

Filter Separators API/IP 1581 5th Edition

At a recent industry meeting it was agreed that there is a need for some guidance related to the implementation of the latest edition of API/IP 1581.

This Bulletin is valid with immediate effect but the following key dates should be noted:

- a) New filter separator vessel purchases shall be specified for 5th edition compliance with immediate effect (see item (1) on page 2 for guidance).
- b) Installed 3rd edition coalescer elements can continue in service until replacement is required, due to maximum differential pressure or 3 years, but subject to a final change-out date of **June 30, 2008**.
- c) Purchased stocks of 3rd edition coalescer elements can be used for replacement purposes until **June 30, 2006**, but subject to a final change-out date of **June 30, 2008**.

At Joint Venture airport locations, any variation of the above dates requires the approval of the international head offices of the participant companies.

Background

The need to update the 3rd edition of API/IP Specification 1581 was identified in the mid 1990s and resulted in the preparation of the 4th edition which was published in January 2000 with an effective date of January 2002.

Problems with the specification for the test fuel and particularly for one of the additives required for the qualification procedure led to the effective date for the 4th edition being extended to July 31 2003 with 3rd edition remaining the "current edition" until that date.

At an API/IP meeting in October 2001 it was agreed to develop a 5th edition to replace both 3rd and 4th editions with an effective date of July 2003.

API 1581 5th edition qualification procedures

API/IP Specification 1581 5th edition was published in July 2002. The 5th edition refers to recognising the previous edition for one year after publication (ie, until July 2003) but, because of the improved filtration performance, recommends that 5th edition elements be qualified and offered as soon as practical.

The qualification of 5th edition elements is taking longer than expected. However, some elements manufactured to meet the requirements of 5th edition with witness testing by industry approved inspectors are now available from the manufacturers and it is expected that a full range of the commonly used element types will be available later this year.

Manufacturers

Some manufacturers currently have elements available that meet API/IP 1581 5th edition performance requirements:

Facet
Faudi
Racor
Velcon

Quality Assurance

It is a requirement for continued JIG Member Company acceptance that by June 2006 the manufacturers participate in an internationally recognised quality assurance system such as API Q1 or ISO 9001 for the design and manufacture of API/IP 1581 5th edition filter separator vessels and elements.

Guidance to Users and Purchasers of Filter Separator Vessels and Elements

API/IP 1581 5th edition filter vessels and elements should only be purchased from one of the recognised manufacturers shown above. Joint Venture airport locations wishing to purchase elements from other manufacturers should seek the unanimous approval of the international head offices of the participant companies.

(1) New Filter Separator Vessels

For all new filter separator vessel purchases it is a requirement that API/IP 1581 5th edition is specified.

As a general guide, the recommended flow rate for all filter separator vessels meeting 5th edition API/IP 1581 performance requirements should not exceed 2.6 US gallon/minute (USGPM) per linear inch of the coalescer elements. This will normally allow full interchangeability between elements supplied by the different manufacturers and offer maximum flexibility to the operation. Where a single supplier offers a vessel with flow rates for the coalescer elements that are significantly higher than 2.6 USGPM per linear inch of the coalescer element, the user should check with other element suppliers that they can offer equivalent 5th edition elements for this vessel design at the specified flow rate.

(2) Existing 3rd Edition Filter Separator Vessels

Before ordering 5th edition elements for existing vessels, users should contact their filter element suppliers and ask for their recommendations for both coalescer and separator elements. The suppliers should be provided with the following information as shown on the 3rd edition API 1581 certification plate:

Vessel make and model
Rated flow
Coalescers - model and number of elements
Separators - model and number of elements

3. Similarity Requirements & General Advice on 5th Edition Compliance

Users should ask the suppliers to provide details of the qualification of the recommended 5th edition elements. This will normally consist of a copy of a similarity data sheet where the vessel and recommended elements have similar characteristics to a vessel and element combination that has already qualified in accordance with the 5th edition as witnessed by an independent witness acceptable to JIG Member Companies. The suppliers should also be asked to provide the 5th edition certification plate for the vessel.

The suppliers should be requested to provide technical advice regarding filter vessel dimensions or other features that are not in full compliance with the 5th edition.

It is recommended that users develop a programme to review all filter separator vessels and progress the introduction of 5th edition elements. This process should include the assistance and guidance from the filter suppliers and, if required, the international head offices of Joint Venture participant companies.

For Joint Venture locations where the technical advice from the suppliers indicates that full compliance for specific vessel models may not be possible, a JIG Variance Approval Certificate should be used to record and request approval from the international head offices of participant companies for the use of 5th edition elements.

4. Interchangeability of 5th Edition Elements & Differences to 3rd Edition

Interchangeability between the elements of the different suppliers is an important feature of API/IP 1581 and it is recommended that the above information is requested from more than one recognised supplier, particularly where flow rate requirements are critical.

Due to changes in the qualification requirements for 5th edition elements it is possible that the maximum achievable flow rate for a given vessel and element combination may differ from the 3rd edition element configuration.

4(a) Vessels Operating at or Close to Maximum Design Flow Rate

Where it is a requirement that the filter vessel should operate at maximum possible flow conditions (eg. to avoid the possible need to install an additional or replacement vessel) the suppliers should be requested to specify their maximum recommended flow rate for the vessel.

Note: The maximum flow rate may exceed the 2.6 USGPM per linear inch referred to in item (1) above and thus limit the choice of element supplier.

4(b) Vessels Operating Significantly Below Design Flow Rate

Many filter vessels are installed in systems where the maximum achievable flow rate in service is significantly below the rated (maximum) flow as shown on the current API 1581 certification plate. Where this is the case it is recommended that, in addition to the information shown on the certification plate, the suppliers should be advised of the desired maximum flow rate for the filter vessel. A reduction in the number of elements fitted may be appropriate. This will ensure higher flow velocities through the elements, thus reducing the risk of microbiological problems in the vessel.

(5) Vertical Filter Separators with Flat Bottoms

There are some vertical filter separators in service which have deck mounting plates which do not have a positive slope that permits the effective removal of water. These do not meet either 3rd or 5th edition requirements and should either be modified to incorporate the required positive slope or be withdrawn from service and scrapped.

At airport depots these vessels should be modified or replaced with equipment meeting 5th edition requirements as soon as practicable and no later than **June 30 2007**.

At upstream locations which supply direct to airport depots the preferred minimum filtration standard at truck/rail loading points is a filter separator and it is recommended that vessels which are not compliant to 5th edition should be modified or replaced by vessels that meet 5th edition API/IP 1581 as soon as practicable.

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