

## **Filter Separators API/IP 1581 5<sup>th</sup> 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 5<sup>th</sup> edition compliance with immediate effect (see item (1) on page 2 for guidance).
- b) Installed 3<sup>rd</sup> 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 3<sup>rd</sup> 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 3<sup>rd</sup> edition of API/IP Specification 1581 was identified in the mid 1990s and resulted in the preparation of the 4<sup>th</sup> 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 4<sup>th</sup> edition being extended to July 31 2003 with 3<sup>rd</sup> edition remaining the "current edition" until that date.

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

### **API 1581 5<sup>th</sup> edition qualification procedures**

API/IP Specification 1581 5<sup>th</sup> edition was published in July 2002. The 5<sup>th</sup> 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 5<sup>th</sup> edition elements be qualified and offered as soon as practical.

The qualification of 5<sup>th</sup> edition elements is taking longer than expected. However, some elements manufactured to meet the requirements of 5<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> edition filter separator vessels and elements.

**Guidance to Users and Purchasers of Filter Separator Vessels and Elements**

API/IP 1581 5<sup>th</sup> 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 5<sup>th</sup> edition is specified.

As a general guide, the recommended flow rate for all filter separator vessels meeting 5<sup>th</sup> 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 5<sup>th</sup> edition elements for this vessel design at the specified flow rate.

## **(2) Existing 3<sup>rd</sup> Edition Filter Separator Vessels**

Before ordering 5<sup>th</sup> 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 3<sup>rd</sup> 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 5<sup>th</sup> Edition Compliance**

Users should ask the suppliers to provide details of the qualification of the recommended 5<sup>th</sup> 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 5<sup>th</sup> edition as witnessed by an independent witness acceptable to JIG Member Companies. The suppliers should also be asked to provide the 5<sup>th</sup> 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 5<sup>th</sup> edition.

It is recommended that users develop a programme to review all filter separator vessels and progress the introduction of 5<sup>th</sup> 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 5<sup>th</sup> edition elements.

## **4. Interchangeability of 5<sup>th</sup> Edition Elements & Differences to 3<sup>rd</sup> 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 5<sup>th</sup> edition elements it is possible that the maximum achievable flow rate for a given vessel and element combination may differ from the 3<sup>rd</sup> 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 3<sup>rd</sup> or 5<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> edition should be modified or replaced by vessels that meet 5<sup>th</sup> edition API/IP 1581 as soon as practicable.

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