIG 1530 shall consider each of the three areas of difference between the two standards listed above. Further detail on each of these is shown below. JIG has now completed a Gap Assessment (using the EI/JIG Self-Assessment Checklist published by the Energy Institute) to compare an ideal, fully compliant, JIG 3 location with the requirements of EI/JIG 1530. This Gap Assessment is available on the JIG Website and is annotated/colour coded, see below, to help JIG 3 locations manage their own self-assessment and change between the standards.

The Gap Assessment uses the nomenclature in columns P, Q and R;

- Not applicable – X in Column R (eg. applies to refinery operations only, not terminals)
- Yes – X in Column P (ie. No difference between JIG 3 and EI/JIG 1530), equivalent JIG 3 section reference added
- No – X in Column Q - items which are not included in JIG 3 but included in EI/JIG 1530, or where the requirements of EI/JIG 1530 are technically different from JIG 3 and of relevance to a terminal - highlighted in red in column T.
- Items where there are some technical differences of detail between JIG 3 and EI/JIG 1530, but not as significant as those highlighted in red – highlighted in column T in either amber or green.

**1. Technical Differences between JIG 3 and EI/JIG 1530**

EI/JIG 1530 updates some of the technical requirements of JIG 3 to continue the ongoing review and improvement of industry practices initiated by JIG with each previous review of the JIG 3 standard. Locations managing the change from JIG 3 to EI/JIG 1530 shall identify these differences and ensure that their operating procedures and practices are changed to reflect the requirements of EI/JIG 1530. This should be a similar process to that used previously to adapt to the changes introduced by a new issue of the JIG standard in the past. These differences will be highlighted during the Gap Self-Assessment the facility has to complete. To further assist with this process the Gap Assessment published by JIG can be used with the items highlighted in Green and Amber used to focus terminals on the areas where the two standards differ. Amber being typically more minor differences than those highlighted in Green.

An example of this type of difference is that EI/JIG 1530 has a different approach to determining tank cleaning intervals from JIG 3.

A complete list of these items has been extracted from the completed Gap Assessment and is listed in the table below;

### **JIG 3 – EI/JIG 1530 Table of Technical Differences**

<b>EI/JIG 1530 Reference</b>	<b>JIG 3 Reference</b>	<b>Details of Difference</b>
<b>Minor EI/JIG 1530 differences</b>		<b>Highlighted Amber in Spreadsheet Cells</b>
2.4 Quality Assurance Organisation	11.5.2	JIG competency requirements are written from the HSE perspective although applicable to QC, whilst 1530 are QC derived.
3.2 Management of Change Principles	11.8	JIG MoC requirements are written from the HSE perspective although applicable to QC, whilst 1530 are QC derived.
3.3 Management of Change Process	11.8.2	The list of minimum requirements an MoC process shall consider is longer in 1530
7.3.6 Biocides	6.2.2	1530 requires any aviation fuel treated with biocide to be downgraded. JIG is not so specific, but 6.2.2 covers cleaning tank chemicals in general.
7.7 Additive Shelf Life/Storage	4.7.3 (c)	1530 requirements apply to additives in general, JIG section is Stadis specific
7.10.2 Grade segregation of fuel containing FSII	3.1.3	1530 requires fuel containing FSII to be treated as a different grade requiring segregation from other grades. JIG requires grade segregation but does not specify fuel containing FSII as a separate grade.
8.3.2.5, 8.3.2.6 Receipt General	4.2.6	The requirements of 1530 are more detail than JIG, locations need to verify they meet 1530
8.3.5.3 Ship procedures after discharge	4.5.3	1530 recommends that after vessel discharge checks are performed to ensure the correct quantity was discharged. JIG recommends that compartments are checked to ensure empty.
8.4.3 Settling time before release	5.2.2	1530 allows reduced settling time if specific filtration/tank design features are in place. JIG has no equivalent.
8.6 Off Spec Product		1530 requires that off spec product is not released for Aviation use – JIG implies this but does not specifically state it.
9.3.3 Tank Vent Requirements	3.2.2	1530 recommends internal floating roofs in tanks when ambient temperature is close to or above flash point. JIG requires local legislation to be followed for these roofs.
9.3.8 Thermal Relief Valves	3.3.1	1530 requires thermal relief valve systems not to be interconnected with other grades. JIG covers this generically without being specific.
9.3.9 Floating Suctions	3.2.3 (f)	1530 has different minimum suction height for Horizontal tanks. JIG does not differentiate between tank types.
9.3.9 Floating Suctions	3.2.3 (f)	1530 does not mandate floating suction for new aviation fuel facilities supplying direct to airport
9.4.4.2 Requirement for EI 1581 5 <sup>th</sup> edition FWS	3.4.3	1530 requires these in place for locations supplying direct to airport, JIG requires by 31/12/15
9.5.3, 9.5.5 (d) Bringing tanks/pipes into service	6.3	1530 requires a thermal stability test in addition to recertification before release of tank following grade change
10.3.1.2 (a) Preconditioning of road tankers	A5	JIG 3 refers to refuelling vehicles rather than road vehicles

10.3.1.3 Road / Rail Loading Facilities	9.5.2	JIG is silent on preference for bottom loading of rail cars.
10.3.3.2 (b) Road/Rail Loading	7.4.2	1530 requires water and density check after loading, JIG does not require density
D 3.1.1 Soak Test Procedures	A 5.3	JIG requires an additional soak period for certain lining materials but does not specify 10 days
D 4.2 Soaking partially lined tanks	A 5.3.2	JIG requires lined area plus equivalent unlined to be covered during soak. 1530 is less specific.
I 4.2 Stadis dosing	4.7	1530 recommends Stadis injection as close as possible to airport, JIG gives guidance of ensuring conductivity correct at delivery to airport
<b>Major EI/JIG 1530 differences</b>		<b>Highlighted Green in Spreadsheet Cells</b> <i>Refer to actual standards using references given to determine difference in requirements</i>
2.2.5 Release Certification	2.3.2 (e)	Requirement for Conductivity on Release Certificate in addition to prior JIG 3 requirements
2.2.7 Validity of certification		JIG 3 does not state that certification is valid for 180 days, but contained in DEF STAN
2.2.7 Validity of certification		JIG does not specifically cover changes in specification during certification validity period, but covered in DEF STAN
2.4 Quality Assurance Organisation		A documented Quality Assurance system is required by 1530, which includes the training requirements for QC.
2.5 Document Retention Requirements		1530 specifies document storage retention requirements for QC records
3.2 MoC Principles	11.8	The principles of the 1530 MoC process are more specific than the general process given in JIG
4.1.6 General Sampling Principles		1530 requires dedicated sampling equipment for aviation fuel sampling.
4.4.3 Sampling for batching, certification or recertification	2.2.2	1530 allows for a maximum of 7 vessel compartments to be combined when preparing a multi-tank sample, JIG allowed 5. 1530 requires all level tank samples being used, JIG requires middle tank samples.
4.5.5, 4.5.6, 4.5.7 Minimum sample volumes	2.3.4	Different minimum sample volumes are specified for CoA, recertification and Periodic testing samples
4.4.6 Recertification Testing	2.3.4	Recertification limits for distillation of Avgas different in 1530 vs JIG 3. Also IBP required for JET in 1530 and JIG specifically requires Stream Jet for existent Gums. Also JIG requires FAME testing. 1530 also includes significant colour change in Saybolt colour
4.5.8 FAME testing	2.3.4	FAME testing is referred to in JIG 2.3.4 (b) table note 4, but risk assessment not specifically required
4.5.9.3 Filter Membrane Testing	2.3.4 (g)	JIG specifies 5 litres required to pass in a filter membrane test, 1530 requires 3.78 (1 USG) to 5 litres
5 Laboratories (Whole Chapter)	2.3.1	JIG mandates testing to approved standards but does not specify the detailed expectations contained in 1530 for a laboratory being used for certification or recertification testing by a facility.
7.2 Additive Batch Traceability		JIG does not require the traceability of additive batch to each batch of aviation fuel as required by 1530.
8.3.2.1, 8.3.2.2 Receipt General	4.2.1, 4.2.2	For facilities handling only aviation fuels 1530 requires different grades to be received via dedicated and separated lines rather than JIG preferring this. For facilities handling other grades of fuel 1530 requires positively segregated white oil lines JIG recommends this.

8.3.3.5 Receipt from single grade pipelines		1530 requires quantity verification after pipeline receipt
8.3.4.9 Receipt from multi product pipelines		1530 requires quantity verification after pipeline receipt
8.3.5.1 (e) Receipt from vessels		Prior to discharge, 1530 requires a minimum 500 ml all-level sample drawn from each compartment and subjected to a Control Check JIG requires a 1 litre middle level sample
8.3.5.2 Vessel Discharge Procedures		1530 requires sampling frequency during discharge of non-dedicated vessel to be determined by risk assessment. JIG requires every 2 hours
8.3.5.2 Vessel Discharge Procedures	4.5.2	JIG requires lines to be fully segregated whilst 1530 requires minimum of 2 valve segregation
9.1.5 Storage facility commissioning	A5	JIG A5 specifies soak testing requirements, but 1530 lists further requirements required during facility commissioning.
9.3.4 Tank Roof Types		Unlike JIG, 1530 mandates fixed roofs or geo. Domes for tanks brought into aviation service
9.3.6 Tank Lining	3.2.3 (g)	The lining requirements mandated by 1530 are only required for tanks brought into aviation service by JIG
9.3.7 Separate inlet and outlet tank lines	3.2.3 (c)	1530 requires separate inlet and outlet pipework systems whilst JIG required separate inlet and outlet connections
9.3.8 Grade separation and positive segregation	4.2.5, 4.4.2	The positive segregation between multi product receipt lines and aviation fuel tank inlet required by 1530 is not specified in JIG
9.5.2.2 – 9.5.2.4 Tank Cleaning	6.2	1530 takes a different approach to determining tank cleaning requirements from JIG 3. Refer to EI JIG 1530 for details.
9.5.2.10 Product Recover Tanks		1530 mandates quarterly MBG testing of fast flush and product recovery tanks.
10.1.5.(d) Loading Vessels	7.5.3	JIG requires samples as a minimum at the start, before end and if there is a change of shore tank, for dedicated systems, whilst 1530 recommends sampling every 2 hours.
10.1.5 (e) Loading vessels	7.5.4	JIG specifies 500mm first foot sample whilst 1530 specifies 300 mm
10.1.5 (g) Loading Vessels	7.5.5	On completion of loading 1530 requires 3x3 litre (1 USG) composite samples to be taken, JIG requires 2x5 litre samples
10.3.1.1.(a) Rail Tank Car construction		1530 requires that the tanks of rail tank cars are constructed of carbon steel, stainless steel or aluminum, JIG doesn't specify material of construction.
10.3.1.1.(d) Rail Tank Car construction		1530 mandates rail tank cars that are constructed of carbon steel and used for supply to airport depots to be internally coated with an epoxy coating complying with EI 1541, JIG 3 does not mandate this.
10.3.2.2 Change of Grade Procedures for road/rail tankers	9.6	JIG requires FAME test and recertification in cleaning procedure C, whilst 1530 requires FAME test only
10.3.3.2 (b) Road/Rail tank loading	7.4.2	JIG does not specify settling time after loading whilst 1530 specifies 5 minutes minimum.
10.3.3.2 (b) Road/Rail tank loading		1530 requires the first jet fuel road tanker or rail tank car for a particular day, or after a change in batch to have a control check carried out and density discrepancies investigated.

Locations shall change their working practices and procedures to meet the requirements of EI/JIG 1530.

## 2. JIG 3 requirements outside the scope of EI/JIG 1530

The following table lists the current requirements of JIG 3 which are outside the scope of EI/JIG 1530. Listed against each item is an alternative industry source of reference where facilities can obtain further details of these requirements. In most cases the document referenced is the “Model Code of Safe Practice Part 2 – Design, construction and operation of petroleum distribution installations (4<sup>th</sup> Edition)” published by the Energy Institute. In addition JIG will be publishing its HSSE Management System as a separate standard – extracting this from the current JIG Standards – to coincide with the publication of JIG 1 and 2 Issue 12. This separate HSSE Management System will detail the expectations, currently specified in JIG 3, Chapter 11, which facilities changing to EI/JIG 1530 shall continue to be expected to meet.

These items will not be identified during the Self-Assessment, as they are not included in EI/JIG 1530, however, terminals currently working to the JIG 3 standard will still be expected to meet all of the requirements listed below, including the JIG HSSE Management System, after they have changed from JIG 3 to EI/JIG 1530.

An example of this type of difference is the testing of High and High-High Level tank alarms which was a requirement of JIG 3 that is outside the scope of EI/JIG 1530.

<b><u>JIG 3 Section outside EI/JIG 1530 scope</u></b>	<b><u>Model Code Equivalent</u></b>
Chapter 1 Introduction <ul style="list-style-type: none"> <li>- 1.1 Purpose</li> <li>- 1.2 Scope</li> <li>- 1.3 Application to Joint Ventures</li> <li>- 1.4 Staff Responsibilities and inspection requirements</li> </ul>	Scope of Model Code covers JIG 3 locations.
Chapter 3 <ul style="list-style-type: none"> <li>- 3.1.6 Discharge and loading areas</li> <li>- 3.1.7 Tank Bund Capacity</li> <li>- 3.2.2 Tank top walkways should have non-slip surfaces, handrails and kick plates</li> <li>- 3.2.3 (i) Requirements for tank high level alarm systems</li> <li>- 3.3.2 Low point drains on long pipelines</li> </ul>	<ul style="list-style-type: none"> <li>- 2.9.2 Areas where surface water may be contaminated with oil</li> <li>- 3.3.22 Tank Bund Construction for Hydrocarbon Storage and upgrading of existing sites</li> <li>- 3.3.12 Stairways gangways and ladders</li> <li>- 3.3.8 Tank overfill prevention and high level alarms</li> </ul> <p>Not specified in EI/JIG 1530 (or model code) but implicit in Chapter 9 of EI/JIG 1530</p>

<ul style="list-style-type: none"> <li>- 3.4.6 Static charge dissipation</li> </ul>	<ul style="list-style-type: none"> <li>- Static charge dissipation requirements are specified in various sections of Model Code (4.5.9 gives precautions for avoiding build-up of static charges and signpost to EI Model code of safe practice part 21)</li> </ul>
<p>Chapter 6</p> <ul style="list-style-type: none"> <li>- 6.1.4 Correct operation of high level alarm checks</li> <li>- 6.2 Tank Cleaning - <b>The tank cleaning requirements of EI/JIG 1530 shall be followed by locations</b></li> </ul>	<ul style="list-style-type: none"> <li>- 3.3.10 Proof testing of overfill protection systems</li> </ul> <p>Tech difference identified in Gap Assessment</p>
<p>Chapter 7</p> <ul style="list-style-type: none"> <li>- 7.4.4 Additional procedures for driver controlled deliveries to airports</li> </ul>	<p>Not required by EI/JIG 1530 and will not be required by future JIG Inspections</p>
<p>Chapter 8</p> <ul style="list-style-type: none"> <li>- 8.4 Records – accident/incident</li> </ul>	<p>Will be covered by JIG HSSE MS Standard</p>
<p>Chapter 10</p> <ul style="list-style-type: none"> <li>- 10.1 Bonding and Earthing – road and rail vehicles</li> <li>- 10.2 Bonding – drain buckets</li> <li>- 10.4 Electrical equipment</li> </ul>	<ul style="list-style-type: none"> <li>- 4.2.1 General – Loading and unloading of road tankers, 4.3.5 for rail cars (Covers requirement for bonding and signposts standard for maintenance and inspection)</li> <li>- Not specifically covered in model code</li> <li>- 6.3.4 – Electrical, 3.2.5 – Electrical Equipment</li> <li>- Conductivity meters covered in F.2 of EI/JIG 1530.</li> </ul>

Chapter 11  (With the exception of 11.8 Management of Change which is covered in EI/JIG 1530)	Will be covered by JIG HSSE MS Standard  - Model code Chapter 9 and 10 give additional guidance
---	---

<b><u>JIG 3 Appendix</u></b>	
Appendix A1 Summary of routine test frequencies	No summary in EI/JIG1530, but specifics contained in text
Appendix A2 Variance Approval Certificate	Annex M of EI/JIG 1530 replaces variance process
Appendix A3 PPE Requirements	- Annex E of Model Code (PPE requirements)
Appendix A4 Lost time incident report	Will be covered by JIG HSSE MS Standard
Appendix A8 Storage tank details	No such form in 1530

## **Additional Requirements**

These requirements in JIG 3 are not covered by the Model Code of Practice, but will remain expectations for terminal locations.

**JIG 3 3.2.3 (f)** *Floating suction arms, bonded to the tank shell, with position indicators and/or check cables bonded to the tank shell. Existing tanks supplying direct to airport should be fitted with floating suction arms. For effective bonding of check cables they shall be installed with permanent metal to metal contact with the tank shell. Position indicators should be used for large above-ground vertical tanks.*

**JIG 3 3.3.2** *Long pipelines shall incorporate means for water and sediment drainage at designated low points. A designated low point in a pipework system is defined as a drain point in a pipeline where significant quantities of particulate/water would accumulate if the position was not flushed on a regular basis. Where pipelines are in turbulent flow conditions, it is unlikely that significant quantities of particulate / water will accumulate.*

**3. EI/JIG 1530 Requirements not previously covered by JIG 3**

EI/JIG 1530 has a wider scope than JIG 3 and in changing from JIG 3 to EI/JIG 1530 locations shall meet all the applicable requirements of this standard. These are identified in the Gap Assessment checklist published by JIG as shaded in Red in Column T with the comment “Not required by JIG” in the box. In completing their own Self-Assessment checklist, locations will identify these items that are applicable to their own facility and be able to determine if their current operations meet the EI/JIG 1530 requirement. If current operations do not meet these operating practices the procedures of the facility shall be changed to adopt the EI/JIG 1530 requirement as part of moving to EI/JIG 1530 conformance. If this is not possible within a 3 month timeframe the requirements identified shall have an AMC developed with closure plan, as detailed in EI/JIG 1530, Annex M.

An example of this type of difference is verifying the capability of laboratories to perform recertification testing of aviation fuel batches which is covered in EI/JIG 1530 but not previously in JIG 3.

**JIG (JITS) Inspection Programme**

Following the adoption of EI/JIG 1530, future JIG inspections will be against the full requirements of this standard, as applicable to the type of location. The JIG S&D Checklist is currently being updated to become EI/JIG 1530 compliant and to include the “out-of-scope” requirements identified in this bulletin.

**Actions for JIG Locations Currently Operating to JIG 3 (Aviation Fuel Quality Control & Operating Standards for Supply & Distribution Facilities) and part of the JIG (JITS) inspection programme**

In addition to carrying out the actions detailed in Bulletin 68, locations currently operating to JIG 3, and part of the JIG (JITS) inspection programme, shall;

Action Description
<b>Managers of terminals changing from operating to the JIG 3 Standard to EI/JIG 1530 shall</b> <b>Agree a changeover date with their JV Partners that meets the end 2016 deadline of JIG Bulletin 68</b>  <b>Develop a change plan incorporating the requirements of this bulletin</b>
<b>Complete the EI/JIG 1530 Self-Assessment to identify any gaps between current practice and facilities and the requirements of EI/JIG 1530, as required by EI/JIG Annex M. The JIG produced Gap Assessment can be used as guidance to identify where gaps exist.</b> <ul style="list-style-type: none"><li><b>Gaps identified shall be addressed by changes to the facility procedures and practices if possible (This requirement includes gaps that are both technical differences from JIG 3 included in EI/JIG 1530 as well as items required by EI/JIG 1530 but previously out of the scope of JIG 3)</b></li><li><b>AMC's shall be developed for Gaps that cannot be addressed within 3 months and reviewed and endorsed as required by Annex M</b></li></ul>
<b>Current JIG 3 requirements identified in this bulletin (section 2) which are outside the scope of EI/JIG 1530, remain as expected best practice that facilities are expected to meet, and will be included within the scope of future JIG inspections</b>

This document is intended for the guidance of Members of the Joint Inspection Group (JIG) and companies affiliated with Members of JIG, and does not preclude the use of any other operating procedures, equipment or inspection procedures. Neither JIG, its Members, the companies affiliated with its Members nor the International Air Transport Association (IATA) accepts responsibility for the adoption of this document or compliance with this document. Any party using this document in any way shall do so at its own risk.