Underground Natural Gas Storage - Rule and FAQs

1. Deviations from 192.12 Requirements *What are the procedures for deviating from required provisions of the applicable API RPs?* (UNGS.RULE.192DEVIATIONS.P) 192.12(f)

2. Deviations from 192.12 Requirements *Do records support any deviations from the required provisions of the applicable API RP?* (UNGS.RULE.192DEVIATIONS.R) 192.12(f)

3. Deviations from 192.12 Requirements - Retention *What is the established record retention period for deviations?* (UNGS.RULE.192DEVIATIONSRETAIN.R) 192.12(f)

4. FAQ 22 - Safety Risk Analysis and Assessment *What is the timeline for conducting and completing the safety risk analyses and risk assessments for each storage facility and all related wells?* (UNGS.RULE.FAQ22TIMELINE.P) 192.12(d) (192.12(b))

5. FAQ 22 - Prioritization Based on Safety Risk Analysis *Are risk assessments for each storage facility and related wells prioritized based on the results of the safety risk analyses?* (UNGS.RULE.FAQ22PRIORITIES.P) 192.12(d) (192.12(b))

6. FAQ 22 - Addressing Safety Concerns Based on Safety Risk Analysis Ranking *Are safety concerns addressed based on the ranking of the safety risk analyses?* (UNGS.RULE.FAQ22RANKING.P) 192.12(d) (192.12(b))

7. FAQ 27 - Drug and Alcohol Testing Program *Is there a Drug and Alcohol testing program in place that meets the requirements of 49 CFR Part 199?* (UNGS.RULE.FAQ27DRUGTEST.P) 199.1

Underground Natural Gas Storage - Reporting

1. Definition of Incident *How does the operator define an incident?* (UNGS.RPT.INCIDENTDEFN.P) 191.15(c) (191.3)

2. Incident Reporting - Immediate *Is there a process to immediately report incidents to the National Response Center?* (UNGS.RPT.IMMEDREPORT.P) 191.5(a) (191.5(b), 191.3)

3. Incident Reporting - Immediate *Do records indicate immediate notifications of incidents were made in accordance with 191.5?* (UNGS.RPT.IMMEDREPORT.R) 191.5(a) (191.5(b);191.3)

4. Incident Reporting - Procedures *What are the procedures in place for reporting a storage facility incident soon as practicable but no later than 30 days after discovery of a reportable incident?* (UNGS.RPT.INCIDENTREPORT.P) 191.15(c) (191.3)

5. Incident Reporting - Procedures *Do records indicate reportable incidents were identified and reports were submitted to DOT on Form 7100.2 within the required time frame?* (UNGS.RPT.INCIDENTREPORT.R) 191.15(c) (191.3)

6. Annual Report *Does the process require submittal of an annual report (Form 7100.4-1) by March 15 for the preceding calendar year?* (UNGS.RPT.ANNUALREPORT.P) 191.17(c)

7. Incident Reporting - Supplemental *What are the procedures in place for preparing and filing supplemental incident reports?* (UNGS.RPT.INCIDENTREPORTSUPP.P) 191.15(d) (191.15(c))

8. Incident Reporting - Supplemental *Do records indicate accurate supplemental incident reports were filed and within the required time frame?* (UNGS.RPT.INCIDENTREPORTSUPP.R) 191.15(d) (191.15(c))

9. Safety-Related Conditions Reporting (SRCR) *Are procedures in place to report a safety-related condition as required by 191.23?* (UNGS.RPT.SRCR.P) 191.23(a) (191.25)

10. Safety-Related Conditions Reporting (SRCR) *Have any Safety-Related Condition Reports been submitted to PHMSA/OPS?* (UNGS.RPT.SRCR.R) 191.23(a) (191.25)

11. Annual Report *Are annual reports retained?* (UNGS.RPT.ANNUALREPORT.R) 191.17(c)

12. National Registry - OPID *Does the process require the obtaining, and appropriate control, of Operator Identification Numbers (OPIDs) for the storage field?* (UNGS.RPT.OPID.P) 191.22(a) (191.22(b))

13. National Registry - Notification of Changes *What is the process in place to notify PHMSA of any changes that fall under 191.22(c) (i.e., construction, conversions, change in entity, or acquisition or divestiture)?* (UNGS.RPT.REGISTRYCHGSNOTIF.P) 191.22(c)

14. National Registry - Notification of Changes *Are records retained for changes, per 191.22(c), that occur to the storage facility?* (UNGS.RPT.REGISTRYCHGSNOTIF.R) 191.22(c)

Underground Natural Gas Storage - Reservoirs - Risk Management for Storage Operations

1. Definition of Risk *How is "risk" defined in the Risk Management Program?* (UNGS.RESRISK.DEFINITION.P) 192.12(d) (API RP1171 Section 8.1)

2. Risk Management Program Requirements *Does the process require the risk management program elements outlined in API RP 1171 Section 8.2?* (UNGS.RESRISK.RISKMGMTPROG.P) 192.12(d) (API RP1171 Section 8.2)

3. Risk Management Program Requirements *Do records demonstrate that the required elements from API RP 1171 Section 8.2 were included in the development of the risk management program?* (UNGS.RESRISK.RISKMGMTPROG.R) 192.12(d) (API RP1171 Section 8.2)

4. Data Sources and Collection *Does the process require that information be collected and used to determine susceptibility to threats and hazard-related events?* (UNGS.RESRISK.DATASOURCES.P) 192.12(d) (API RP1171 Section 8.3.2)

5. Data Sources and Collection *Do records demonstrate that appropriate data was collected and used to determine susceptibility to threats and hazard-related events?* (UNGS.RESRISK.DATASOURCES.R) 192.12(d) (API RP1171 Section 8.3.2)

6. Data Sources and Collection *Are there observable field conditions related to data collection/sources and their accuracy?* (UNGS.RESRISK.DATASOURCES.O) 192.12(d) (API RP1171 Section 8.3.2)

7. Threat and Hazard Interaction *Does the process require that information be collected and used to assess threat and hazard interaction?* (UNGS.RESRISK.THREATINTERACT.P) 192.12(d) (API RP1171 Section 8.3.2)

8. Threat and Hazard Interaction *Do records demonstrate that appropriate data is used to assess threat and hazard interaction?* (UNGS.RESRISK.THREATINTERACT.R) 192.12(d) (API RP1171 Section 8.3.2)

9. Exclusion of Hazards and Threat Events *Does the process include provisions for the exclusion of specific hazards or threats events?* (UNGS.RESRISK.THREATEXCLUDE.P) 192.12(d) (API RP1171 Section 8.4.1)

10. Exclusion of Hazards and Threat Events *Do records demonstrate that the process was followed for the exclusion of specific hazards and threat events?* (UNGS.RESRISK.THREATEXCLUDE.R) 192.12(d) (API RP1171 Section 8.4.1)

11. Exclusion of Hazards and Threat Events - Interactions *Does the process include provisions for the exclusion of specific hazards or threats interactions?* (UNGS.RESRISK.EXCLUDEINTERACT.P) 192.12(d) (API RP1171 Section 8.4.1;API RP1171 Section 8.3.2)

12. Exclusion of Hazards and Threat Events - Interactions *Do records demonstrate that the process was followed for the exclusion of specific hazards and threat interactions?* (UNGS.RESRISK.EXCLUDEINTERACT.R) 192.12(d) (API RP1171 Section 8.4.1;API RP1171 Section 8.3.2)

13. Evaluation of Hazards and Threats *Does the process require evaluation for potential threats and hazards impacting storage wells and reservoirs?* (UNGS.RESRISK.THREATEVAL.P) 192.12(d) (API RP1171 Section 8.4.2)

14. Evaluation of Hazards and Threats *Do records demonstrate that potential threats and hazards impacting storage wells and reservoir were adequately evaluated? (UNGS.RESRISK.THREATEVAL.R) 192.12(d) (API RP1171 Section 8.4.1)*

15. Risk Assessment - Consistent Process *Does the process assess risk in a consistent manner and with a consistent methodology? (UNGS.RESRISK.RISKASSESS.P) 192.12(d) (API RP1171 Section 8.5.2)*

16. Risk Assessment - Consistent Process *Do the records demonstrate that the risk assessment was done in a consistent manner and with a consistent methodology? (UNGS.RESRISK.RISKASSESS.R) 192.12(d) (API RP1171 Section 8.5.2)*

17. Risk Assessment Results Review *Does the process require review of the risk assessment results to determine whether the risk assessment, resulting prioritization, or ranking represents its facilities and characterizes the risks? (UNGS.RESRISK.RISKASSESSRESULT.P) 192.12(d) (API RP1171 Section 8.5.2)*

18. Risk Assessment Results Review *Do the records demonstrate that the results of the risk assessment were reviewed to determine whether the risk assessment, resulting prioritization, or ranking represents its facilities and characterizes the risks? (UNGS.RESRISK.RISKASSESSRESULT.R) 192.12(d) (API RP1171 Section 8.5.2)*

19. Preventive and Mitigative Measures *Does the process require identification and implementation of preventive and mitigative measures to manage risks? (UNGS.RESRISK.PREVMITIGMETHOD.P) 192.12(d) (API RP1171 Section 8.6.2)*

20. Preventive and Mitigative Measures *Do records demonstrate how the preventative and mitigative measures were identified and implemented to reduce risk? (UNGS.RESRISK.PREVMITIGMETHOD.R) 192.12(d) (API RP1171 Section 8.6.2)*

21. Risk Reassessment and Periodic Review *Does the process maintain a continual review and improvement cycle in risk management to provide functional integrity of the storage operation? (UNGS.RESRISK.REASSESSRVW.P) 192.12(d) (API RP1171 Section 8.7.1)*

22. Risk Reassessment and Periodic Review *Do records demonstrate that a continual review and improvement cycle in risk management is maintained to provide function integrity to the storage operations? (UNGS.RESRISK.REASSESSRVW.R) 192.12(d) (API RP1171 Section 8.7.1)*

23. Risk Management Effectiveness Review *Does the process require assessment of the effectiveness of risk monitoring and risk management programs?* (UNGS.RESRISK.RISKMGMTEFFECTIVE.P) 192.12(d) (API RP1171 Section 8.7.1)

24. Risk Management Effectiveness Review *Do records demonstrate how the effectiveness of the risk monitoring and risk management is assessed?* (UNGS.RESRISK.RISKMGMTEFFECTIVE.R) 192.12(d) (API RP1171 Section 8.7.1)

25. Risk Assessment Review Frequency *Does the process define a review frequency for the risk assessment?* (UNGS.RESRISK.RISKASSESSFREQ.P) 192.12(d) (API RP1171 Section 8.7.2)

26. Risk Assessment Review Frequency *Do records demonstrate that the operator performed a risk assessment review and update in accordance with a defined frequency?* (UNGS.RESRISK.RISKASSESSFREQ.R) 192.12(d) (API RP1171 Section 8.7.2)

27. Risk Assessment Review and Update Process *Does the process outline how the risk assessment is reviewed and updated?* (UNGS.RESRISK.RISKASSESSUPD.P) 192.12(d) (API RP1171 Section 8.7.2)

28. Risk Assessment Review and Update Process *Do records demonstrate that the operator performed the risk assessment review and update in accordance with the defined process or procedure?* (UNGS.RESRISK.RISKASSESSUPD.R) 192.12(d) (API RP1171 Section 8.7.2)

29. Identifying New Threats and Hazards *If new threats or hazards are identified, or the impact of threats or hazards changes markedly, does the process assess the risk associated with the new conditions and evaluate and prioritize risk management options in accordance with the risk assessment?* (UNGS.RESRISK.NEWTHREATS.P) 192.12(d) (API RP1171 Section 8.7.3)

30. Identifying New Threats and Hazards *Do the records detail the identification of new threats or hazards and how they were evaluated and prioritized in the risk assessment as a result?* (UNGS.RESRISK.NEWTHREATS.R) 192.12(d) (API RP1171 Section 8.7.3)

31. Risk Management Records Retention *Does the process include a risk management record retention schedule?* (UNGS.RESRISK.RISKRECORDS.P) 192.12(d) (API RP1171 Section 8.8)

32. Risk Management Records Retention *Do records document that the retention schedule was satisfied?*
(UNGS.RESRISK.RISKRECORDS.R) 192.12(d) (API RP1171 Section 8.8)

33. Records Management Plan *Does the process require a records management plan?*
(UNGS.RESRISK.RECORDSMGMT.P) 192.12(d) (API RP1171 Section 8.8)

34. Records Management Plan *Do records demonstrate that the records management plan is being followed?*
(UNGS.RESRISK.RECORDSMGMT.R) 192.12(d) (API RP1171 Section 8.8)

Underground Natural Gas Storage - Reservoirs - Integrity Monitoring

1. Integrity Maintenance - Storage Wells *Do the processes and procedures ensure the ongoing functional integrity of storage wells in accordance with API RP1171, Sections 9.2 and 11.2.1?* (UNGS.RESINTEG.INTEGWELLS.P) 192.12(d) (API RP1171 Section 9.2.1;API RP1171 Section 11.2.1)

2. Integrity Maintenance - Storage Wells *Do the records demonstrate that integrity demonstration, integrity verification and monitoring practices are used to maintain ongoing functional integrity of the storage wells?*
(UNGS.RESINTEG.INTEGWELLS.R) 192.12(d) (API RP1171 Section 9.2.1)

3. Integrity Maintenance - Reservoirs *Do the processes and procedures ensure the ongoing functional integrity of reservoirs in accordance with API RP1171, Sections 9.2 and 11.2.1?* (UNGS.RESINTEG.INTEGRESERVOIRS.P) 192.12(d) (API RP1171 Section 9.2.1)

4. Integrity Maintenance - Reservoirs *Do the records demonstrate that integrity demonstration, integrity verification and monitoring practices are used to maintain ongoing functional integrity of the reservoir(s)?*
(UNGS.RESINTEG.INTEGRESERVOIRS.R) 192.12(d) (API RP1171 Section 9.2.1)

5. Integrity Maintenance - Overall *Are there any integrity maintenance activities (i.e. O&M work, well workovers, well-logging, or any integrity verification or monitoring activities) that can be observed during the inspection?* (UNGS.RESINTEG.INTEGOVERALL.O) 192.12(d) (API RP1171 Section 9.2.1)

6. Integrity Maintenance - Site Specific *Do the integrity processes and procedures account for site specific characteristics of the reservoir and wells (API RP1171, Section 9.2.1)?* (UNGS.RESINTEG.INTEGSITESPEC.P) 192.12(d) (API RP1171 Section 9.2.1)

7. Integrity Maintenance - Site Specific *Do records demonstrate that integrity-related site-specific characteristics of the reservoir and wells have been accounted for?* (UNGS.RESINTEG.INTEGSITESPEC.R) 192.12(d) (API RP1171 Section 9.2.1)

8. Risk-Based Evaluation *Does the process use a risk-based approach for developing the integrity demonstration, verification, and monitoring tasks?* (UNGS.RESINTEG.RISKBASEDEVAL.P) 192.12(d) (API RP1171 Section 9.2.2)

9. Risk-Based Evaluation *Do records demonstrate that a risk-based approach was used as the basis for developing the integrity demonstration, verification, and monitoring tasks?* (UNGS.RESINTEG.RISKBASEDEVAL.R) 192.12(d) (API RP1171 Section 9.2.2)

10. Risk-Based Integrity Activities Frequency *Does the process use risk assessments to determine the frequency requirements for integrity demonstration, verification, and monitoring tasks or activities?* (UNGS.RESINTEG.RISKBASEDFREQ.P) 192.12(d) (API RP1171 Section 9.2.2)

11. Risk-Based Integrity Activities Frequency *Do records demonstrate that risk assessments were used to determine the frequency requirements for integrity demonstration, verification and monitoring tasks?* (UNGS.RESINTEG.RISKBASEDFREQ.R) 192.12(d) (API RP1171 Section 9.2.2)

12. Well Integrity Evaluation *Does the process describe how the mechanical integrity of each well that penetrates the storage reservoir and buffer zone or areas influenced by storage operations, including third-party wells, is evaluated?* (UNGS.RESINTEG.WELLINTEGEVAL.P) 192.12(d) (API RP1171 Section 9.3.1)

13. Well Integrity Evaluation *Do records demonstrate the process of evaluating the mechanical integrity of each well that penetrates the storage reservoir and buffer zone or areas influenced by storage operations, including third party wells?* (UNGS.RESINTEG.WELLINTEGEVAL.R) 192.12(d) (API RP1171 Section 9.3.1)

14. Third-Party Well Integrity Data *Does the process detail how, and how frequently, to request well integrity evaluation data from third-party well owner/operators?* (UNGS.RESINTEG.THIRDPARTYWELLS.P) 192.12(d) (API RP1171 Section 9.3.1)

15. Third-Party Well Integrity Data *Do the records demonstrate that well integrity evaluation data from third party well owner/operators were requested, and evaluated, according to the established frequency?* (UNGS.RESINTEG.THIRDPARTYWELLS.R) 192.12(d) (API RP1171 Section 9.3.1)

16. Well Integrity Evaluation Integration into Risk Program *How does the process integrate the well integrity evaluations into the risk management program?* (UNGS.RESINTEG.WELLINTEGRATION.P) 192.12(d) (API RP1171 Section 9.3.1)

17. Well Integrity Evaluation Integration into Risk Program *Do records demonstrate that active well mechanical integrity evaluations included initial and subsequent evaluations as determined using the risk assessment and the information derived from the initial evaluation?* (UNGS.RESINTEG.WELLINTEGRATION.R) 192.12(d) (API RP1171 Section 9.3.1)

18. Well Integrity - Monitoring for Annular Gas *Do the procedures require monitoring for the presence of annular gas by measuring and recording annular pressure and/or annular gas flow on a regular basis?* (UNGS.RESINTEG.WELLANNULAR.P) 192.12(d) (API RP1171 Section 9.3.2)

19. Well Integrity - Monitoring for Annular Gas *Do records demonstrate that the presence of annular gas is monitored according to procedure?* (UNGS.RESINTEG.WELLANNULAR.R) 192.12(d) (API RP1171 Section 9.3.2)

20. Well Integrity - Annular Gas Threshold/Limit *Do the procedures define a threshold or limit for the annular pressure and/or annular gas flow?* (UNGS.RESINTEG.WELLANNULARLIMIT.P) 192.12(d) (API RP1171 Section 9.3.2)

21. Well Integrity - Annular Gas Threshold/Limit *Do records demonstrate that the set threshold or limit for pressure monitoring was not exceeded?* (UNGS.RESINTEG.WELLANNULARLIMIT.R) 192.12(d) (API RP1171 Section 9.3.2)

22. Well Integrity - Annular Gas Threshold/Limit Exceeded *Does the process require that each annular gas occurrence that exceeds operator-defined or regulatory-defined threshold levels be evaluated?* (UNGS.RESINTEG.WELLANNULAREXCEEDED.P) 192.12(d) (API RP1171 Section 9.3.2)

23. Well Integrity - Annular Gas Threshold/Limit Exceeded *Do the records demonstrate that each annular gas occurrence that exceeded operator-defined or regulatory-defined threshold levels was evaluated according to the procedure?* (UNGS.RESINTEG.WELLANNULAREXCEEDED.R) 192.12(d) (API RP1171 Section 9.3.2)

24. Well Integrity - Wellhead Visual Inspection *Does the process require the visual inspection of each wellhead assembly for leaks at least annually?* (UNGS.RESINTEG.WELLVISUALINSPECT.P) 192.12(d) (API RP1171 Section 9.3.2)

25. Well Integrity - Wellhead Visual Inspection *Do the records demonstrate that visual inspections of each wellhead assembly for leaks were conducted in accordance with the procedures?* (UNGS.RESINTEG.WELLVISUALINSPECT.R) 192.12(d) (API RP1171 Section 9.3.2)

26. Well Integrity - Wellhead Valve Testing *Does the procedure describe how to annually test the operation of the master valve and wellhead pipeline isolation valve for proper function and ability to isolate the well?* (UNGS.RESINTEG.WELLHEADVALVETEST.P) 192.12(d) (API RP1171 Section 9.3.2)

27. Well Integrity - Wellhead Valve Testing *Do records demonstrate that the operation of the master valve and wellhead pipeline isolation valve for proper function and ability to isolate the well is being tested according to procedure?* (UNGS.RESINTEG.WELLHEADVALVETEST.R) 192.12(d) (API RP1171 Section 9.3.2)

28. Well Integrity - Wellhead Valve Maintenance *Do the processes and procedures describe the valve maintenance program for maintaining, repairing, and replacing isolation valves?* (UNGS.RESINTEG.WELLHEADVALVEMAINT.P) 192.12(d) (API RP1171 Section 9.3.2)

29. Well Integrity - Wellhead Valve Maintenance *Do records demonstrate that valves are maintained, repaired, or replaced in accordance with the valve maintenance program for isolation valves?* (UNGS.RESINTEG.WELLHEADVALVEMAINT.R) 192.12(d) (API RP1171 Section 9.3.2)

30. Well Integrity - Subsurface Safety Valve Testing *Do procedures explain how surface and subsurface safety valve systems, where installed, are annually function-tested in accordance with manufacturer's specifications and the operator's procedures?* (UNGS.RESINTEG.WELLSSSVTEST.P) 192.12(d) (API RP1171 Section 9.3.2)

31. Well Integrity - Subsurface Safety Valve Testing *Do records demonstrate that surface and subsurface safety valve systems, where installed, are function-tested at least annually and according to procedure?* (UNGS.RESINTEG.WELLSSSVTEST.R) 192.12(d) (API RP1171 Section 9.3.2)

32. Well Integrity - Closed Well Safety Valve *Do the procedures for a closed storage well safety valve require that it must be manually reopened at the site and not done so remotely?* (UNGS.RESINTEG.CLOSEDSAFETYVALVE.P) 192.12(d) (API RP1171 Section 9.3.2)

33. Well Integrity - Closed Well Safety Valve *Do records demonstrate that a closed storage well safety valve was manually reopened and not done so remotely?* (UNGS.RESINTEG.CLOSEDSAFETYVALVE.R) 192.12(d) (API RP1171 Section 9.3.2)

34. Well Integrity - All Observations *Were observed well integrity activities performed adequately and in accordance with established processes? (Reference API RP1171, Section 9)* (UNGS.RESINTEG.WELLINTEGRITY.O) 192.12(d) (API RP1171 Section 9)

35. Well Integrity - Recordkeeping *Do the procedures require that all integrity-related inspections, tests, patrols and analyses be documented?* (UNGS.RESINTEG.RECORDS.P) 192.12(d) (API RP1171 Section 9.8.1)

36. Well Integrity - Recordkeeping *Do records demonstrate that all integrity-related inspections, tests, patrols, and analyses are documented according to procedure?* (UNGS.RESINTEG.RECORDS.R) 192.12(d) (API RP1171 Section 9.8.1)

37. Well Integrity - Record Retention *Do the process and procedures require that the retention period for storage inventory assessments be the "life of the facility"?* (UNGS.RESINTEG.RECORDRETAIN.P) 192.12(d) (API RP1171 Section 9.8.2;API RP1171 Section 9.5)

38. Well Integrity - Record Retention *Do records demonstrate that storage inventory assessments are being retained for the life of the facility?* (UNGS.RESINTEG.RECORDRETAIN.R) 192.12(d) (API RP1171 Section 9.8.2)

39. Well Integrity - Record Retention *Were records retained as required?* (UNGS.RESINTEG.RECORDRETAIN.O) 192.12(d) (API RP1171 Section 9.8.2)

Underground Natural Gas Storage - Reservoirs - Site Security & Safety

1. Site Security and Safety - Measures *Is there a process or procedure that describes what security and safety measures are required for each well site?* (UNGS.RESSITE.SECURITY.P) 192.12(d) (API RP1171 Section 10.2.2;API RP1171 Section 10.1)

2. Site Security and Safety - Fences *Do processes describe how fences or enclosures at well sites comply with applicable fire codes and regulations, where applicable?* (UNGS.RESSITE.FENCES.P) 192.12(d) (API RP1171 Section 10.3.2)

3. Site Security and Safety - Fences *Do records demonstrate compliance with applicable fire codes and regulations for control of site ingress and egress, where applicable?* (UNGS.RESSITE.FENCES.R) 192.12(d) (API RP1171 Section 10.3.2)

4. Site Security and Safety - Fences Inspection *Do records demonstrate inspections are conducted to ensure that the fences or enclosures are up to fire code?* (UNGS.RESSITE.FENCESINSPECT.R) 192.12(d) (API RP1171 Section 10.3.2)

5. Site Security and Safety - Fences *Are well location areas secure (which may include fences or enclosures, barriers, chains on valves, locks on fence gate, security cameras, etc.), and do fences or enclosures comply with applicable fire codes and regulations?* (UNGS.RESSITE.FENCES.O) 192.12(d) (API RP1171 Section 10.3.2;API RP1171 Section 11.9.1)

6. Signage *Does the process require that there is permanent weatherproof signage installed at each well site?* (UNGS.RESSITE.SIGNAGE.P) 192.12(d) (API RP1171 Section 10.4.1)

7. Signage *Do records demonstrate that there is a sign at each well site?* (UNGS.RESSITE.SIGNAGE.R) 192.12(d) (API RP1171 Section 10.4.1)

8. Signage *Is a permanent weatherproof signage installed at each well site?* (UNGS.RESSITE.SIGNAGE.O) 192.12(d) (API RP1171 Section 10.4.1)

9. Emergency Preparedness/Response Plan *Does the emergency preparedness / emergency response plan address accidental releases, equipment failure, natural disasters, and third-party emergencies?* (UNGS.RESSITE.EMERGPLAN.P) 192.12(d) (API RP1171 Section 10.6.1)

10. Emergency Preparedness/Response Plan *Do records demonstrate that the emergency preparedness/response plan addresses accidental releases, equipment failure, natural disasters, and third-party emergencies?* (UNGS.RESSITE.EMERGPLAN.R) 192.12(d) (API RP1171 Section 10.6.1)

11. Emergency Preparedness/Response Plan - Local Officials *Does the emergency preparedness/response plan require inclusion of local emergency officials?* (UNGS.RESSITE.EMERGPLANLOCAL.P) 192.12(d) (API RP1171 Section 10.6.1)

12. Emergency Preparedness/Response Plan - Local Officials *Do the records demonstrate that local officials are included in the emergency preparedness/response plan?* (UNGS.RESSITE.EMERGPLANLOCAL.R) 192.12(d) (API RP1171 Section 10.6.1)

13. Emergency Preparedness/Response Plan - Effectiveness *Does the process define a frequency for the review of the emergency preparedness/response plan to be evaluated for effectiveness?* (UNGS.RESSITE.EMERGPLANEFF.P) 192.12(d) (API RP1171 Section 10.6.1)

14. Emergency Preparedness/Response Plan - Effectiveness *Do records demonstrate that the emergency preparedness/response plan was evaluated for effectiveness within the defined frequency?* (UNGS.RESSITE.EMERGPLANEFF.R) 192.12(d) (API RP1171 Section 10.6.1)

15. Emergency Preparedness/Response Plan - All *Is an observed emergency preparedness drill or tabletop exercise conducted adequately and in accordance with the established plan?* (UNGS.RESSITE.EMERGPLAN.O) 192.12(d) (API RP1171 Section 10.6.1)

16. Emergency Preparedness/Response Plan - Training *Does the process require training for storage operations and applicable staff in the use of the emergency preparedness/response plan?* (UNGS.RESSITE.ERTRAINING.P) 192.12(d) (API RP1171 Section 10.6.2)

17. Emergency Preparedness/Response Plan - Training *Do records demonstrate that storage facility staff were trained in the use of the emergency preparedness/response plan?* (UNGS.RESSITE.ERTRAINING.R) 192.12(d) (API RP1171 Section 10.6.2)

18. Emergency Preparedness/Response Plan - Training *Was emergency preparedness/response plan training conducted adequately and in accordance with the established process?* (UNGS.RESSITE.ERTRAINING.O) 192.12(d) (API RP1171 Section 10.6.2)

19. Blowout Contingency Plan *Is there a current Blowout Contingency Plan in place?* (UNGS.RESSITE.BLOWOUTPLAN.P) 192.12(d) (API RP1171 Section 10.6.3)

20. Blowout Contingency Plan *Do records demonstrate that the Blowout Contingency Plan was followed according to procedure?* (UNGS.RESSITE.BLOWOUTPLAN.R) 192.12(d) (API RP1171 Section 10.6.3)

21. Blowout Contingency Plan - Review *Does the process define a frequency for review and updating of the Blowout Contingency Plan?* (UNGS.RESSITE.BLOWOUTPLANRVW.P) 192.12(d) (API RP1171 Section 10.6.3;API RP1171 Section 11.4.2)

22. Blowout Contingency Plan - Review *Do records demonstrate that the Blowout Contingency Plan review was implemented/conducted?* (UNGS.RESSITE.BLOWOUTPLANRVW.R) 192.12(d) (API RP1171 Section 10.6.3;API RP1171 Section 11.4.2)

23. Blowout Contingency Plan - Observations *Was the Blowout Contingency Plan followed during drills and tabletop exercises?* (UNGS.RESSITE.BLOWOUTPLAN.O) 192.12(d) (API RP1171 Section 10.6.3)

Underground Natural Gas Storage - Reservoirs - Procedures & Training

1. Construction, Operation, and Maintenance Procedures *Are there procedures in place for the construction, operation, and maintenance of natural gas storage wells and reservoirs used to establish and maintain functional integrity?* (UNGS.RESPROCED.CONSTROPSMAINT.P) 192.12(d) (API RP1171 Section 11.2.1;API RP1171 Section 11.2.2)

2. Construction, Operation, and Maintenance Procedures *Are construction, operations, and maintenance records retained, as required, for both the operator and vendors?* (UNGS.RESPROCED.CONSTROPSMAINT.R) 192.12(d) (API RP1171 Section 11.2.1;API RP1171 Section 11.2.2)

3. Construction, Operation, and Maintenance Procedures - In Place *Do records demonstrate that the Construction, Operation, and Maintenance procedures were in place prior to the development of a new storage facility?* (UNGS.RESPROCED.CONSTROPSMAINT2.R) 192.12(d) (API RP1171 Section 11.2.1)

4. Construction, Operation, and Maintenance Procedures *Are current procedures available and readily accessible to operations, maintenance, and storage personnel?* (UNGS.RESPROCED.CONSTROPSMAINT.O) 192.12(d) (API RP1171 Section 11.2.1)

5. Operations and Maintenance Procedures - Implementation *Do records demonstrate O&M procedures covering storage wells and reservoirs were developed and implemented prior to the commissioning operations?* (UNGS.RESPROCED.OPSMAINTIMPL.R) 192.12(d) (API RP1171 Section 11.3.1)

6. Operations and Maintenance Procedures - Coverage *Do records demonstrate O&M procedures covering storage wells and reservoirs includes all work activities performed by contractors/vendors and the operator's personnel?* (UNGS.RESPROCED.OPSMAINTSCOPE.R) 192.12(d) (API RP1171 Section 11.3.2;API RP1171 Section 11.3.1)

7. Emergency Plan - Operator Familiarity *What is the process to determine personnel familiarity with emergency plans and procedures?* (UNGS.RESPROCED.EMERGPLANFAMIL.P) 192.12(d) (API RP1171 Section 11.4.2)

8. Emergency Plan - Operator Familiarity *Do records demonstrate personnel familiarity with emergency plans and procedures?* (UNGS.RESPROCED.EMERGPLANFAMIL.R) 192.12(d) (API RP1171 Section 11.4.2)

9. Emergency Plan - Effectiveness *Does the process require periodic testing of the effectiveness of the emergency plan?* (UNGS.RESPROCED.EMERGPLANEFF.P) 192.12(d) (API RP1171 Section 11.4.2)

10. Emergency Plan - Effectiveness *Do records demonstrate that periodic testing of the effectiveness of the emergency plan has been implemented?* (UNGS.RESPROCED.EMERGPLANEFF.R) 192.12(d) (API RP1171 Section 11.4.2)

11. Control Room - Interactions and Communications *Does the process or procedure describe the interaction and communication between operations & maintenance personnel and the control room for maintaining reservoir and well functional integrity during normal, abnormal, and emergency conditions?* (UNGS.RESPROCED.CONTROLROOM.P) 192.12(d) (API RP1171 Section 11.7.1)

12. Control Room - Interactions and Communications *Do records demonstrate that there are communications between operations & maintenance personnel and the control room for maintaining reservoir and well functional integrity during normal, abnormal, and emergency conditions?* (UNGS.RESPROCED.CONTROLROOM.R) 192.12(d) (API RP1171 Section 11.7.1)

13. Safety and Environmental Programs - Environmental Safeguards *Do the process and procedures incorporate safeguards for the environment into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGENV.P) 192.12(d) (API RP1171 Section 11.9.1)

14. Safety and Environmental Programs - Environmental Safeguards *Do records demonstrate that safeguards for the environment are incorporated into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGENV.R) 192.12(d) (API RP1171 Section 11.9.1)

15. Safety and Environmental Programs - Site Security *Do the process and procedures incorporate safeguards for site security into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGSECUR.P) 192.12(d) (API RP1171 Section 11.9.1)

16. Safety and Environmental Programs - Site Security *Do records demonstrate that safeguards for site security are incorporated into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGSECUR.R) 192.12(d) (API RP1171 Section 11.9.1)

17. Safety and Environmental Programs - Safety & Health *Do process and procedures incorporate safeguards for safety and health into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGSFTY.P) 192.12(d) (API RP1171 Section 11.9.1;API RP1171 Section 11.9.2)

18. Safety and Environmental Programs - Safety & Health *Do records demonstrate that safeguards for safety and health are incorporated into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGSFTY.R) 192.12(d) (API RP1171 Section 11.9.1)

19. Management of Change *Do the process or procedures require that changes are accomplished in a controlled manner (use of a Management of Change process)?* (UNGS.RESPROCED.MOC.P) 192.12(d) (API RP1171 Section 11.11.1)

20. Management of Change *Do records demonstrate that changes are made in a controlled manner (and in accordance with the MOC or equivalent process)?* (UNGS.RESPROCED.MOC.R) 192.12(d) (API RP1171 Section 11.11.1)

21. Management of Change - Program Revisions *Does the process require that program documentation, framework, and procedures are revised before the change is implemented?* (UNGS.RESPROCED.MOCREVISE.P) 192.12(d) (API RP1171 Section 11.11.1)

22. Management of Change - Program Revisions *Do records demonstrate that the program documentation, framework and procedures were revised before the change was implemented?* (UNGS.RESPROCED.MOCREVISE.R) 192.12(d) (API RP1171 Section 11.11.1)

23. Training of O&M Personnel - Notify Changes *Does the process require that operating personnel be notified of changes whenever changes are made to the operating procedures specified in API RP1171, Section 11.3?* (UNGS.RESPROCED.TRAINOM.P) 192.12(d) (API RP1171 Section 11.12.2)

24. Training of O&M Personnel - Notify Changes *Do records detail how the MOC process for the notification of changes to the operating procedures was followed?* (UNGS.RESPROCED.TRAINOM.R) 192.12(d) (API RP1171 Section 11.12.2)

25. Training of O&M Personnel - Change Related Training *Does the process require that the operating personnel be trained, and the training documented, whenever changes are made to the operating procedures specified in API RP1171, Section 11.3?* (UNGS.RESPROCED.TRAINOMCHGS.P) 192.12(d) (API RP1171 Section 11.12.2;API RP1171 Section 11.3)

26. Training of O&M Personnel - Change Related Training *Do records demonstrate that operating personnel were trained when an applicable change was made to the operating procedures?* (UNGS.RESPROCED.TRAINOMCHGS.R) 192.12(d) (API RP1171 Section 11.12.2;API RP1171 Section 11.3)

27. Training Records - Retention *What is the established retention interval for training records?* (UNGS.RESPROCED.TRAINRECORDS.P) 192.12(d) (API RP1171 Section 11.13.2;API RP1171 Section 11.13.3)

28. Training Records - Retention *Do records demonstrate that training records retention meets the operator established interval?* (UNGS.RESPROCED.TRAINRECORDS.R) 192.12(d) (API RP1171 Section 11.13.2;API RP1171 Section 11.13.3)

29. Records and Documentation *Does the process include a list of the necessary documents that need to be recorded for compliance with procedures as required in API RP1171, Section 11?* (UNGS.RESPROCED.RECORDSDOC.P) 192.12(d) (API RP1171 Section 11.13.1)

30. Records Retention *Does the process establish a retention interval for all records that satisfy API RP1171, Section 11 requirements and operator requirements?* (UNGS.RESPROCED.RETENTION.P) 192.12(d) (API RP1171 Section 11.13.3)

31. Records Retention *Do records demonstrate that the records retention intervals are followed for the API RP1171 Section 11 requirements and operator requirements??* (UNGS.RESPROCED.RETENTION.R) 192.12(d) (API RP1171 Section 11.13.3)

Underground Natural Gas Storage - Caverns - Gas Storage Operations

1. Maximum Storage Operating Pressure *Does the process establish a maximum and minimum storage operating pressure?* (UNGS.CAVERNOPS.MAOPLIMIT.P) 192.12(b) (API RP1170, Section 9.1)

2. Maximum Storage Operating Pressure *Do records demonstrate that a maximum and minimum operating pressure have been established?* (UNGS.CAVERNOPS.MAOPLIMIT.R) 192.12(b) (API RP1170, Section 9.1)

3. Maximum Storage Operating Pressure - Converted to Wellhead Pressure *If the wellhead is the monitoring point of record for pressure, does the process convert the maximum and minimum pressure at the casing seat to a maximum and minimum wellhead pressure?* (UNGS.CAVERNOPS.MAOPWELLHEAD.P) 192.12(b) (API RP1170, Section 9.1)

4. Maximum Storage Operating Pressure - Converted to Wellhead Pressure *Do records demonstrate that the casing seat pressure was converted to a maximum and minimum wellhead pressure (if the wellhead is the monitoring point of record for pressure)?* (UNGS.CAVERNOPS.MAOPWELLHEAD.R) 192.12(b) (API RP1170, Section 9.1)

5. Wellhead Replacement Prior to Service *Does the process require the replacement of solution mined wellheads before commencing natural gas storage service?* (UNGS.CAVERNOPS.WELLHEADREPL.P) 192.12(b) (API RP1170, Section 9.2.1)

6. Wellhead Replacement Prior to Service *Do records demonstrate that the solution mined wellhead has been changed prior to commencing gas operations?* (UNGS.CAVERNOPS.WELLHEADREPL.R) 192.12(b) (API RP1170, Section 9.2.1)

7. Emergency Shutdown (ESD) Valve *Does the process require that an Emergency Shutdown (ESD) Valve is installed at or near the manual valves (wing valves) to isolate the cavern in the event of an emergency?* (UNGS.CAVERNOPS.ESDVALVE.P) 192.12(b) (API RP1170, Section 9.2.2)

8. Emergency Shutdown (ESD) Valve *Do records demonstrate that ESD valves are installed at or near the manual valves (wing valves) for isolation purposes?* (UNGS.CAVERNOPS.ESDVALVE.R) 92.12(b) (API RP1170, Section 9.2.2)

9. Emergency Shutdown (ESD) Instrumentation Flange *If an instrument flange is located between the wing valve and ESD valve, and it is used to gather real-time pressure data, does the process ensure that the flange is rated for the same pressure as the valves?* (UNGS.CAVERNOPS.ESDFLANGE.P) 192.12(b) (API RP1170, Section 9.2.2)

10. Emergency Shutdown (ESD) Instrumentation Flange *Do records demonstrate that instrument flanges are rated for the same pressure as the valves surrounding the instrument flange?* (UNGS.CAVERNOPS.ESDFLANGE.R) 192.12(b) (API RP1170, Section 9.2.2)

11. Detecting Upset Conditions During Debrining *Does the process require monitoring equipment to detect upset conditions during the debrining process?* (UNGS.CAVERNOPS.UPSETCOND.P) 192.12(b) (API RP1170, Section 9.3.1)

12. Detecting Upset Conditions During Debrining *Do records demonstrate that upset conditions are monitored during the debrining process?* (UNGS.CAVERNOPS.UPSETCOND.R) 192.12(b) (API RP1170, Section 9.3.1)

13. Detecting Upset Conditions During Debrining - ESD *Does the process ensure that monitoring equipment that is used as a warning device be connected to the ESD system to automatically close-in the cavern?* (UNGS.CAVERNOPS.ESDUPSETCOND.P) 192.12(b) (API RP1170, Section 9.3.1)

14. Detecting Upset Conditions During Debrining - ESD *Do records demonstrate that the monitoring devices that are connected to an ESD system are tested on a periodic basis?* (UNGS.CAVERNOPS.ESDUPSETCOND.R) 192.12(b) (API RP1170, Section 9.3.1)

15. Emergency Shutdown (ESD) System *Does the process require an Emergency Shutdown (ESD) system to isolate the cavern and wellhead from any attached piping in an emergency?* (UNGS.CAVERNOPS.ESDSYSTEM.P) 192.12(b) (API RP1170, Section 9.3.4)

16. Emergency Shutdown (ESD) System *Do records demonstrate that ESD system is installed the cavern(s) for isolation purposes?* (UNGS.CAVERNOPS.ESDSYSTEM.R) 192.12(b) (API RP1170, Section 9.3.4)

17. Emergency Shutdown (ESD) System *Do field observations on the presence of monitoring equipment and the ESD system on the cavern and testing/calibration of the monitoring equipment and/or ESD system match with the process and records?* (UNGS.CAVERNOPS.ESDSYSTEM.O) 192.12(b) (API RP1170, Section 9.3.4)

18. Monitoring the Production Casing Annulus *If the production casing annular space is monitored for pressure, does the process ensure that the pressure tap is not inside the wing valve?* (UNGS.CAVERNOPS.ANNULUSPRESS.P) 192.12(b) (API RP1170, Section 9.3.5.2)

19. Monitoring the Production Casing Annulus *Do records demonstrate that there is no pressure tap within the wing valve?* (UNGS.CAVERNOPS.ANNULUSPRESS.R) 192.12(b) (API RP1170, Section 9.3.5.2)

20. Monitoring the Production Casing Annulus *Do field observations related to wellhead configuration, pressure taps, and annulus pressure monitoring match with the process and records?* (UNGS.CAVERNOPS.ANNULUSPRESS.O) 192.12(b) (API RP1170, Section 9.3.5.2)

21. Testing of Gauges, Transmitters, and Safety Devices *Do procedures require the testing and calibrating of wellhead gauges, transmitters, and safety devices to be conducted annually?* (UNGS.CAVERNOPS.TESTDEVICES.P) 192.12(b) (API RP1170, Section 9.4.1)

22. Testing of Gauges, Transmitters, and Safety Devices *Do records demonstrate that wellhead gauges, transmitters, and safety devices are tested and calibrated on an annual basis?* (UNGS.CAVERNOPS.TESTDEVICES.R) 192.12(b) (API RP1170, Section 9.4.1)

23. Replacement of Gauges, Transmitters, and Safety Devices *Does the process require that any malfunctioning equipment/devices be repaired or replaced if it fails testing/calibration?* (UNGS.CAVERNOPS.REPLDEVICES.P) 192.12(b) (API RP1170, Section 9.4.1)

24. Replacement of Gauges, Transmitters, and Safety Devices *Do records demonstrate that any malfunctioning equipment has repaired or replaced?* (UNGS.CAVERNOPS.REPLDEVICES.R) 192.12(b) (API RP1170, Section 9.4.1)

25. Testing or Replacement of Gauges, Transmitters, and Safety Devices *Do field observations of testing, calibration, and/or the repair / replacement of gauges, transmitters, and safety devices match with the procedures and records?* (UNGS.CAVERNOPS.TESTDEVICES.O) 192.12(b) (API RP1170, Section 9.4.1)

26. Workover on a Pressurized Cavern *Are there procedures are in place for conducting a well workover with the cavern under pressure?* (UNGS.CAVERNOPS.WORKOVER.P) 192.12(b) (API RP1170, Section 9.5.2.3)

27. Workover on a Pressurized Cavern *Do records demonstrate that procedures were designed to provide for maximum anticipated cavern pressure prior to conducting pressurized workovers?* (UNGS.CAVERNOPS.WORKOVER.R) 192.12(b) (API RP1170, Section 9.5.2.3)

28. Workover on a Pressurized Cavern - Equipment Rating *Does the process ensure that the rig(s) and equipment to be used for the workover is designed for the maximum anticipated pressure?* (UNGS.CAVERNOPS.WORKOVEREQUIP.P) 192.12(b) (API RP1170, Section 9.5.2.3)

29. Workover on a Pressurized Cavern - Equipment Rating *Do records demonstrate that the rig(s) and equipment used for the workover were rated for the maximum anticipated cavern pressure?* (UNGS.CAVERNOPS.WORKOVEREQUIP.R) 192.12(b) (API RP1170, Section 9.5.2.3)

30. Lockout and Tagout Systems *Is there a process for Lockout and Tagout (LOTO) at the storage facility to protect workers from hazardous energy sources?* (UNGS.CAVERNOPS.LOTO.P) 192.12(b) (API RP1170, Section 9.6.8)

31. Lockout and Tagout Systems *Do records demonstrate that the Lockout and Tagout (LOTO) procedures were followed?* (UNGS.CAVERNOPS.LOTO.R) 192.12(b) (API RP1170, Section 9.6.8)

32. Lockout and Tagout Systems *Do field observations of the Lockout and Tagout procedures in use demonstrate that it being properly performed?* (UNGS.CAVERNOPS.LOTO.O) 192.12(b) (API RP1170, Section 9.6.8)

33. Operations & Maintenance (O&M) Procedures *Are there Operation and Maintenance (O&M) Procedures in place to ensure the safe operation and necessary maintenance of the wellhead and cavern to ensure integrity?* (UNGS.CAVERNOPS.OMPROCED.P) 192.12(b) (API RP1170, Section 9.7.1)

34. Operations & Maintenance (O&M) Procedures *Do records demonstrate that Operations and Maintenance (O&M) Procedures were developed and implemented before any activities took place?* (UNGS.CAVERNOPS.OMPROCED.R) 192.12(b) (API RP1170, Sections 9.7.1 and 9.7.4)

35. O&M Procedures - Other Components *Do the O&M Procedures include any other components related to the safe operation and necessary maintenance of the cavern or facility?* (UNGS.CAVERNOPS.OMPROCEDOTHER.P) 192.12(b) (API RP1170, Section 9.7.1;API RP1170, Section 9.6)

36. O&M Procedures - Other Components *Do the records demonstrate that the other components of the O&M or Other Procedures related to the safe operation and necessary maintenance of the cavern or facility were conducted in accordance with the established procedures?* (UNGS.CAVERNOPS.OMPROCEDOTHER.R) 192.12(b) (API RP1170, Section 9.7.1;API RP1170, Section 9.6)

37. Emergency Plans and Procedures *Is there an Emergency Response Plan in place to provide for the safe control or shutdown of the storage facility, including the storage cavern(s), in the event of a failure or other emergency condition?* (UNGS.CAVERNOPS.EMERGPLAN.P) 192.12(b) (API RP1170, Section 9.7.1;API RP1170, Section 9.7.2.1)

38. Emergency Plans and Procedures *Do records demonstrate that the Emergency Response Plan provides for the safe control or shutdown of the storage facility, including the storage cavern(s), in the event of a failure or other emergency condition?* (UNGS.CAVERNOPS.EMERGPLAN.R) 192.12(b) (API RP1170, Section 9.7.1)

39. Blowout Contingency Plan *Is there a Blowout Contingency Plan in place to address an uncontrolled release of gas (loss of well control) from the cavern?* (UNGS.CAVERNOPS.BLOWOUTPLAN.P) 192.12(b) (API RP1170, Section 9.7.3;API RP1170, Section 9.7.1)

40. Blowout Contingency Plan *Do records demonstrate that procedures in the Blowout Contingency Plan were designed to address an uncontrolled release of gas (loss of well control) from the cavern?* (UNGS.CAVERNOPS.BLOWOUTPLAN.R) 192.12(b) (API RP1170, Section 9.7.3;API RP1170, Section 9.7.1)

41. Operations and Maintenance (O&M) Records *Do the O&M Procedures include requirements for records documentation and retention?* (UNGS.CAVERNOPS.OMRECORDS.P) 192.12(b) (API RP1170, Section 9.7.4;API RP1170, Section 9.7.1)

42. Operations and Maintenance (O&M) Records *Do records demonstrate that the required O&M inspections, testing, calibration, and monitoring activities are documented and retained in accordance with the O&M Procedure requirements?* (UNGS.CAVERNOPS.OMRECORDS.R) 192.12(b) (API RP1170, Section 9.7.4;API RP1170, Section 9.7.1)

43. Operations and Maintenance (O&M) Training *Is there a personnel Training Program in place to address normal (routine) operations, abnormal operations, and emergency conditions?* (UNGS.CAVERNOPS.OMTRAINING.P) 192.12(b) (API RP1170, Section 9.7.5;API RP1170, Section 9.7.1)

44. Operations and Maintenance (O&M) Training *Do records demonstrate that the Training Program was designed to address normal (routine) operations, abnormal operations, and emergency conditions?* (UNGS.CAVERNOPS.OMTRAINING.R) 192.12(b) (API RP1170, Section 9.7.5;API RP1170, Section 9.7.1)

Underground Natural Gas Storage - Caverns - Integrity Monitoring

1. Cavern System Integrity Monitoring Program *Is there a formally written Integrity Monitoring Program in place?* (UNGS.CAVERNINTEG.IMPROGRAM.P) 192.12(b) (API RP1170, Section 10.3;API RP1170, Section 10.1)

2. Cavern System Integrity Monitoring Program *Do records demonstrate that the Integrity Monitoring Program has been formally written and implemented?* (UNGS.CAVERNINTEG.IMPROGRAM.R) 192.12(b) (API RP1170, Section 10.3;API RP1170, Section 10.1)

3. Holistic and Comprehensive Approach to Integrity *Is a holistic and comprehensive approach in place for monitoring cavern integrity for design, monitoring, and engineering evaluation? in place?* (UNGS.CAVERNINTEG.IMAPPROACH.P) 192.12(b) (API RP1170, Section 10.2)

4. Holistic and Comprehensive Approach to Integrity *Do records demonstrate that a holistic and comprehensive approach to cavern system integrity has been undertaken?* (UNGS.CAVERNINTEG.IMAPPROACH.R) 192.12(b) (API RP1170, Section 10.2)

5. Cavern System Integrity Monitoring - Methods *Does the process require monitoring of the cavern system to ensure ongoing functional integrity using the monitoring methods listed in RP1170 Section 10.1 Table 1 in the Integrity Monitoring Program?* (UNGS.CAVERNINTEG.IMMETHODS.P) 192.12(b) (API RP1170, Section 10.1;API RP1170, Section 10.3;API RP1170, Section 10.4)

6. Cavern System Integrity Monitoring - Methods *Do records demonstrate that the cavern system is being monitored to ensure ongoing functional integrity?* (UNGS.CAVERNINTEG.IMMETHODS.R) 192.12(b) (API RP1170, Section 10.1;API RP1170, Section 10.3;API RP1170, Section 10.4)

7. Cavern System Integrity Monitoring - Observations *Do field observations verify that the cavern system is being monitored according to procedures and to ensure the continuance of functional integrity?* (UNGS.CAVERNINTEG.IMMETHODS.O) 192.12(b) (API RP1170, Section 10.1;API RP1170, Section 10.3;API RP1170, Section 10.4)

8. Integrity Monitoring Program - Components *Does the Integrity Monitoring Program include identification of cavern systems components to be monitored?* (UNGS.CAVERNINTEG.IMPROGCOMP.P) 192.12(b) (API RP1170, Section 10.3)

9. Integrity Monitoring Program - Components *Do records demonstrate what cavern systems components need to be monitored per the Integrity Monitoring Program?* (UNGS.CAVERNINTEG.IMPROGCOMP.R) 192.12(b) (API RP1170, Section 10.3)

10. Integrity Monitoring Program - Cavern Volume & Inventory *Does the Integrity Monitoring Program require cavern volume and inventory verification?* (UNGS.CAVERNINTEG.IMPROGVOL.P) 192.12(b) (API RP1170, Section 10.3)

11. Integrity Monitoring Program - Cavern Volume & Inventory *Do records reflect that cavern volume and inventory verification have been conducted in accordance with the Integrity Monitoring Program?* (UNGS.CAVERNINTEG.IMPROGVOL.R) 192.12(b) (API RP1170, Section 10.3)

12. Cavern System Integrity Monitoring - Methods 2 *Do records demonstrate that all of the employed integrity monitoring methods are being conducted/applied according to the Integrity Monitoring Program procedure(s)?* (UNGS.CAVERNINTEG.IMMETHODS2.R) 192.12(b) (API RP1170, Section 10.1;API RP1170, Section 10.3;API RP1170, Section 10.4)

13. Integrity Monitoring Program - Frequency *Does the Integrity Monitoring Program require a specific monitoring frequency for each integrity monitoring method employed?* (UNGS.CAVERNINTEG.IMPROGFREQ.P) 192.12(b) (API RP1170, Section 10.3)

14. Integrity Monitoring Program - Frequency *Do records demonstrate that the frequency of cavern integrity monitoring has been followed in accordance with the Integrity Monitoring Program?* (UNGS.CAVERNINTEG.IMPROGFREQ.R) 192.12(b) (API RP1170, Section 10.3)

15. Integrity Monitoring Program - Data Analysis *Does the Integrity Monitoring Program require incorporation of data analysis from inspections and reporting?* (UNGS.CAVERNINTEG.IMPROGDATA.P) 192.12(b) (API RP1170, Section 10.3)

16. Integrity Monitoring Program - Data Analysis *Do records demonstrate that the data from inspections and reporting has been analyzed and incorporated into the Integrity Monitoring Program?* (UNGS.CAVERNINTEG.IMPROGDATA.R) 192.12(b) (API RP1170, Section 10.3)

17. Integrity Monitoring Program - Archiving Results *Is there a process in place to archive results of the Integrity Monitoring Program?* (UNGS.CAVERNINTEG.IMPROGRESULTS.P) 192.12(b) (API RP1170, Section 10.3)

18. Integrity Monitoring Program - Archiving Results *Do records demonstrate that the results of the Integrity Monitoring Program have been properly archived?* (UNGS.CAVERNINTEG.IMPROGRESULTS.R) 192.12(b) (API RP1170, Section 10.3)

19. Integrity Monitoring Program - Effectiveness Reviews *Is there a process to periodically review the effectiveness of the Integrity Monitoring Program and the monitoring methods employed?* (UNGS.CAVERNINTEG.IMPROGEFF.P) 192.12(b) (API RP1170, Section 10.3;API RP1170, Section 10.1)

20. Integrity Monitoring Program - Effectiveness Reviews *Do records demonstrate that the Integrity Monitoring Program and the monitoring methods have been reviewed for effectiveness?* (UNGS.CAVERNINTEG.IMPROGEFF.R) 192.12(b) (API RP1170, Section 10.3;API RP1170, Section 10.1)

Underground Natural Gas Storage - Caverns - Abandonment

1. Cavern Abandonment - Removal of Gas *Does the cavern abandonment process include the evacuation of natural gas, to the extent practicable, with saturated brine or with raw water?* (UNGS.CAVERNABAND.GASREMOVE.P) 192.12(b) (API RP1170, Section 11.3)

2. Cavern Abandonment - Removal of Gas *Do records demonstrate that the cavern has been evacuated to the maximum practicable extent?* (UNGS.CAVERNABAND.GASREMOVE.R) 192.12(b) (API RP1170, Section 11.3)

3. Cavern Abandonment - Long-Term Well Monitoring *Does the cavern abandonment process require a long-term monitoring program for cavern wells that are not plugged?* (UNGS.CAVERNABAND.MONITOR.P) 192.12(b) (API RP1170, Section 11.8)

4. Cavern Abandonment - Long-Term Well Monitoring *Do records demonstrate that a long-term monitoring program was developed and implemented for cavern wells that are not plugged?* (UNGS.CAVERNABAND.MONITOR.R) 192.12(b) (API RP1170, Section 11.8)

5. Cavern Abandonment - Long-Term Monitoring Program *Does the long-term monitoring program for abandoned cavern wells follow the criteria of API RP1170, Section 10.3 for integrity monitoring programs?* (UNGS.CAVERNABAND.MONITORPROG.P) 192.12(b) (API RP1170, Section 11.8;API RP1170, Section 10.3)

6. Cavern Abandonment - Long-Term Monitoring Program *Do records demonstrate that the long-term monitoring program for abandoned cavern wells follows API RP1170, Section 10.3?* (UNGS.CAVERNABAND.MONITORPROG.R) 192.12(b) (API RP1170, Section 11.8;API RP1170, Section 10.3)