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STATE OF MICHIGAN
DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS
PUBLIC SERVICE COMMISSION

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TO: UNGS OPERATOR

FROM: David J. Chislea, Director
Gas Safety & Operations Division

DATE: March 12, 2025

SUBJECT: 2025 Underground Natural Gas Storage Inspections and Program Updates

As an operator of an intrastate underground natural gas storage (UNGS) facility in Michigan, you are receiving this letter on behalf of the Michigan Public Service Commission (MPSC) under direction of the Pipeline and Hazardous Materials Safety Administration's (PHMSA) UNGS State Program. The MPSC and the Michigan Department of Environment, Great Lakes, and Energy's (EGLE) Geologic Resources Management Division (GRMD) conduct joint inspections to ensure safe operations of facilities and to enforce pipeline safety regulations in accordance with 49 CFR Part 192 for UNGS facilities.

This letter is written to convey important information regarding the UNGS program, including its requirements for inspections and report filing. In addition, incident information and relevant regulatory requirements pursuant to the Administrative Rules of Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act (NREPA) are provided below. An updated MPSC/EGLE Staff contact list is enclosed for your convenience.

2025 Planned UNGS Inspections

The MPSC/EGLE will conduct inspections throughout 2025 to continue to ensure safe operations of UNGS facilities and to enforce pipeline safety regulations in 49 CFR Part 192 for underground natural gas storage facilities. The following are the types of inspections that are conducted along with a brief description of each inspection type:

1. **Standard Inspections**: Standard inspections include an evaluation of the UNGS Program and Records for each storage field and onsite inspections of select wellheads/well sites at the associated field. Currently, Standard inspections are conducted on a four-year cycle for each UNGS field and Storage Integrity Management Program (SIMP). Operators are expected to reserve a full week to accommodate these inspections. The Standard inspection may be conducted in-person at the operator's locality, virtually, or a combination thereof.

i. Procedure Inspection: This is a review and assessment of the operator's written SIMP and associated procedural documentation. Procedure inspections include questions relevant to construction and operational procedures.
ii. Records Inspection: This is a review and assessment of the operator's records and retention associated with their UNGS Program. Each field/asset requires pertinent records to be demonstrated and retained.
iii. Observation Inspection: This is an onsite review and assessment of wellheads and well sites that includes, but is not limited to, observations for leaks, overpressure protection and pressure regulating equipment, corrosion, emergency response, observance of operator's well maintenance/inspection procedures, signage, and barriers.

Beginning in 2025, MPSC/EGLE will start transitioning towards a new inspection schedule. Whereas PHMSA's established schedule required inspection of SIMP procedures and individual storage field records every five years, Staff intends to meet with every operator each year moving forward. Annual inspections will entail reviewing a subset of SIMP procedures, and associated records, for each of the operator's storage fields; the entirety of SIMP procedures, and associated records, will be reviewed within a four-year cycle. In order to comply with PHMSA requirements, and to transition into this new inspection schedule, it is necessary to complete a full SIMP procedures and records inspection within the next two years to reset each operator into the new inspection schedule. Accordingly, MPSC/EGLE will inspect UNGS OPERATOR's SIMP procedures, and associated records, pertaining to all of its storage fields with a focus on the following universal topics: Rule and FAQs, Reporting; and a focus on the following storage field-type topics:

- Reservoirs
    - Integrity Through Initial Pressure & Inventory (API RP 1171, Section 7)
    - Risk Management for Storage Operations (API RP 1171, Section 8)
    - Site Security & Safety (API RP 1171, Sections 10 & 11)
    - Procedures & Training (API RP 1171, Section 11)

Furthermore, UNGS OPERATOR is due for an on-site observation inspection for the following storage fields: .

Relevant inspection questions are enclosed.[1]

2. **Specialized Inspections:** Specialized inspections include the observation of UNGS related tabletop exercises and a combination of construction and integrity activities including, but not limited to, the drilling of new wells, conversion and well workover activities, maintenance/repair activities, logging, well remediation, plugging and well abandonment activities. Operators are required to file notifications for these specialized activities as indicated below per R 460.20504 Reports. Planned well activities that will result in downhole changes are also required to be submitted to EGLE for review/approval on Form EQP 7200-06 Application to Change Well Status. This Form is required for both Intrastate

[1] The rules/questions which are enclosed are the minimum to be inspected. Additional inspections may be necessary as findings or concerns arise.

and Interstate wells. Further EGLE requirements are indicated below under Report Filing for Administrative Rules of Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act (NREPA). In addition, MPSC/EGLE requests to be notified of construction/integrity activity that does not rise to a PHMSA notification level. These additional notifications will allow further opportunities to conduct specialized inspections. Please file notifications for these additional specialized activities as indicated below per R 460.20504 Reports. Each UNGS Operator will be notified by MPSC/EGLE in advance of any well activity selected for specialized inspections so that mutually convenient dates/times can be selected for these inspections. Relevant inspection questions will be sent prior to the inspection date.[2] Other specialized inspections, such as Drug and Alcohol inspections, will be conducted by MPSC Pipeline Safety on the appropriate inspection cycle with participation from MPSC/EGLE UNGS Staff.

3. **Wellhead Inspections:** Wellhead inspections include items as indicated under Observation Inspection above. These inspections are conducted by MPSC/EGLE Staff independent of the UNGS operator participation or notification. Operators will be notified of concerns and/or unsatisfactory findings.

Data/Report Submittals

Submission Addresses

The Michigan Gas Safety Standards (MGSS) require that any report filed with PHMSA must be concurrently filed with the MPSC. Per R 460.20504 Reports, the MPSC/EGLE Staff requires paperless submission of all correspondence to our e-mail address: LARA-MPSC-Operations@michigan.gov. If responding to an existing case, please use the same email address (LARA-MPSC-Operations@michigan.gov) and include the case reference number (ref:_xxxxxxx:ref) in the email so that your response will be directed to the appropriate case. As noted below, additional reports specific to wellbores are required to be filed pursuant to the Administrative Rules of Part 615, Supervisor of Wells, EGLE GRMD. If you have questions regarding report filing, please contact Mr. Kevin Spence (MPSC) by email at spencek@michigan.gov or by phone at 517-643-7795 or Mr. Eric Kimber (EGLE) by email at kimbere@michigan.gov or by phone at 269-491-4106.

The MPSC offices are located at the following address:

Michigan Public Service Commission
7109 West Saginaw Hwy
Lansing, MI 48917

[2] The rules/questions which will be sent are the minimum to be inspected. Additional inspections may be necessary as findings or concerns arise.

The EGLE offices are located at the following address:

Michigan Department of Environment, Great Lakes, and Energy
525 W Allegan St.
Lansing, MI 48933

Annual Reports

The annual reports for UNGS operators can be found on PHMSA's website at: https://www.phmsa.dot.gov/forms/operator-reports-submitted-phmsa-forms-and-instructions. The calendar year 2024 annual reports for all regulated operators are due by March 15, 2025. These forms should be electronically submitted to PHMSA at: http://portal.phmsa.dot.gov/.

When initially submitting your annual reports for calendar year 2024, please provide them electronically to LARA-MPSC-Operations@michigan.gov. The MPSC/EGLE Staff would like a new case created for each operators' calendar year 2024 reports, so for the initial submission, please send a new email using LARA-MPSC-Operations@michigan.gov without any reference numbers or responding to any previous emails (no further action is required if UNGS annual reports are provided along with the other annual reports referenced in the 2024 Gas Safety Pipeline Inspections and Program Updates letter). Supplemental or corrected filings should be submitted using the reference number generated from the initial submittal, so the information is directed into the appropriate case.

Contact List

Please provide the MPSC/EGLE Staff with an updated contact list for your company (no further action is required if UNGS contacts have already been provided in response to the 2025 Gas Safety Pipeline Inspections and Program Updates letter). You can provide this electronically to LARA-MPSC-Operations@michigan.gov or mail it to the attention of the Gas Safety & Operations Division at the Lansing office address.

UNGS State Partnership Update

Beginning in calendar-year 2025, the MPSC/EGLE joint UNGS Program has re-secured its Certification Partnership status with the passing of Public Act 131 of 2024. MPSC/EGLE Staff will continue conducting UNGS inspections, and will, once again, be addressing enforcement actions and assessing penalties subject to the MPSC's regulatory authorization.

Updated Pipeline Safety Regulations

On November 30, 2023, the 26th Edition of the MGSS became effective adopting PHMSA standards 49 CFR Part 40, 49 CFR Part 191, 49 CFR Part 192, and 49 CFR Part 199 as published on October 1, 2023. The Guide for the 26th Edition of the MGSS is under development and will

be published soon. The final rules contained in the 26th Edition of the MGSS can be found on the MPSC website and the federal rules can be found on the eCFR.gov website.[3]

Record and Report Filing Requirements for Administrative Rules of Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act (NREPA)

MCL 324.61506 empowers the Supervisor of Wells to require specified wellbore operating reports and records to be submitted for Interstate and Intrastate UNGS wells existing in the State of Michigan, including the records referenced below:

1. **Bridge Plug Documentation** - As of the date of this letter, and thereafter, for any well located within an UNGS storage facility where a bridge plug or other isolation device is set for the purpose of isolating the wellbore due to a safety related condition, the operator shall submit a Record of Change of Well Status (RCOWS) (EGLE, GRMD Form EQP 7200-08). The RCOWS is due within 60 days of setting the device and shall include the date, depth, and purpose for setting the bridge plug or other isolation device.

   As of the date of this annual letter, for any well located within an UNGS storage facility that has an existing bridge plug or other isolation device remaining set within the wellbore, the operator shall submit a RCOWS within 90 days of the date of this annual letter. The RCOWS shall include the date, depth, and purpose for setting the bridge plug or other isolation device.

2. **Temporary Abandonment Status (TA)** - For any well not utilized for its intended purpose for greater than 12 consecutive months, the operator shall submit an Application to Change Well Status (ACOWS) (EGLE, GRMD Form EQP 7200-06) requesting TA status. A RCOWS form is not required to be submitted for TA status.

3. **Annual Well Fee Assessment Report** - UNGS operators are required to submit Form EQP 7141, Gas Storage Operations Annual Well Fee Assessment Report, on an annual basis by January 31 of each year. This Form requires reporting of each well status during the year.

4. **Submittal of Well Logs** - Electric and Radiation Logs run on UNGS wells are to be submitted within 30 days of the logging run.

   a. The logs shall be submitted as digital copies by email to EGLE-GeologicalRecords@Michigan.gov; if size limitations prohibit submission by email (generally if cumulative file size is greater than 20 MB), digital copies shall be submitted by mail on a USB flash drive or CDR/DVDR to the following address:

[3] https://www.michigan.gov/mpsc/regulatory/natural-gas/michigan-gas-safety-standards and https://www.ecfr.gov/current/title-49.

Geologic Resources Management Division, P.O. Box 30256, Lansing, MI 48909-7756

b. All log files shall be submitted in Log ASCII Standard (LAS) and Tag Image File (TIF) format. PDF files and paper copies may be accepted with prior approval by EGLE GRMD. Files shall be named using the well permit number, well name, and log type. All files are to be submitted as single page TIF and/or single page PDF.

The records and reports indicated above are required to be exclusively sent to: EGLE-GeologicalRecords@michigan.gov. Instructions for filing requirements and the applicable Forms are available from EGLE's website: https://www.michigan.gov/egle/about/organization/oil-gas-and-minerals/oil-and-gas/oil-and-gas-forms. If you have questions regarding report filing, please contact Mr. Eric Kimber (EGLE) by email at KimberE@michigan.gov or by phone at 269-491-4106

Attachments

An updated MPSC/EGLE UNGS Staff Contact List dated February 13, 2025. Please exclusively use the incident notification phone number (517-284-8230) for reporting incidents to the MPSC and the hotline phone number (800-292-4706) for reporting incidents to the Pollution Emergency Alerting System (PEAS).

UNGS inspection question list covering each planned inspection, noted above.

This information has been provided to facilitate inspections. If you have any questions regarding this letter, please contact Mr. Eric Kimber (kimbere@michigan.gov) or Mr. Kevin Spence (spencek@michigan.gov).

Enclosures:

- Contact list for MPSC/EGLE Staff
- UNGS inspection question list

cc: MPSC/EGLE UNGS team

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MPSC Incident Notification Number: 517-284-8230
Pollution Emergency Alerting System (PEAS) Hotline: 800-292-4706

Name	E-mail	Title	Work Cell
David Chislea	chislead@michigan.gov	Director, Gas Safety & Operations Division, MPSC	517-230-0116
Cindy Creisher	creisherc@michigan.gov	Supervisor, Infrastructure Unit, MPSC	517-275-2823
Kevin Spence	spencek@michigan.gov	Gas Storage Specialist, MPSC	517-643-7795
Adam Wygant	wyganta@michigan.gov	Director, Geologic Resources Management Division, EGLE	517-284-6823
Eric Kimber	kimbere@michigan.gov	Manager, Underground Injection, Storage, and Carbon Management Section, EGLE	269-491-4106
Larry Organek	organekl@michigan.gov	Engineer Specialist, EGLE	517-243-5402
Ben Hinks	hinksb@michigan.gov	Geology Specialist, EGLE	989-370-4980
Coty Withorn	withornc@michigan.gov	Geology Specialist, EGLE	989-295-6244
Jason Stilger	stilgerj@michigan.gov	Geology Specialist, EGLE	248-320-8251

MPSC Lansing Office	EGLE GRMD Office
7109 W. Saginaw Hwy, Lansing, MI 48917 LARA-MPSC-Operations@michigan.gov	525 W. Allegan Street 2nd Floor, GRMD, Lansing, MI 48933

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Export Questions

Questions from PRS GT.2025.01 (v47.0.1). Generated on 2025.February.13 08:53.

Underground Natural Gas Storage - Rule and FAQs

1. Risk 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.RISKPRIORITIES.P) 192.12(d)(2) (192.12(b)(2);192.12(b)(1);192.12(a)(3);192.12(a)(2);192.12(a)(1))

Notes

2. Addressing Safety Concerns Based on Safety Risk Analysis Ranking *Does the process require that safety concerns are identified and addressed based on the ranking of the safety risk analyses?* (UNGS.RULE.RISKRANKING.P) 192.12(d)(2) (192.12(b)(2);192.12(b)(1);192.12(a)(3);192.12(a)(2);192.12(a)(1))

Notes

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)

Notes

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)

Notes

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)

Notes

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)

Notes

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)

Notes

6. 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))

Notes

7. 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))

Notes

8. 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) (191.23(b);191.25(a);191.25(b);191.25(c))

Notes

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

Notes

10. Safety-Related Conditions Reporting (SRCR) - Bridge Plugs *Have any wells been isolated using a bridge plug?* (UNGS.RPT.SRCRBRIDGEPLUG.R) 191.23(a) (191.23(b);191.25(a))

Notes

11. Safety-Related Conditions Reporting (SRCR) - Bridge Plugs *Do field observations confirm Safety-Related Conditions Reporting (SRCR) requirements were met with regards to the use of bridge plugs?* (UNGS.RPT.SRCRBRIDGEPLUG.O) 191.23(a) (191.25(a);191.25(c))

Notes

12. Unique Wells Reporting *If applicable, are storage facility wells that are somehow "unique" (i.e., withdrawal only, shallow capture wells or recirculation wells) included in the Annual Report and also included in the Risk Management and Integrity Management programs?* (UNGS.RPT.UNIQUEWELLS.R) 191.17(c) (192.12(b);192.12(a);API RP1171, Section 8.2;API RP1171, Section 9.3;API RP1170, Section 10.3)

Notes

13. Unique Wells Reporting *If applicable, do field observations confirm that "unique" wells were properly included in the Annual Report and are also included in the Risk Management and Integrity Management programs?* (UNGS.RPT.UNIQUEWELLS.O) 191.17(c) (192.12(b);192.12(a);API RP1170, Section 10.3;API RP1171, Section 8.2;API RP1171, Section 9.3)

Notes

14. 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))

Notes

15. 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)

Notes

16. National Registry - Notification of Changes *Were notifications for changes to the storage facility submitted per §191.22(c) and with accurate information?* (UNGS.RPT.REGISTRYCHGSNOTIF.R) 191.22(c)

Note: this question is presented in multiple places so you will see multiple instances of it on this report.

Notes

17. 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)

Notes

18. Annual Report *Were annual reports submitted according to procedure and with accurate information?* (UNGS.RPT.ANNUALREPORT.R) 191.17(c)

Notes

Underground Natural Gas Storage - Reservoirs - Integrity in Well Design & Construction

1. National Registry - Notification of Changes *Were notifications for changes to the storage facility submitted per §191.22(c) and with accurate information?* (UNGS.RPT.REGISTRYCHGSNOTIF.R) 191.22(c)

Note: this question is presented in multiple places so you will see multiple instances of it on this report.

Notes

Underground Natural Gas Storage - Reservoirs - Integrity Through Initial Pressure & Inventory

1. Reservoir Integrity Monitoring - Material Balance *Does the process require monitoring of the material balance behavior relative to the original design and expected reservoir behavior?* (UNGS.RESINITIAL.MATBALANCE1.P) 192.12(b)(1) (API RP1171(1st Edition), Section 7.3.1)

Notes

2. Reservoir Integrity Monitoring - Material Balance *Do records demonstrate that the monitored material balance behavior of the storage reservoir is consistent with the expected reservoir behavior?* (UNGS.RESINITIAL.MATBALANCE1.R) 192.12(b)(1) (API RP1171(1st Edition), Section 7.3.1)

Notes

3. Reservoir Integrity Monitoring - Unexpected Conditions *Does the process require evaluation and correcting of any unexpected condition detected during material balance monitoring?* (UNGS.RESINITIAL.MATBALANCE2.P) 192.12(b)(1) (API RP1171(1st Edition), Section 7.3.1)

Notes

4. Reservoir Integrity Monitoring - Unexpected Conditions *Do records demonstrate that unexpected conditions in the material balance were evaluated and corrected?* (UNGS.RESINITIAL.MATBALANCE2.R) 192.12(b)(1) (API RP1171(1st Edition), Section 7.3.1)

Notes

5. Monitoring and Analysis Methods - Reservoir Pressure *Does the process require that the average reservoir pressure versus inventory graph be monitored to capture any unexpected conditions?* (UNGS.RESINITIAL.PRESSVSINVENT.P) 192.12(b)(1) (API RP1171(1st Edition), Section 7.3.2)

Notes

6. Monitoring and Analysis Methods - Reservoir Pressure *Do records demonstrate that the average reservoir pressure versus inventory graph was monitored to capture unexpected conditions?* (UNGS.RESINITIAL.PRESSVSINVENT.R) 192.12(b)(1) (API RP1171(1st Edition), Section 7.3.2)

Notes

7. Mechanical Integrity Monitoring - Abnormal Operating Conditions *Does the process require that wells and related facilities be monitored for mechanical integrity to discover and correct for abnormal operating conditions?* (UNGS.RESINITIAL.MECHINTEGMONIT.P) 192.12(b)(1) (API RP1171(1st Edition), Section 7.4.1)

Notes

8. Mechanical Integrity Monitoring - Abnormal Operating Conditions *Do records demonstrate that the mechanical integrity of wells and related facilities are monitored to discover and correct for abnormal operating conditions?* (UNGS.RESINITIAL.MECHINTEGMONIT.R) 192.12(b)(1) (API RP1171(1st Edition), Section 7.4.1)

Notes

9. Recordkeeping of Testing and Monitoring Activities *Do records include the required items, as applicable and available, listed in API RP 1171(1st Edition), Section 7.5?* (UNGS.RESINITIAL.RECORDS.R) 192.12(b)(1) (API RP1171(1st Edition), Section 7.5)

Notes

10. Recordkeeping Retention of Testing and Monitoring Activities *Does the process require that records for natural gas storage testing and monitoring activities be maintained for the life of the facility?* (UNGS.RESINITIAL.RECORDSRET.P) 192.12(b)(1) (API RP1171(1st Edition), Section 7.5)

Notes

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

1. Integrity Management Program - Requirements *Are written procedures in place for an Integrity Management Program that meets all of the requirements listed in 192.12(d)(1) and API RP 1171(1st Edition), Section 8?* (UNGS.RESRISK.IMPROGRAM.P) 192.12(d)(1) (192.12(d)(4);192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8)

Notes

2. Integrity Management Program - Requirements *Do records indicate the Integrity Management Program has been fully implemented and documented for all of the requirements listed in 192.12(d)(1) and (d)(4) and API RP 1171(1st Edition), Section 8?* (UNGS.RESRISK.IMPROGRAM.R) 192.12(d)(1) (192.12(d)(4);192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8)

Notes

3. Definition of Risk *How is "risk" defined in the Integrity/Risk Management Program?* (UNGS.RESRISK.DEFINITION.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.1)

Notes

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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.3.2)

Notes

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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.3.2)

Notes

6. Evaluation of Threats and Hazards *Does the process require evaluation for potential threats and hazards impacting storage wells and reservoirs?* (UNGS.RESRISK.THREATEVAL.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.4.2)

Notes

7. Evaluation of Threats and Hazards *Do records demonstrate that potential threats and hazards impacting storage wells and reservoir were adequately evaluated?* (UNGS.RESRISK.THREATEVAL.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.4.2)

Notes

8. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.3.2)

Notes

9. Threat and Hazard Interaction *Do records demonstrate that appropriate data is used to assess threat and hazard interaction?* (UNGS.RESRISK.THREATINTERACT.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.3.2)

Notes

10. Exclusion of Threats and Hazards Events *Does the process include provisions for the exclusion of specific hazards or threats events and related threats interactions?* (UNGS.RESRISK.THREATEXCLUDE.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.4.1)

Notes

11. Exclusion of Threats and Hazards Events *Do records demonstrate that the process was followed for the exclusion of specific hazards or threat events and related threats interactions?* (UNGS.RESRISK.THREATEXCLUDE.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.4.1)

Notes

12. Baseline Risk Assessment Timeline/Completion *Does the process require the Integrity Management baseline risk assessments for all reservoirs and wells for each UNGSF to be completed in accordance with the timeframes and prioritization required by 192.12(d)(2)?* (UNGS.RESRISK.RISKBASELINE.P) 192.12(d)(2) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8)

Notes

13. Baseline Risk Assessment Timeline/Completion *Do records demonstrate the Integrity Management baseline risk assessments for all reservoirs and wells for each UNGSF are being conducted in accordance with the timeframes and prioritization required in 192.12(d)(2)?* (UNGS.RESRISK.RISKBASELINE.R) 192.12(d)(2) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8)

Notes

14. Risk Assessment - Consistent Process & Methods *Does the process assess risk in a consistent manner and with a consistent methodology?* (UNGS.RESRISK.RISKASSESSMETHOD.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.5.2)

Notes

15. Risk Assessment - Consistent Process & Methods *Do the records demonstrate that the risk assessment was done in a consistent manner and with a consistent methodology?* (UNGS.RESRISK.RISKASSESSMETHOD.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.5.2)

Notes

16. Risk Assessment - Results Review *Does the process require review of the risk assessment results to determine whether the risk assessment, resulting prioritization, or ranking accurately represents its facilities and the characterization of the risks?* (UNGS.RESRISK.RISKASSESSRESULT.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.5.2)

Notes

17. 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 accurately represents its facilities and the characterization of the risks?* (UNGS.RESRISK.RISKASSESSRESULT.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.5.2)

Notes

18. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.6.2)

Notes

19. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.6.2)

Notes

20. Risk Management Effectiveness Reviews *Does the process require assessment of the effectiveness of risk monitoring and risk management programs?* (UNGS.RESRISK.RISKMGMTEFFECTIVE.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.7.1)

Notes

21. Risk Management Effectiveness Reviews *Do records demonstrate how the effectiveness of the risk monitoring and risk management is assessed?* (UNGS.RESRISK.RISKMGMTEFFECTIVE.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.7.1)

Notes

22. Risk Re-Assessment Review & Update Interval *Does the process require operator to determine the appropriate interval(s) for Integrity Management risk re-assessments for continuous improvement for all reservoirs and wells for each UNGSF in accordance with the requirements in 192.12(d)(3) and RP1171(1st Edition), subsections 8.7.1 and 8.7.2?* (UNGS.RESRISK.RISKREASSESSINTRVL.P) 192.12(d)(3) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8.7.1;API RP1171(1st Edition) Section 8.7.2)

Notes

23. Risk Re-Assessment Review & Update Interval *Do records demonstrate operator determined the appropriate interval(s) for Integrity Management risk re-assessments for continuous improvement for all reservoirs and wells for each UNGSF in accordance with the requirements in 192.12(d)(3) and RP1171(1st Edition), subsections 8.7.1 and 8.7.2?* (UNGS.RESRISK.RISKREASSESSINTRVL.R) 192.12(d)(3) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8.7.1;API RP1171(1st Edition) Section 8.7.2)

Notes

24. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.7.3)

Notes

25. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 8.7.3)

Notes

26. Integrity Management Program Recordkeeping *Does the written Integrity Management Program require records that are used to demonstrate compliance with §192.12(d) be maintained for the life of the facility?* (UNGS.RESRISK.IMPROGRECORDS.P) 192.12(d)(4) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8.8)

Notes

27. Integrity Management Program Recordkeeping *Are all Integrity Management Program records that are used to demonstrate compliance with §192.12(d) being documented and maintained for the life of the facility?* (UNGS.RESRISK.IMPROGRECORDS.R) 192.12(d)(4) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 8.8)

Notes

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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 10.2.2;API RP1171(1st Edition) Section 10.1;API RP1171(1st Edition) Section 11.9.1;API RP1171(1st Edition), Section 11.2.1)

Notes

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(b)(2) (192.12(b)(1);API RP1171 Section 10.3.2)

Notes

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(b)(2) (192.12(b)(1);API RP1171 Section 10.3.2)

Notes

4. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 10.3.2;API RP1171(1st Edition) Section 11.9.1)

Notes

5. Signage *Does the process require that there is permanent weatherproof signage installed at each well site?* (UNGS.RESSITE.SIGNAGE.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 10.4.1)

Notes

6. Signage *Do records demonstrate that there is a sign at each well site?* (UNGS.RESSITE.SIGNAGE.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 10.4.1)

Notes

7. Signage *Is a permanent weatherproof signage installed at each well site?* (UNGS.RESSITE.SIGNAGE.O) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 10.4.1)

Notes

8. Emergency Preparedness/Response Plan *Is there a written emergency preparedness / emergency response plan in place that addresses accidental releases, equipment failure, natural disasters, and third-party emergencies?* (UNGS.RESSITE.EMERGPLAN.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.1)

Notes

9. Emergency Preparedness/Response Plan - Reviews & Effectiveness *Is the emergency preparedness / emergency response plan (ER Plan manual) required to be reviewed for effectiveness and updated at intervals not exceeding 15 months, but at least once each calendar year?* (UNGS.RESSITE.EMERGPLANRVW.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 10.6.1)

Notes

10. Emergency Preparedness/Response Plan - Reviews & Effectiveness *Do records demonstrate the emergency preparedness / emergency response plan (ER Plan manual) was reviewed and updated at intervals not exceeding 15 months, but at least once each calendar year?* (UNGS.RESSITE.EMERGPLANRVW.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 10.6.1)

Notes

11. Emergency Preparedness/Response Plan - Accessibility *Is the most current Emergency Response Plan (manual) required to be made available and readily accessible to operations, maintenance, and storage personnel where the work is performed?* (UNGS.RESSITE.EMERGPLANAVAIL.P) 192.12(c) (192.12(b)(2);192.12(b)(1))

Notes

12. Emergency Preparedness/Response Plan - Accessibility *Do field observations confirm the most current Emergency Response Plan (manual) is available and readily accessible to operations, maintenance, and storage personnel where the work is performed?* (UNGS.RESSITE.EMERGPLANAVAIL.O) 192.12(c) (192.12(b)(2);192.12(b)(1))

Notes

13. Emergency Preparedness/Response Plan - Drills and Exercises *Do records demonstrate that the emergency preparedness/response plan exercises (drills and tabletop exercises) were conducted and documented?* (UNGS.RESSITE.EMERGPLANDRILLS.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 10.6.1)

Notes

14. Emergency Preparedness/Response Plan - Drills *Is an observed emergency preparedness drill or tabletop exercise conducted adequately and in accordance with the established plan?* (UNGS.RESSITE.EMERGPLANDRILLS.O) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.1;API RP1171(1st Edition) Section 11.4.2)

Notes

15. 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(b)(2) (192.12(b)(1);192.12(c);API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 10.6.2;API RP1171(1st Edition), Section 11.2.1)

Notes

16. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 10.6.2)

Notes

17. Emergency Preparedness/Response Plan - Training *Do field observations confirm emergency preparedness/response plan training was conducted adequately and in accordance with the established process?* (UNGS.RESSITE.ERTRAINING.O) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 10.6.2)

Notes

18. Blowout Contingency Plan *Is there a current written Blowout Contingency Plan in place?* (UNGS.RESSITE.BLOWOUTPLAN.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.3)

Notes

19. Blowout Contingency Plan *Do records demonstrate that the Blowout Contingency Plan was followed according to procedure when activated or when conducted as a drill or tabletop exercise?* (UNGS.RESSITE.BLOWOUTPLAN.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.3)

Notes

20. Blowout Contingency Plan - Observations *Is an observed BCP drill and/or tabletop exercise conducted adequately and in accordance with the Plan?* (UNGS.RESSITE.BLOWOUTPLAN.O) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.3)

Notes

21. Blowout Contingency Plan - Reviews *Is the Blowout Contingency Plan required to be reviewed for effectiveness and updated at intervals not exceeding 15 months, but at least once each calendar year?* (UNGS.RESSITE.BLOWOUTPLANRVW.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.3;API RP1171(1st Edition) Section 11.4.2)

Notes

22. Blowout Contingency Plan - Reviews *Do records demonstrate the Blowout Contingency Plan was reviewed for effectiveness and updated at intervals not exceeding 15 months, but at least once each calendar year?* (UNGS.RESSITE.BLOWOUTPLANRVW.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 10.6.3;API RP1171(1st Edition) Section 11.4.2;API RP1171(1st Edition) Section 11.11)

Notes

Underground Natural Gas Storage - Reservoirs - Procedures & Training

1. Operations and Maintenance Procedures *Are there written procedures in place for conducting operations and maintenance (O&M) activities (including drilling and other well entry work) of UNGS facilities, including activities required to establish and maintain functional integrity?* (UNGS.RESPROCED.OMPROCED.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.2.1;API RP1171(1st Edition) Section 11.2.2)

Notes

2. Operations and Maintenance Procedures *Do records indicate that the activities required by the Operations and Maintenance Procedures to establish and maintain functional integrity were properly documented/recorded and retained, as required by §192.12(c)?* (UNGS.RESPROCED.OMPROCED.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.2.1;API RP1171(1st Edition) Section 11.2.2)

Notes

3. 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.OMPROCEDSCOPE.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.3.2;API RP1171(1st Edition) Section 11.3.1)

Notes

4. Operations and Maintenance Procedures - In Place *Do records demonstrate that the Operation and Maintenance procedures were in place prior to commencing operations of a new storage facility or beginning an activity not yet implemented?* (UNGS.RESPROCED.OMPROCEDIMPL.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.3.1)

Notes

5. Operations and Maintenance Procedures - Accessibility *Are the most current O&M procedural manuals required to be made available and readily accessible to operations, maintenance, and storage personnel where the work is performed?* (UNGS.RESPROCED.OMPROCEDAVAIL.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.2.1)

Notes

6. Operations and Maintenance Procedures - Accessibility *Do field observations confirm current O&M procedures are available and readily accessible to operations, maintenance, and storage personnel?* (UNGS.RESPROCED.OMPROCEDAVAIL.O) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition) Section 11.2.1)

Notes

7. Operations and Maintenance Procedures - Reviews *Are the Operations and Maintenance procedures (manuals) required to be reviewed and updated at intervals not exceeding 15 months, but at least once each calendar year?* (UNGS.RESPROCED.OMPROCEDRVW.P) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition), Section 11.2.2)

Notes

8. Operations and Maintenance Procedures - Reviews *Do records demonstrate the Operations and Maintenance procedures (manuals) have been reviewed and updated at intervals not exceeding 15 months, but at least once each calendar year?* (UNGS.RESPROCED.OMPROCEDRVW.R) 192.12(c) (192.12(b)(2);192.12(b)(1);API RP1171(1st Edition), Section 11.2.2)

Notes

9. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.7.1;API RP1171(1st Edition), Section 11.2.1)

Notes

10. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.7.1)

Notes

11. Safety and Environmental Programs - Safeguards *Do the process and procedures incorporate safeguards for the Environment, Safety, and Health into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGENV.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.9.1;API RP1171(1st Edition), Section 11.2.1)

Notes

12. Safety and Environmental Programs - Safeguards *Do records demonstrate that safeguards for the Environment, Safety, and Health are incorporated into storage design, construction, and operations?* (UNGS.RESPROCED.SFTYENVPROGENV.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.9.1)

Notes

13. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.9.1;API RP1171(1st Edition), Section 11.2.1)

Notes

14. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.9.1)

Notes

15. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.11.1;API RP1171(1st Edition), Section 11.2.1)

Notes

16. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.11.1)

Notes

17. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.11.1)

Notes

18. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.11.1)

Notes

19. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.12.2;API RP1171(1st Edition), Section 11.2.1)

Notes

20. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.12.2)

Notes

21. 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(1st Edition), Section 11.3?* (UNGS.RESPROCED.TRAINOMCHGS.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.12.2;API RP1171(1st Edition) Section 11.3;API RP1171(1st Edition), Section 11.2.1)

Notes

22. 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(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.12.2;API RP1171(1st Edition) Section 11.3)

Notes

23. Training Records - Retention *What is the established retention interval for training records?* (UNGS.RESPROCED.TRAINRECORDS.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.13.2;API RP1171(1st Edition) Section 11.13.3)

Notes

24. Training Records - Retention *Do records demonstrate that training records retention meets the operator established interval?* (UNGS.RESPROCED.TRAINRECORDS.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.13.2;API RP1171(1st Edition) Section 11.13.3)

Notes

25. 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(1st Edition), Section 11?* (UNGS.RESPROCED.RECORDSDOC.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.13.1)

Notes

26. Records Retention *Does the process establish a retention interval for all records that satisfy API RP1171(1st Edition), Section 11 requirements and operator requirements?* (UNGS.RESPROCED.RETENTION.P) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.13.3)

Notes

27. Records Retention *Do records demonstrate that the records retention intervals are followed for the API RP1171(1st Edition) Section 11 requirements and operator requirements??* (UNGS.RESPROCED.RETENTION.R) 192.12(b)(2) (192.12(b)(1);API RP1171(1st Edition) Section 11.13.3)

Notes

Underground Natural Gas Storage - Caverns - Geological & Geomechanical Evaluation

1. Geomechanical Properties - Testing Specimens *Does the process for core testing require that ASTM D4543 be used?* (UNGS.CAVERNGEOL.SPECIMENTEST1.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.3)

Notes

2. Geomechanical Properties - Testing Specimens *Do records for core testing demonstrate that ASTM D4543 was used?* (UNGS.CAVERNGEOL.SPECIMENTEST1.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.3)

Notes

3. Geomechanical Properties - Testing Specimens *Does the process for triaxial core testing require that the specimen have a length to diameter ratio of 2.0 to 2.5 and a diameter not less than 1-7/8 inches?* (UNGS.CAVERNGEOL.SPECIMENTEST2.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.3)

Notes

4. Geomechanical Properties - Testing Specimens *Do records demonstrate that triaxial core testing maintained a specimen length to diameter ratio of 2.0 to 2.5 and a diameter not less than 1-7/8 inches?* (UNGS.CAVERNGEOL.SPECIMENTEST2.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.3)

Notes

5. Geomechanical Properties - Indirect Tension Tests *Does the process require Brazilian indirect tension testing of core samples to meet or exceed the method specified by ASTM D3967?* (UNGS.CAVERNGEOL.TENSIONTEST.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.4)

Notes

6. Geomechanical Properties - Indirect Tension Tests *Do records indicate that the specific method outlined by ASTM D3967 was met or exceeded? followed?* (UNGS.CAVERNGEOL.TENSIONTEST.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.4)

Notes

7. Geomechanical Properties - Triaxial Compression Tests *Does the process for triaxial compression testing of cores require that the procedures of ASTM D7012 be followed or exceeded?* (UNGS.CAVERNGEOL.TRIAXIALTEST.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.5.1)

Notes

8. Geomechanical Properties - Triaxial Compression Tests *Do record demonstrate that ASTM D7012 was used for triaxial compression testing of cores?* (UNGS.CAVERNGEOL.TRIAXIALTEST.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.5.1)

Notes

9. Geomechanical Properties - Triaxial Creep Tests *Does the process for triaxial creep tests require that the procedure meet or exceed the Triaxial Compression Method specified by ASTM D7070?* (UNGS.CAVERNGEOL.TRIAXIALCREEP.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.6)

Notes

10. Geomechanical Properties - Triaxial Creep Tests *Do records demonstrate that the process for triaxial creep tests exceed or meet ASTM D7070?* (UNGS.CAVERNGEOL.TRIAXIALCREEP.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.2.6)

Notes

11. Geomechanical Properties - Stress Tests *Does the process require procedures that meet or exceed ASTM D4645 if a stress test is performed?* (UNGS.CAVERNGEOL.STRESSTEST.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.4)

Notes

12. Geomechanical Properties - Stress Tests *Do records demonstrate that the stress test procedures meet or exceed ASTM D4645?* (UNGS.CAVERNGEOL.STRESSTEST.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.4.4)

Notes

13. Geomechanical Properties - Maximum Pressure Established *Does the process require that maximum pressure be limited to ensure gas containment?* (UNGS.CAVERNGEOL.MAXPRESS.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.5.6)

Notes

14. Geomechanical Properties - Maximum Pressure Established *Do records demonstrate that a maximum pressure was established to ensure gas containment?* (UNGS.CAVERNGEOL.MAXPRESS.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 5.5.6)

Notes

Underground Natural Gas Storage - Caverns - Well Design

1. National Registry - Notification of Changes *Were notifications for changes to the storage facility submitted per §191.22(c) and with accurate information?* (UNGS.RPT.REGISTRYCHGSNOTIF.R) 191.22(c)

Note: this question is presented in multiple places so you will see multiple instances of it on this report.

Notes

Underground Natural Gas Storage - Caverns - Solution Mining

1. Cavern Roof Development *Does the design process require that the roof of the cavern be developed based on detailed planning, modeling and execution?* (UNGS.CAVERNMINE.ROOFDEVEL.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.2.4)

Notes

2. Cavern Roof Development *Do records demonstrate that the roof of the cavern was designed based on detailed planning, modeling and execution?* (UNGS.CAVERNMINE.ROOFDEVEL.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.2.4)

Notes

3. Cavern Roof Development - Production Casing Cement Curing Time *Does the process allow sufficient time for the production casing cement to reach full compressive strength before pressuring the annular space to the MAOP?* (UNGS.CAVERNMINE.CEMENTCURE.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.3)

Notes

4. Cavern Roof Development - Production Casing Cement Curing Time *Do records indicate that there was sufficient time for the production casing cement to reach full compressive strength before pressuring the annular space to the MAOP?* (UNGS.CAVERNMINE.CEMENTCURE.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.3)

Notes

5. Cavern Roof Development - Blanket Interface *Does the process require that a blanket material be placed in the roof of the cavern and the blanket-water interface to be carefully monitored and periodically verified with a wireline log along with other methods?* (UNGS.CAVERNMINE.BLANKETINTERFACE.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.3;API RP1170(1st Edition), Section 8.2.2.4)

Notes

6. Cavern Roof Development - Blanket Interface *Do records demonstrate that a blanket material was placed in the roof of the cavern and that the blanket-water interface was carefully monitored and periodically verified with a wireline log along with other methods?* (UNGS.CAVERNMINE.BLANKETINTERFACE.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.3;API RP1170(1st Edition), Section 8.2.2.4)

Notes

7. Cavern Roof Development - Roof Controls *Does the process require the use of roof controls during reverse circulation so that the salt neck below the casing seat is left intact?* (UNGS.CAVERNMINE.ROOFCONTROLS.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.4.3)

Notes

8. Cavern Roof Development - Roof Controls *Do records demonstrate that roof controls were utilized during reverse circulation so that the salt neck below the casing seat remained intact?* (UNGS.CAVERNMINE.ROOFCONTROLS.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.4.3)

Notes

9. Cavern Development - Solution Mining Model *Does the design process require that a solution mining model be used to develop the salt cavern?* (UNGS.CAVERNMINE.MININGMODEL.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.5)

Notes

10. Cavern Development - Solution Mining Model *Do records demonstrate that a solution mining model was used to develop the salt cavern?* (UNGS.CAVERNMINE.MININGMODEL.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.2.5)

Notes

11. Upper Cavern Development - Roof Growth Controls *Does the design process require that upward roof growth be controlled by planned use of raw water injection points, flow rates, and blanket material positioning?* (UNGS.CAVERNMINE.ROOFGROWTH.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.3.4)

Notes

12. Upper Cavern Development - Roof Growth Controls *Do records demonstrate that upward roof growth was controlled through planned use of raw water injection points, flow rates, and blanket material positioning?* (UNGS.CAVERNMINE.ROOFGROWTH.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.3.4)

Notes

13. Upper Cavern Development - Confirm Roof Shape *Does the design process require that frequent interface logs and sonar surveys be performed to confirm desired roof shape and volume?* (UNGS.CAVERNMINE.ROOFSHAPE .P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.3.4)

Notes

14. Upper Cavern Development - Confirm Roof Shape *Do records indicate that frequent interface logs and sonar surveys were used to confirm desired roof shape and volume?* (UNGS.CAVERNMINE.ROOFSHAPE.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.3.4)

Notes

15. ESD Equipment *Does the process used during solution mining require the use of ESD valves?* (UNGS.CAVERNMINE.ESDEQUIP.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.1)

Notes

16. ESD Equipment *Do records indicate that ESD valves were used during solution mining?* (UNGS.CAVERNMINE.ESDEQUIP.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.1)

Notes

17. Hanging String Sizing *Does the design process require that the hanging string be sized based on the criteria of API 1170, Section 8.4.2.2?* (UNGS.CAVERNMINE.HANGINGSTRING.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.2.2)

Notes

18. Hanging String Sizing *Do records demonstrate that the hanging string size is based on the criteria in API 1170(1st Edition), Section 8.4.2.2?* (UNGS.CAVERNMINE.HANGINGSTRING.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.2.2)

Notes

19. Hanging String Connections *Does the design process require that hanging string connections be made-up to manufacturer's specifications?* (UNGS.CAVERNMINE.CONNECTIONS.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.2.5)

Notes

20. Hanging String Connections *Do records demonstrate that the hanging string connections were made up to manufacturer's specifications?* (UNGS.CAVERNMINE.CONNECTIONS.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.2.5)

Notes

21. Fluids Injection Rates *Does the process during mining require fluid injection rates to be metered and recorded?* (UNGS.CAVERNMINE.FLUIDINJECTION.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.3)

Notes

22. Fluids Injection Rates *Do records indicate that fluid injection rates were metered and recorded during solution mining?* (UNGS.CAVERNMINE.FLUIDINJECTION.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.4.3)

Notes

23. Instrumentation, Control, and Shutdown Devices *Does the process require that the system components have instrumentation control and shutdown during the solution mining process?* (UNGS.CAVERNMINE.SHUTDOWN.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.5.1)

Notes

24. Instrumentation, Control, and Shutdown Devices *Do records indicate that the cavern system components have instrumentation control and shutdown during the mining process?* (UNGS.CAVERNMINE.SHUTDOWN.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.5.1)

Notes

25. Cavern Overpressure Protection System *Does the process require that OPP be installed if the cavern system is connected to a plant pump with the capacity to increase pressure of the cavern over MAOP?* (UNGS.CAVERNMINE.PRESSPROTECT.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.5.4)

Notes

26. Cavern Overpressure Protection System *Do records demonstrate that OPP was used for the cavern system if the cavern system was connected to a plant pump with the capacity to increase pressure of the cavern over MAOP?* (UNGS.CAVERNMINE.PRESSPROTECT.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.5.4)

Notes

27. Cavern Monitoring *Does the process require that the cavern be monitored throughout the solution mining and debrining processes?* (UNGS.CAVERNMINE.MONITORING.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.6.1)

Notes

28. Cavern Monitoring *Do records demonstrate that the cavern was monitored during the mining and debrining processes?* (UNGS.CAVERNMINE.MONITORING.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.6.1)

Notes

29. Returned Brine Salinity and Chemistry *Does the process require that the salinity of the brine in/out of the cavern be measured during the mining process?* (UNGS.CAVERNMINE.SALINITY.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.6.5)

Notes

30. Returned Brine Salinity and Chemistry *Do records indicate that the salinity of the water in/out of the cavern was/is measured during the mining process?* (UNGS.CAVERNMINE.SALINITY.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.6.5)

Notes

31. Workover to Configure for Gas Storage Service *Does the conversion to gas storage process require that a workover (including a casing inspection of the production casing, installation of the gas storage wellhead, and a mechanical integrity test) is performed?* (UNGS.CAVERNMINE.WORKOVER.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.1)

Notes

32. Workover to Configure for Gas Storage Service *Do records indicate that a workover (including a casing inspection, installation of a gas storage wellhead, and a mechanical integrity test) was performed before conversion to gas storage?* (UNGS.CAVERNMINE.WORKOVER.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.1)

Notes

33. Inspection of Re-Used Solution Mining Hanging Strings *Does the process require that hanging strings be inspected by a full body electromagnetic and ultrasonic inspection and a thread and coupling inspection if the hanging string were to be reused?* (UNGS.CAVERNMINE.STRINGINSP1.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.2)

Notes

34. Inspection of Re-Used Solution Mining Hanging Strings Joints *Does the process require that hanging strings joints or connections that fail the inspection be removed and discarded?* (UNGS.CAVERNMINE.STRINGINSP2.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.2)

Notes

35. Inspection of Re-Used Solution Mining Hanging Strings *Do records indicate that an inspection was done on all reused hanging strings and that joints or connections that failed the inspection were removed and discarded?* (UNGS.CAVERNMINE.STRINGINSP.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.2)

Notes

36. Cavern Sonar Survey *Does the process require a sonar survey be conducted to verify the final cavern geometry?* (UNGS.CAVERNMINE.SONARSURVEY.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.4;API RP1170(1st Edition), Section 8.10.2.2)

Notes

37. Cavern Sonar Survey *Do records indicate that a final sonar survey was conducted to verify the cavern geometry?* (UNGS.CAVERNMINE.SONARSURVEY.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.4;API RP1170(1st Edition), Section 8.10.2.2)

Notes

38. Installing the Gas Storage Service Wellhead *Does the process require that any reused components from the wellhead be removed, inspected, and tested prior to re-use for gas storage?* (UNGS.CAVERNMINE.REUSEDCOMP.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.5)

Notes

39. Installing the Gas Storage Service Wellhead *Do records demonstrate that any reused components from the wellhead be removed, inspected, and tested prior to re-use in gas service?* (UNGS.CAVERNMINE.REUSEDCOMP.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.5)

Notes

40. Installing Debrining Strings - Salvaged Strings *Does the process require that debrining strings of unknown quality (salvaged) be discarded?* (UNGS.CAVERNMINE.DEBRININGSTRING1.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.6)

Notes

41. Installing Debrining Strings - Salvaged Strings *Do records demonstrate that debrining strings of unknown quality (salvaged) be discarded?* (UNGS.CAVERNMINE.DEBRININGSTRING1.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.6)

Notes

42. Installing Debrining Strings - Testing Connections *Does the process require that each connection of the debrining string be pressure tested?* (UNGS.CAVERNMINE.DEBRININGSTRING2.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.6)

Notes

43. Installing Debrining Strings - Testing Connections *Do records demonstrate that each connection of the debrining string were successfully pressure tested?* (UNGS.CAVERNMINE.DEBRININGSTRING2.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.6)

Notes

44. Conducting a Mechanical Integrity Test (MIT) *Does the process require that a nitrogen/brine interface MIT be performed to ensure cavern integrity before it is placed into gas service?* (UNGS.CAVERNMINE.CAVERNMIT.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.7)

Notes

45. Conducting a Mechanical Integrity Test (MIT) *Do records demonstrate that a nitrogen/brine interface MIT was performed, prior to placing cavern into gas service, to ensure cavern integrity?* (UNGS.CAVERNMINE.CAVERNMIT.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.8.7)

Notes

46. Monitoring During Debrining *Does the process require that the debrining piping be monitored during the debrining process?* (UNGS.CAVERNMINE.MONITORDEBRINE.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.9.6)

Notes

47. Monitoring During Debrining *Do records demonstrate that the debrining piping was monitored during the debrining process?* (UNGS.CAVERNMINE.MONITORDEBRINE.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.9.6)

Notes

48. Existing Cavern Conversions *Does the process ensure that a converted cavern (cavern not initially intended for gas storage) meet the same criteria as a developed natural gas storage cavern and undergo a thorough review as stated in API 1170(1st Edition), Section 8.10?* (UNGS.CAVERNMINE.CONVERTEDCAVERN.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.10.1)

Notes

49. Existing Cavern Conversions *Do records indicate that a converted cavern undergo a thorough review as outlined in API RP1170(1st Edition), Section 8.10?* (UNGS.CAVERNMINE.CONVERTEDCAVERN.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.10.1)

Notes

50. Cavern Enlargement *Does the enlarging process for caverns include the criteria outlined in API 1170(1st Edition), Section 8.12?* (UNGS.CAVERNMINE.ENLARGEMENT.P) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.12)

Notes

51. Cavern Enlargement *Do records indicate that the cavern was enlarged based on the criteria outlined in API 1170(1st Edition), Section 8.12?* (UNGS.CAVERNMINE.ENLARGEMENT.R) 192.12(a)(1) (192.12(a)(2);API RP1170(1st Edition), Section 8.12)

Notes

Underground Natural Gas Storage - Caverns - Risk Management (RP1171, Sect. 8)

1. Integrity Management Program - Requirements *Are there written procedures in place for an Integrity Management Program that meets all of the requirements listed in 192.12(d)(1) and API RP 1171(1st Edition), Section 8?* (UNGS.CAVERNRISK.IMPROGRAM.P) 192.12(d)(1) (192.12(d)(4);192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8)

Notes

2. Integrity Management Program - Requirements *Do records indicate the Integrity Management Program has been fully implemented and documented for all of the requirements listed in 192.12(d)(1) and (d)(4) and API RP 1171(1st Edition), Section 8?* (UNGS.CAVERNRISK.IMPROGRAM.R) 192.12(d)(1) (192.12(d)(4);192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8)

Notes

3. Definition of Risk *How is "risk" defined in the Integrity/Risk Management Program?* (UNGS.CAVERNRISK.DEFINITION.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.1)

Notes

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.CAVERNRISK.DATASOURCES.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.3.2)

Notes

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.CAVERNRISK.DATASOURCES.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.3.2)

Notes

6. Evaluation of Threats and Hazards *Does the process require evaluation for potential threats and hazards impacting storage wells and caverns?* (UNGS.CAVERNRISK.THREATEVAL.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.4.2)

Notes

7. Evaluation of Threats and Hazards *Do records demonstrate that potential threats and hazards impacting storage wells and cavern were adequately evaluated?* (UNGS.CAVERNRISK.THREATEVAL.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.4.2)

Notes

8. Threat and Hazard Interaction *Does the process require that information be collected and used to assess threat and hazard interaction?* (UNGS.CAVERNRISK.THREATINTERACT.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.3.2)

Notes

9. Threat and Hazard Interaction *Do records demonstrate that appropriate data is used to assess threat and hazard interaction?* (UNGS.CAVERNRISK.THREATINTERACT.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.3.2)

Notes

10. Exclusion of Threats and Hazards Events *Does the process include provisions for the exclusion of specific hazards or threats events and related threats interactions?* (UNGS.CAVERNRISK.THREATEXCLUDE.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.4.1)

Notes

11. Exclusion of Threats and Hazards Events *Do records demonstrate that the process was followed for the exclusion of specific hazards or threat events and related threats interactions?* (UNGS.CAVERNRISK.THREATEXCLUDE.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.4.1)

Notes

12. Baseline Risk Assessment Timeline/Completion *Does the process require the Integrity Management baseline risk assessments for all caverns and wells for each UNGSF to be completed in accordance with the timeframes and prioritization required by 192.12(d)(2)?* (UNGS.CAVERNRISK.RISKBASELINE.P) 192.12(d)(2) (192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8)

Notes

13. Baseline Risk Assessment Timeline/Completion *Do records demonstrate the Integrity Management baseline risk assessments for all caverns and wells for each UNGSF are being conducted in accordance with the timeframes and prioritization required in 192.12(d)(2)?* (UNGS.CAVERNRISK.RISKBASELINE.R) 192.12(d)(2) (192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8)

Notes

14. Risk Assessment - Consistent Process & Methods *Does the process assess risk in a consistent manner and with a consistent methodology?* (UNGS.CAVERNRISK.RISKASSESSMETHOD.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171 (1st Edition)Section 8.5.2)

Notes

15. Risk Assessment - Consistent Process & Methods *Do the records demonstrate that the risk assessment was done in a consistent manner and with a consistent methodology?* (UNGS.CAVERNRISK.RISKASSESSMETHOD.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.5.2)

Notes

16. Risk Assessment - Results Review *Does the process require review of the risk assessment results to determine whether the risk assessment, resulting prioritization, or ranking accurately represents its facilities and the characterization of the risks?* (UNGS.CAVERNRISK.RISKASSESSRESULT.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.5.2)

Notes

17. 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 accurately represents its facilities and the characterization of the risks?* (UNGS.CAVERNRISK.RISKASSESSRESULT.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.5.2)

Notes

18. Preventive and Mitigative Measures *Does the process require identification and implementation of preventive and mitigative measures to manage risks?* (UNGS.CAVERNRISK.PREVMITIGMETHOD.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.6.2)

Notes

19. Preventive and Mitigative Measures *Do records demonstrate how the preventative and mitigative measures were identified and implemented to reduce risk?* (UNGS.CAVERNRISK.PREVMITIGMETHOD.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.6.2)

Notes

20. Risk Management Effectiveness Reviews *Does the process require assessment of the effectiveness of risk monitoring and risk management programs?* (UNGS.CAVERNRISK.RISKMGMTEFFECTIVE.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.7.1)

Notes

21. Risk Management Effectiveness Reviews *Do records demonstrate how the effectiveness of the risk monitoring and risk management is assessed?* (UNGS.CAVERNRISK.RISKMGMTEFFECTIVE.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.7.1)

Notes

22. Risk Re-Assessment Review & Update Interval *Does the process require operator to determine the appropriate interval(s) for Integrity Management risk re-assessments for continuous improvement for all caverns and wells for each UNGSF in accordance with the requirements in 192.12(d)(3) and RP1171(1st Edition), subsections 8.7.1 and 8.7.2?* (UNGS.CAVERNRISK.RISKREASSESSINTRVL.P) 192.12(d)(3) (192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.7.1;API RP1171(1st Edition) Section 8.7.2)

Notes

23. Risk Re-Assessment Review & Update Interval *Do records demonstrate operator determined the appropriate interval(s) for Integrity Management risk re-assessments for continuous improvement for all caverns and wells for each UNGSF in accordance with the requirements in 192.12(d)(3) and RP1171(1st Edition), subsections 8.7.1 and 8.7.2?* (UNGS.CAVERNRISK.RISKREASSESSINTRVL.R) 192.12(d)(3) (192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.7.1;API RP1171(1st Edition) Section 8.7.2)

Notes

24. 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.CAVERNRISK.NEWTHREATS.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.7.3)

Notes

25. 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.CAVERNRISK.NEWTHREATS.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.7.3)

Notes

26. Integrity Management Program Recordkeeping *Does the written Integrity Management Program require records that are used to demonstrate compliance with 192.12(d) be maintained for the life of the facility?* (UNGS.CAVERNRISK.IMPROGRECORDS.P) 192.12(d)(4) (192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.8)

Notes

27. Integrity Management Program Recordkeeping *Are all Integrity Management Program records that are used to demonstrate compliance with 192.12(d) being documented and maintained for the life of the facility?* (UNGS.CAVERNRISK.IMPROGRECORDS.R) 192.12(d)(4) (192.12(a)(3);192.12(a)(1);192.12(a)(2);API RP1171(1st Edition) Section 8.8)

Notes

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(a)(3) (192.12(a)(1);192.12(a)(2);API RP1170(1st Edition), Section 11.3)

Notes

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(a)(3) (192.12(a)(1);192.12(a)(2);API RP1170(1st Edition), Section 11.3)

Notes

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(a)(3) (192.12(a)(1);192.12(a)(2);API RP1170(1st Edition), Section 11.8)

Notes

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(a)(3) (192.12(a)(1);192.12(a)(2);API RP1170(1st Edition), Section 11.8)

Notes

5. Cavern Abandonment - Long-Term Monitoring Program *Does the long-term monitoring program for abandoned cavern wells follow the criteria of API RP1170(1st Edition), Section 10.3 for integrity monitoring programs?* (UNGS.CAVERNABAND.MONITORPROG.P) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1170(1st Edition), Section 11.8;API RP1170(1st Edition), Section 10.3)

Notes

6. Cavern Abandonment - Long-Term Monitoring Program *Do records demonstrate that the long-term monitoring program for abandoned cavern wells follows API RP1170(1st Edition), Section 10.3?*

(UNGS.CAVERNABAND.MONITORPROG.R) 192.12(a)(3) (192.12(a)(1);192.12(a)(2);API RP1170(1st Edition), Section 11.8;API RP1170(1st Edition), Section 10.3)

Notes