

2020 AFPM **SUMMIT**

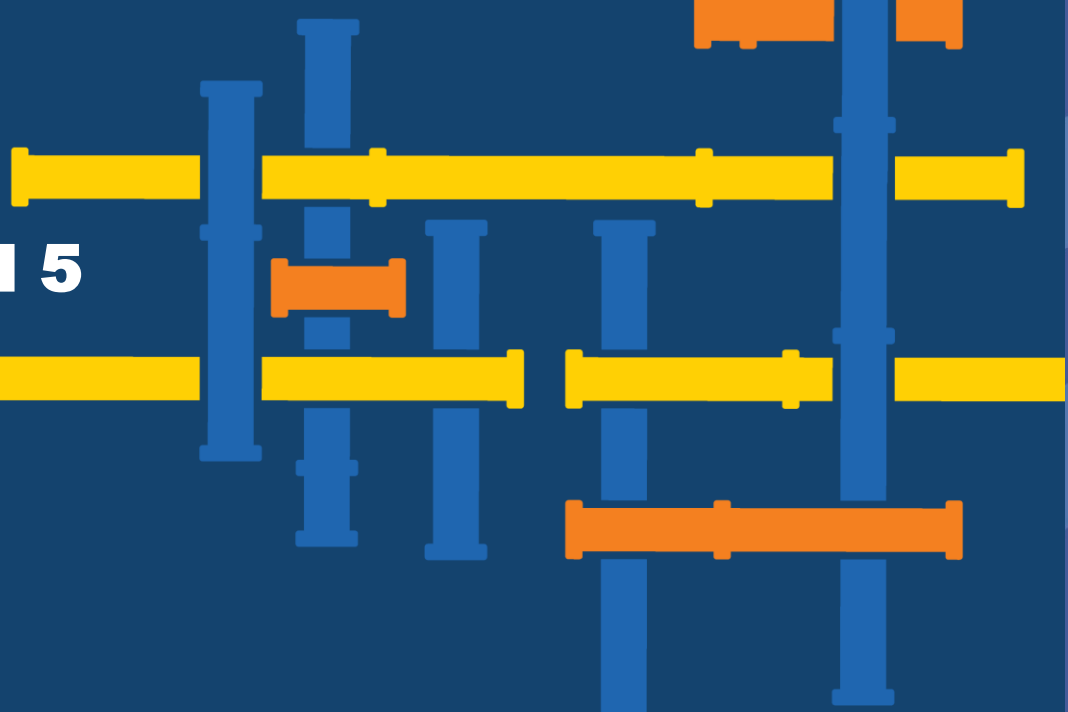
Excellence in Plant Performance

AFPM WEBINAR SERIES:

API RP - 751 REVISION 5

UPDATE

JUNE 25, 2020



WHAT IS THE AFPM WEBINAR SERIES?

- AFPM has been doing various webinars for years, primarily safety related topics
- As we continue developing The Summit, Excellence in Plant Performance, there will be more opportunity for member engagement
- Next Webinar:
July 22 – Digital Transformation by Bruce Taylor, Sinclair Oil Corporation
- Previous Summit Webinars are Available on the AFPM Summit Website
February - Safeguarding the FCCU during Transient Operations
March - Shutdown Best Practices for Reactor Systems
April - Reboiler Circuits For Trayed Columns
May – Learning Teams Part 1 & 2

WEBINARS ARE INTERACTIVE

- Urge viewers and listeners to ask questions in chat while the webinar is 'live'
- Will answer questions after the presentation
- Webinar is being recorded and will be available for review online later by using AFPM login credentials
- People asking questions will be identified by first name only.
- When asking questions, please use first name only.
 - All attendees will be automatically muted at the beginning of the session

PRESENTER



TIMOTHY SHEPPERD
HF Alkylation Subject Matter Expert
Becht Director Business Development

Tim Shepperd, formerly VP Technology & Consulting for HF Alkylation Consultants, has joined the Becht team. With over 30 years of experience in refining and technology licensing working for ConocoPhillips and UOP Tim has traveled the world assisting clients as an SME for this unique process. Tim now supports Becht's business development by serving our global clients refining and petrochemical needs

Becht's Vice President of Business Development, John Basil, Jr., commented "We welcome Tim's Subject Matter Expertise, his experience working with and leading SME and client teams, and his rapport with people. Tim is a great fit for our culture and growing organization."

Becht is a family owned consulting firm specializing in Subject Matter Expert engineering consulting, plant professional services and software tools focusing on the refining and petrochemical industries. Our firm is staffed by engineers and technicians with significant owner/operator expertise, we average well over 30 years' experience, and specialize in solving multi-discipline problems. Becht acts as the Central Engineering organization for many of our clients who require subject matter expertise and knowledge of best practices.



BECHT

Good. Better. Becht.™

API RP -751 Revision Update

June 25th AFPM

Tim Shepperd – Becht Director Business Development

ENGINEERING SOLUTIONS | PLANT SERVICES | SOFTWARE TOOLS

Overview

6 Section Leads with Rick Vice of Marathon as the chairman

- Current status of the API RP 751 5th edition document revision
- Overall Document structure revisions
- Section key changes
- Changes to the number of “Shalls” and “Shoulds”
- Likely impact on future 751 Audits from version 4 to version 5
- Questions
- Overview of HF Alky Regional Networks

API RP 751 5th edition revision status

- The document revision review was initiated in early 2018 and has been ongoing with many review meetings by experienced HF industry representatives
- Currently in the “Ballot/Comment Period” that will be followed by the “Ballot/Comment Resolution” of the draft before the official “Voting” ballot of the document.
- The “Ballot/Comment Only” helps to identify any major or controversial issues.
- The idea is to resolve those issues prior to proceeding to the official ballot, thus making the official “Voting” ballot more efficient.
- The committee majority voted this past spring to reaffirm the existing rev 4 to extend the timeframe to complete rev 5
- The 5th edition should be issued early in 2021.

Overall document structure revisions

- The document revisions include renumbering and renaming some of the original 6 sections.
- The new sections designations are:
 - **1 Scope**
 - **2 Normative References**
 - **3 Terms and Definitions**
 - **4 Hazards Management ([Previous section 1](#))**
 - **5 Operating Procedures and Worker Protection ([Previous section 2](#))**
 - **6 Materials, Construction, Inspection, and Work Practices ([Previous section 3](#))**
 - **7 Transportation and Inventory Control ([Previous section 4](#))**
 - **8 Pressure Relief, Product Treatment, and Utility Systems([Previous section 5](#))**
 - **9 Risk Mitigation—Options and Techniques ([Previous section 6](#))**

Overall document structure revisions

- **The document revisions include changes to the 8 Annex's as well**
- **Some of the new proposed informative ANNEX sections are**
 - **ANNEX A HF specific PHA guidance document**
 - **ANNEX B An Approach for Toxic Refuge Facility Siting**
 - **ANNEX F An approach for HF leak Tracking and Management**

Section key changes

Section 4 - Hazards Management

- Increased emphasis on ensuring that proper review of key risks on the unit are reviewed during the 5 year PHA
- Requirements to include the proper experienced disciplines as team members for the PHA review process
- More detail for guidance in defining “Toxic Refuge” shelters for personnel during an HF release event (**New Annex B includes more detail**)

Section key changes

Section 5 - Operating Procedures and Worker Protection

- Critical limits **shall** be set to prevent any operation that would constitute harm to equipment integrity, safety, or the environment
- When work is performed that requires traditional Class C or D PPE (OSHA Level B or A) as described in 2.6.2, standby personnel **shall be present, equipped with equivalent PPE**, to assist the work party with egress from the work area for non-emergency situations. **(previous wording was “appropriate” ppe)**
- Procedures **shall** provide criteria for removing the PPE from service if the results of the inspection and testing demonstrate failure of that equipment.
- The method for testing gloves **shall** be pressuring with air and immersing in water.
- On an annual basis, individual sites shall communicate and discuss preparedness with the local medical facility equipped to treat HF exposure

Section key changes

Section 6 - Materials, Construction, Inspection, and Work Practices

- There are many significant changes to this section per the proposed draft that include many new shalls and shoulds.
- Significant content and definitions added for corrosion mechanisms.
- Example diagram defining the specific corrosion zones and mechanisms added for aid on key corrosion zones.
- Significant revision of Materials Verification Program including Positive Material Identification (PMI) **shall** include chemical analysis (Residual Elements) at the point of installation.
- Implementation of an inspection program with a focus on individual components in carbon steel piping **shall** be prioritized by Corrosion Zone and **shall** be completed in all HF Corrosion Zones identified in Annex G.
- Due to their silicon content, gauge and ratio glasses **shall** not be used in either HF services or normally non-HF services that can be exposed to HF were an upset to occur. **i.e. fractionator bottoms.**
- Unit inspectors and unit mechanical integrity support personnel **shall** be knowledgeable on Section 6 and Annex G of this document (RP 751).
- Critical check valves in HF service piping systems **shall** be identified, inspected, and maintained in accordance with API 570 and 574.

Section key changes

Section 7 - Transportation and Inventory Control

- The emergency stop system for the refinery that controls the actuated product and nitrogen valves **should** have the capability to connect to the transport containers emergency shut off system.
- The unloading system, including any hoses, flanges, gaskets, valves, and other equipment for HF, **shall** be visually inspected and tested for leaks prior to each use.
- The remotely activated valves **shall** have an emergency stop system linked to them so the valves (HF and nitrogen) can be closed in an emergency from a remote area.

Section key changes

Section 8 - Pressure Relief, Product Treatment, and Utility Systems

- A safety instrumented system to stop flow to the treaters upon indications of significant HF entering **shall** be installed.
- For sites designed to operate with propane alumina treaters, operation of the alkali treaters on the propane system **shall** not be allowed without at least one active alumina treater in operation
- If condensate from exchangers in HF service is used outside of the unit boundary, on-stream pH, conductivity, fluoride ion, or other monitors **shall** be installed in the condensate system to provide an early indication of HF leakage and prevent exposure to those outside of the alky unit.
- Breathing air moved to section 5 (**Operating Procedures and Worker Protection**)

Section key changes

Section 9 - Risk Mitigation—Options and Techniques

- Response time is critical in any HF release scenario, therefore procedures **shall** be in place or facilities installed to rapidly start the mitigation system(s) upon detection of HF releases of consequence.
- The response time **shall** be consistent with the criteria used in the quantitative assessment.
- Operations **shall** perform drills on the operating procedures for manually-activated mitigation systems at a frequency sufficient to ensure they will meet the response time criteria.
- Acid indicating paint **shall** be applied to all components as listed in section 6.5.5. prior to introduction of HF acid into the equipment.

Changes to the number of “Shalls” and “Shoulds”

- API RP 751 4th Edition
 - 620 Shoulds
 - 154 Shalls

- API RP 751 5th addition proposes
 - (These are approximate numbers as per the current draft)
 - 570 Shoulds
 - 390 Shalls
 - *One item to note not fully illustrated here is that there are many Shoulds that were changed to Shalls along with many new should recommendations.

Likely impact on future Audits from version 4 to version 5

- The changes to the 5th edition of API RP 751 will have an impact as the industry transitions from audits conducted under the current 4th edition.
- The notable increase in the number of “Shalls” and “Shoulds” may potentially challenge some sites implementation of these into practice.
- Audit protocols will need to be rewritten and adapted for the new revision.
- Many have asked about the potential changes ahead of currently scheduled audits

Questions and Contact Information

Please use the chat function or raise your hand to verbally to ask questions.

Website

www.becht.com

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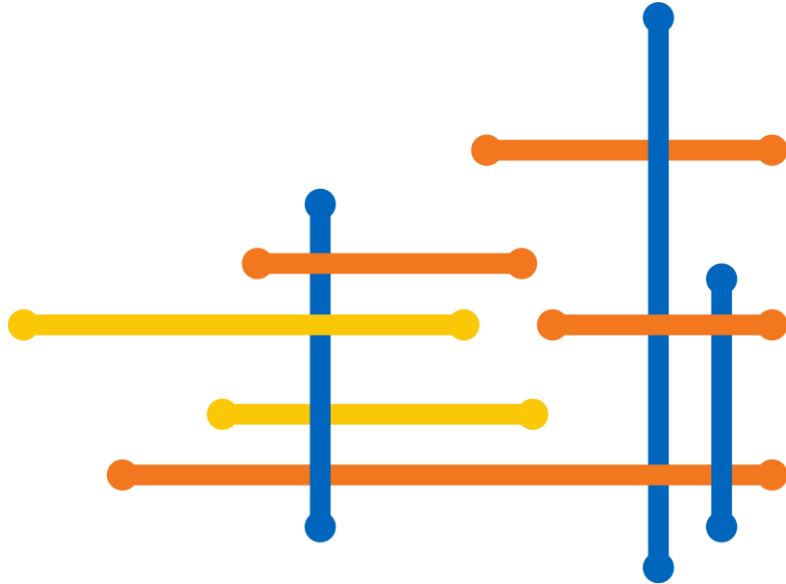
Email

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HF ALKY REGIONAL NETWORKS

- **Background**
 - There are a variety of industry led activities related to HF; RP 751, Annual HF Forum – mainly geared towards the technology SMEs.
 - Based on success of the process and occupational safety regional networks, the HF Alky Network will be geared towards the HF Alky practitioner at operating companies
- **Goal**
 - Provide the opportunity of HF Alky front line supervisors and operators to share safe practices and address common challenges in a roundtable format.
- **Current Timeline – Virtual Meetings**
 - Early August – Pilot Network Meeting
 - Encourage Attendance at The Summit – HF Alky Topics
 - Fall – Kick off formal Network Meeting
- **For more information**
 - Please contact Alyse Keller at akeller@afpm.org





2020 AFPM **SUMMIT**

Excellence in Plant Performance

August 25-27, 2020

www.afpm.org/2020Summit



Collaboration &
Knowledge Share



Timely Topics &
Tangible Takeaways



Networking &
Peer Engagement



More & New
Technology

SUMMIT TOPICS

August 25 – Day 1

Leverage Emerging Technology for Improved Plant Performance and Efficiency

- Wireless Handheld Devices
- Public Policy Driving Technology
- Leveraging Technology for Knowledge Management
- Return on Investment with Refining and Petrochemical Data

Topics with Industry Wide Implications

- Fostering Profitability - Panel Discussion
- Turnaround Planning and Execution - Roundtable
- Utilizing Refinery Data – Solutions via Case Studies
- Emerging Leaders
- Future of Refining
- New Ideas for Turnaround Safety - Roundtable
- Human Organizational Performance (HOP)
- Contractor Onboarding for Turnarounds
- Workforce Development and Retention

August 26 and 27 – Day 2 and 3

Crude, Coking

- Town Hall featuring HSFO processing, Crude Compatibility, T/A and Reliability
- Monitoring and Improving Equipment Operations
- Coking and Crude Troubleshooting and Lessons Learned
- Unit Optimization
- FAQs – dive into hold-over topics from prior days

Gasoline Processing

- Lessons Learned PES Incident
- HF Alkylation Risk Management
- Town Hall featuring:
 - Corrosion in Alky Units (Poll)
 - Light Naphtha Balance Issues
 - Issues with Higher Utilization of Reformers (with higher octane demand)
 - Current Challenges with Gasoline Blending
 - Chloride Management Issues around Reformer/Isom
 - Unique challenges around Preparation for TA of Gasoline Units with recent regulation updates
- Benzene in Gasoline
- Reformer Reliability Issues
- Molecular Management around Gasoline Units
- Increased Octane Demand – Investment Strategy for the Future
- FAQs – dive into hold-over topics from prior days

SUMMIT TOPICS CONT.

Hydroprocessing

- Emptying Your Reactor – A Primer
- Effective Catalyst Selection Strategies
- Regulatory Compliance: Perception vs Reality
- Turnaround Scope Development for Dummies
- The How and Why of Hydroprocessing Safety Systems
- Driving Hydrocracker Profitability without Capital Investment
- FAQs – dive into hold-over topics from prior days

FCC

- Key Equipment Fundamentals and Maintenance
- Spent Catalyst Unloading Equipment Reliability
- Optimization at Reduced Rates
- Pressure Balance Fundamentals
- Refinery of the Future – Case study with Gulf Coast Economics
- Refractory Reliability
Failure Mechanisms, New Technology and Best Practices

Technical Breakouts

- Integrating Operating Windows and Corrosions Control Documents
Roundtable and Case Study on Integrity
- Flange Assemble Breakout
- Drones for Inspection Strategies
- Corrosion Control Case Studies, Inspection and Technology
- Risk Based Inspection
- Reliability Roundtable
- How to get the most Tool Time
- Asset Strategy Optimization
- Turnaround Scope
- Rope Access Repairs Roundtable
- Tank Maintenance and Cleaning

**THANK YOU FOR YOUR
PARTICIPATION**

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