Standards Resource & Research Request (SR³) Form
Pipeline Standards

Document Information

<table>
<thead>
<tr>
<th>Standard Designation:</th>
<th>RP 1170</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Design and Operation of Solution-Mined Salt Caverns Used for Natural Gas Storage</td>
</tr>
<tr>
<td>Edition:</td>
<td>2</td>
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</table>

Policy Committee/Group (check all that apply if a joint project)
- COPS
- Cybernetics
- Emergency Response
- Gathering Lines
- PET
- PLIG
- Public Awareness Group
- Operator Qualification
- COG
- Underground Storage

Priority Matrix Ranking: (to be completed by API)
- Priority 1 (Rank 10-15)
- Priority 2 (Rank 7-9)
- Priority 3 (Rank ≤6)

Proposed Action:
- New Standard
- Revise Current Standard
- Withdraw Current Standard
- Research Only

Proposed Funding Type:
- Budget Request
- Special Solicitation

Total Funding Request (Parts A & B): $ 0

Name ofSubmitter(s): John Buflod

Date: 18 June 2020

Part A – Resource Plan

I. Background and Information:

1. Explain the business need for the proposed action. Indicate potential cost savings to industry where possible.

API RPs 1170 & 1171 were published in 2015. Both have received 2-year extensions. Both documents were incorporated into PHMSA regulations in 2016 and are the basis for inspections at a Federal and state level. In the last 5 years, they have been adopted widely by operators.

RP 1170 and 1171 were developed largely independently. As a result, there are some deviations between the two, including 1170 being more prescriptive and lacking the risk management section which appears in 1171. We are hoping to harmonize the content of the two documents, but at this time, there is no impetus to merge the two documents. We do not intend to overhaul either document, but make minor updates to the text based on learnings from the past 5 years, with the above-exception of the inclusion of a risk-management section in RP 1170.

The objective is to complete drafting by the EOY 2021, with balloting, comment review, and publication to take place in 2022.
2. **What is the scope of the standard?**

This recommended practice (RP) provides the functional recommendations for salt cavern facilities used for natural gas storage service and covers facility geomechanical assessments, cavern well design and drilling, solution mining techniques and operations, including monitoring and maintenance practices. This RP is based on the accumulated knowledge and experience of geologists, engineers, and other personnel in the petroleum and gas storage industries and promotes public safety by providing a comprehensive set of design guidelines. This RP recognizes the nature of subsurface geological diversity and stresses the need for in-depth, site specific geomechanical assessments with a goal of long-term facility integrity and safety.

This RP includes the cavern well system (wellhead, wellbore, and cavern) from the emergency shutdown (ESD) valve down to the cavern and facilities having significant impact to safety and integrity of the cavern system.

This RP may be applied to existing facilities at the discretion of the user.

This RP does not apply to caverns used for the storage of liquid or liquefied petroleum products, brine production, or waste disposal; nor to caverns which are mechanically mined, or depleted hydrocarbon or aquifer underground gas storage systems.

3. **Is this standard on the work program of another standards development organization (SDO)?**

| Yes | No | X |

If yes, specify SDO and standard designation/project title/contact

If yes, is the work being coordinated with the appropriate group? Are there special circumstances that would justify independent API initiation of the proposed action?

4. **Are a volunteer chair and group of experts available to perform the proposed action?**

Please include names and company affiliation and indicate chair, if available.

Yes. We have volunteer co-chairs Anders Johnson; Kinder Morgan & Charlie McConnell; Southern Star Energy.

Additionally, we’ve been working with an ad hoc group to scope the revision, including:

Scott Rouze; Enbridge
Garret Word; TC Energy
Matthew Rowan; DTE Energy
John Love; Dominion Energy
Larry Kennedy; PGE
Tim Habovick; TC Energy
Daniel Noack; PNG

We are planning to build out the team once the document is approved for revision.

5. **Is there a need to commit resources to supplement the development of the draft? Would a paid content specialist accelerate progress on the development/revision? Is there a readily available content specialist?**

No.
6. Are there special format requirements for final document, i.e. knowledge of ISO template required, significant graphics, photos or equations) required that would need extraordinary resources?

Yes ☐ No ☒

If Yes, please provide details:

7. Please provide any other information that is pertinent to the proposed action.

The task group developing this document will be simultaneously developing RP 1171, 2nd Edition to ensure that both documents are harmonized.

8. What are the implications of not initiating the proposed action? Include potential safety, reliability, environmental and financial impacts that may arise.

These documents have been incorporated into federal regulation, and there is a desire to incorporate learnings from the last 5 years. Additionally, the lack of a risk management section in RP 1170 is challenging for some operators.

9. Is there research proposed to accomplish the proposed action?

Yes ☐ No ☒

If yes, complete Part B of this form.

II. Project Timing

<table>
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<tr>
<th>Proposed start date:</th>
<th>Summer 2020</th>
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PART B – Research Plan

I. Background and Information

1. Proposed Research Title:

2. Proposed Project Scope:

3. Research Amount:

$ __________________________

4. What is the business need for the proposed research?

5. Is the proposed research edition-specific for a single standard or will it result in technology enhancement for multiple standards?

Yes ☐ No ☒

If multiple standards, please cite the standards effected:

6. Research Timing:

☐ Research is necessary prior to scheduled revision.

☐ Research can be done concurrent with revision.
7. How does the research support the proposed action identified in Part A?

8. Is a joint industry project (JIP) a possibility?
   - Yes
   - No
   If Yes, with whom?

9. Are there opportunities for leveraged research with other organizations?
   - Yes
   - No
   What organizations?

10. What are the implications of not performing the proposed research?

II. Dates and Funding:

<table>
<thead>
<tr>
<th>Estimated Completion Date</th>
<th>Prior Research Funding Requested</th>
<th>Anticipated Future Research Funding Needs</th>
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<td>$ Year 2: $ $ Year 3: $ $ Year 4: $</td>
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PART C – Proposal Feedback/Approval Information

Policy Group comments to Proposer/WG:

Date approved by Policy Group: 22 June 2020

COPS Comments to Proposer/WG

Date approved by COPS:

Date entered into API Publications DB:
Standards Resource & Research Request (SR³) Form
Pipeline Standards

File Name:  
SR3_RP1171_2Ed_June2020

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<td>Title:</td>
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Proposed Action:

- New Standard
- Revise Current Standard

Proposed Funding Type:

- Budget Request
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Total Funding Request (Parts A & B): $ 0

Name of Submitter(s): John Buflod

Date: 18 June 2020

Part A – Resource Plan

I. Background and Information:

1. Explain the business need for the proposed action. Indicate potential cost savings to industry where possible.

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2. What is the scope of the standard?

This recommended practice (RP) applies to natural gas storage in depleted oil and gas reservoirs and aquifer reservoirs, and focuses on storage well, reservoir, and fluid management for functional integrity in design, construction, operation, monitoring, maintenance, and documentation practices. The scope does not include pipelines, gas conditioning and liquid handling, compressors, and ancillary facilities associated with storage. Storage design, construction, operation, and maintenance include activities in risk management, site security, safety, emergency preparedness, and procedural documentation and training to embed human and organizational competence in the management of storage facilities. This RP embodies historical knowledge and experience and emphasizes the need for case-by-case and site-specific conditional assessments.

This RP applies to both existing and newly constructed facilities. However, Sections 5 and 7 apply exclusively to new facilities and facilities undergoing expansion, and Section 6 applies to new well construction and remediation of a new or existing well. Figure 1 provides a chart showing the flow of functional integrity assurance activities through the design, operation, and maintenance of storage facilities, with references to the sections within this RP containing guidance for those activities. Applicable distinctions for aquifer facilities are identified within each section as necessary. “Replacement,” as used in this document, refers to the complete replacement of a facility unit, as, for example, when an existing well is abandoned and replaced with a new well. This document recommends that operators manage integrity through monitoring, maintenance, and remediation practices and apply specific integrity assessments on a case-by-case basis.

The contents of this RP are not all inclusive or intended to replace the utilization of detailed information and procedures found in textbooks, manuals, technical papers, or other documents.

3. Is this standard on the work program of another standards development organization (SDO)?

Yes [ ] No [x]

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| Date approved by Policy Group: | 22 June 2020 |
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| Date approved by COPS: | |
| Date entered into API Publications DB: | |