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## UNGS Reservoir – UNGS Reservoir

## Underground Natural Gas Storage - Rule and FAQs

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 3. FAQ 27 - Drug and Alcohol Testing Program Does the operator have a DOT D&A program intended to comply with 49CFR Part 199? (UNGS.RULE.FAQ27DRUGTEST.P) | | | | | | | | | 199.1 | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 4. FAQ 27 - Drug and Alcohol Testing Program Do records indicate the operator has a DOT D&A program? (UNGS.RULE.FAQ27DRUGTEST.R) | | | | | | | | | 199.1 | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

## Underground Natural Gas Storage - Reporting

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 1. Definition of Incident How does the operator define an incident? (UNGS.RPT.INCIDENTDEFN.P) | | | | | | | | | 191.15(c) (191.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 18. Annual Report Were annual reports submitted according to procedure and with accurate information? (UNGS.RPT.ANNUALREPORT.R) | | | | | | | | | 191.17(c) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

## Underground Natural Gas Storage - Reservoirs - Integrity in Reservoir Design

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 1. Geological Characterization - Evaluation Is there a process for preliminary evaluation, characterization, and mapping of the geologic properties of the reservoir that is intended for storing gas? (UNGS.RESDES.GEOLOGICEVAL.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 2. Geological Characterization - Evaluation Do records demonstrate that the intended reservoir was evaluated, characterized and mapped for properties intended for gas storage? (UNGS.RESDES.GEOLOGICEVAL.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 3. Geological Characterization - Buffer Zone Does the process use the geologic characterization to establish the initial vertical and areal buffer zone to protect the integrity of the natural gas storage operation? (UNGS.RESDES.GEOLOGICBUFFER.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 4. Geological Characterization - Buffer Zone Do records demonstrate that the initial vertical and areal buffer zones were established based on the geological characterization? (UNGS.RESDES.GEOLOGICBUFFER.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 5. Engineering Characterization - Design for Integrity Does the process require, at a minimum, evaluation of the casing materials, casing configuration, casing set depths, cement materials, and placement depths for mechanical integrity of all existing and abandoned wells that penetrate the formations being characterized for storage purposes? (UNGS.RESDES.ENGRCHCTR1.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 6. Engineering Characterization - Design for Integrity Do records demonstrate that all existing and abandoned wells, that penetrate the characterized formation for storage, have been evaluated for casing materials, casing configuration, casing set depths, cement materials, and placement depths for functional integrity? (UNGS.RESDES.ENGRCHCTR1.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 7. Engineering Characterization - Corrosive Potential Does the process account for the corrosive potential of the pore fluids if the storage reservoir was used for gas-liquid or oil production? (UNGS.RESDES.ENGRCHCTR2.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 8. Engineering Characterization - Corrosive Potential Do records demonstrate that pore fluids have been evaluated for corrosive potential? (UNGS.RESDES.ENGRCHCTR2.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 9. Engineering Characterization - Corrosion Management Does the process incorporate the corrosive potential of pore fluids, if present, into the design and operation strategies of the storage reservoir ? (UNGS.RESDES.ENGRCHCTR3.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 10. Engineering Characterization - Corrosion Management If there is a corrosive potential from pore fluids, do records demonstrate that the design and operation accounts for the corrosive potential? (UNGS.RESDES.ENGRCHCTR3.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 11. Engineering Characterization - Fluids Issues Does the process require identification and mitigation of potential mineralogical and fluid compatibility issues? (UNGS.RESDES.ENGRCHCTR4.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 12. Engineering Characterization - Fluids Issues Do records demonstrate that mineralogical and fluid compatibility issues are identified and mitigated? (UNGS.RESDES.ENGRCHCTR4.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 13. Engineering Characterization - Reservoir Pressures Does the characterization process require the identification of initial and current reservoir pressures based on known data ? (UNGS.RESDES.ENGRCHCTR5.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 14. Engineering Characterization - Reservoir Pressures Do records demonstrate that the initial and current pressures, for the target reservoir, are identified based on known data? (UNGS.RESDES.ENGRCHCTR5.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 16. Reservoir Containment Assurance Analysis Does the process require that data be acquired to manage uncertainties that were identified during the geologic and engineering characterization process? (UNGS.RESDES.CONTASSURANCE.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 17. Reservoir Containment Assurance Analysis Do records indicate that data was acquired to manage uncertainties identified during the characterization process? (UNGS.RESDES.CONTASSURANCE.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 18. Containment Capability of Reservoir Does the process assess the containment capability of the reservoir and the wells for the designed storage operation volumes, pressures, and rates? (UNGS.RESDES.CONTCAPABILITY.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 19. Containment Capability of Reservoir Do records demonstrate that the containment capability of the reservoir and wells was assessed for the designed storage operation volumes, pressures, and rates? (UNGS.RESDES.CONTCAPABILITY.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 20. Containment Assurance - Reservoir Connectivity Does the process address gas migration control and containment when porous zones are connected with the target reservoir? (UNGS.RESDES.GASMIGRATION.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 21. Containment Assurance - Reservoir Connectivity Do records demonstrate that gas migration control and containment were addressed in the design, if the target reservoir is connected to another porous zone? (UNGS.RESDES.GASMIGRATION.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 22. Maximum Reservoir Pressure Does the process provide a design basis for the maximum pressure of the storage reservoir? (UNGS.RESDES.MAXRESPRESS.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 24. Maximum Pressures - Wells, Piping, and Other Does the process provide a design basis for the maximum pressure of the wells, wellheads, piping, or associated storage facilities? (UNGS.RESDES.MAXPRESSOTHER.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 27. Well Containment Assurance Analysis Does the process require evaluation of all wells that penetrate the storage zone for containment assurance? (UNGS.RESDES.WELLCONTASSURANCE.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.4) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 28. Well Containment Assurance Analysis Do records demonstrate that all wells that penetrate the storage zone have been evaluated for containment assurance? (UNGS.RESDES.WELLCONTASSURANCE.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.4) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 29. Supplemental Evaluation of Reservoirs Developed within Aquifers For storage reservoirs developed within aquifers, does the process require supplemental reservoir geological and engineering evaluation for the delineation of the storage reservoir? (UNGS.RESDES.AQUIFEREVAL01.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 30. Supplemental Evaluation of Reservoirs Developed within Aquifers Do records demonstrate that supplemental aquifer reservoir geological and engineering evaluations were performed? (UNGS.RESDES.AQUIFEREVAL01.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 31. Supplemental Evaluation of Reservoirs Developed within Aquifers For storage reservoirs developed within aquifers, does the process require data gathering and characterization of the reservoir, caprock, basal rock, and lateral seals through drilling, logging and coring? (UNGS.RESDES.AQUIFEREVAL02.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 33. Supplemental Evaluation of Reservoirs Developed within Aquifers For storage reservoirs developed within aquifers, does the process require that site specific geophysical delineation be performed? (UNGS.RESDES.AQUIFEREVAL03.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 34. Supplemental Evaluation of Reservoirs Developed within Aquifers Do records demonstrate that site specific geophysical delineation was conducted for the aquifer storage? (UNGS.RESDES.AQUIFEREVAL03.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 35. Supplemental Evaluation of Reservoirs Developed within Aquifers For storage reservoirs developed within aquifers, is there a process requiring that water pump testing and water level observation be performed to characterize the storage reservoir dimensions, gas capacity, flow performance, and caprock integrity? (UNGS.RESDES.AQUIFEREVAL04.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 36. Supplemental Evaluation of Reservoirs Developed within Aquifers Do records demonstrate that a water pump test and water level observation were performed to characterize the storage reservoir within an aquifer? (UNGS.RESDES.AQUIFEREVAL04.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 37. Storage Design Recordkeeping Does the process require design records to be maintained for the following activities: geologic records; engineering records; land and mineral ownership, rights, and control; facility integrity plan; well drilling, completion, workover and plugging records; regulatory records and permits? (UNGS.RESDES.DESRECORDS.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.6) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 38. Storage Design Recordkeeping Do records demonstrate that the required design records have been maintained? (UNGS.RESDES.DESRECORDS.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.6) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 39. Storage Design Recordkeeping - Life of Facility Does the process require that accurate and comprehensive records of natural gas storage design activities be maintained for the life of the facility? (UNGS.RESDES.DESRECORDSLOF.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.6) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 40. Storage Design Recordkeeping - Life of Facility Are design records accurate and comprehensive and maintained for the lifetime of the facility? (UNGS.RESDES.DESRECORDSLOF.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.6) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 1. Design of Wellhead Equipment Does the process ensure that new and replaced wellheads allow for full diameter entry to the wellbore? (UNGS.RESWELLDES.WELLHEADEQUIP.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 2. Design of Wellhead Equipment Do records demonstrate that new and replaced wellheads allow for full diameter entry to the wellbore? (UNGS.RESWELLDES.WELLHEADEQUIP.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 3. Design of Wellhead Equipment - Restricted Diameter Does the process require review of well records to determine if limited wellhead entry is sufficient for planned activities? (UNGS.RESWELLDES.WELLHEADENTRY.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 4. Design of Wellhead Equipment - Restricted Diameter Do records indicate operator reviewed the well records to determine if limited (less-than-full-diameter) wellhead entry is sufficient to allow for the planned activities? (UNGS.RESWELLDES.WELLHEADENTRY.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 5. Design of Wellhead Equipment - Isolation Valve Does the process require that wells be equipped with valves that provide isolation of the well from the pipeline system and for entry into the wellbore? (UNGS.RESWELLDES.WELLHEADISOLVLV.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 6. Design of Wellhead Equipment - Isolation Valve Do records demonstrate that wells are equipped with valves that provide isolation from the pipeline and entry into the wellbore? (UNGS.RESWELLDES.WELLHEADISOLVLV.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 7. Design of Wellhead Equipment - Pressure Rating Does the process ensure that wellhead equipment is pressure rated to exceed the maximum anticipated operating pressure? (UNGS.RESWELLDES.WELLHEADRATING.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 8. Design of Wellhead Equipment - Pressure Rating Do records demonstrate that wellhead equipment is pressure rated to exceed the maximum anticipated operating pressure? (UNGS.RESWELLDES.WELLHEADRATING.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 9. Design of Wellhead Equipment - Pressure Rating Do pressure ratings of wellhead equipment reflect the documented ratings? (UNGS.RESWELLDES.WELLHEADRATING.O) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 5.5.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 10. Design of Wellhead Equipment - ESD Valve Review Does the process require evaluation of the need of an emergency shut down (ESD) valve by reviewing the requirements of API RP 1171 section 6.2.5? (UNGS.RESWELLDES.WELLHEADESD.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.5; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 11. Design of Wellhead Equipment - ESD Valve Review Do records demonstrate that the need for emergency shutdown valves were reviewed based on the requirements of API RP 1171 Section 6.2.5? (UNGS.RESWELLDES.WELLHEADESD.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.2.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 12. Well Casing - Completion Does the process require that well designs are completed with two or more strings of casing to protect ground water, control wellbore conditions, isolate the storage gas, and inject storage gas from the pipeline into and withdraw out of the storage reservoir? (UNGS.RESWELLDES.WELLCOMPLETION.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 14. Well Casing - Design per API 5C3 Does the process require the use API 5C3 for casing designs? (UNGS.RESWELLDES.WELLCASINGDES.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 15. Well Casing - Design per API 5C3 Do well records indicate that API 5C3 was used for the design of the casings? (UNGS.RESWELLDES.WELLCASINGDES.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 16. Surface Casing Design Does the design process require that the surface casing be of sufficient size, grade, and depth to support drilling operations and to protect groundwater? (UNGS.RESWELLDES.SURFCASINGDES.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 17. Surface Casing Design Do records indicate that the surface casing is of sufficient size, grade, and depth to support drilling operations and to protect groundwater? (UNGS.RESWELLDES.SURFCASINGDES.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 18. Production Casing Design Does the design process require that the production casing be of adequate size and strength to maintain the well integrity? (UNGS.RESWELLDES.PRODCASINGDES1.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 19. Production Casing Design Do records indicate that the production casing is of sufficient size, strength, and depth to maintain the well integrity and be compatible with fluid chemical composition? (UNGS.RESWELLDES.PRODCASINGDES1.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 20. Production Casing Design - Fluids Compatibility Does the design process require that the production casing be compatible with fluid chemical composition? (UNGS.RESWELLDES.PRODCASINGDES2.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 21. Production Casing Design - Fluids Compatibility Do records indicate that the production casing is compatible with fluid chemical composition? (UNGS.RESWELLDES.PRODCASINGDES2.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 22. Production Casing Design - Perforations Does the process require that the production casing be free of open perforations or holes other than the planned completion interval(s)? (UNGS.RESWELLDES.PRODCASINGDES3.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 24. Production Casing Design - Perforations Sealed Does the process require that perforations created in production casing for investigative or remedial work be sealed to establish hydraulic isolation? (UNGS.RESWELLDES.PRODCASINGDES4.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 25. Production Casing Design - Perforations Sealed Do records indicate that perforations created in production casing for investigative or remedial work were sealed to establish hydraulic isolation? (UNGS.RESWELLDES.PRODCASINGDES4.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 26. Casing Handling and Transport Does the process ensure that the casing is stored, transported, lifted, and installed according to manufacturer specifications and API 5C1? (UNGS.RESWELLDES.CASINGHANDLING.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.6; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 27. Casing Handling and Transport Do records demonstrate that the casing was stored, transported, lifted and installed as specified by the manufacturer and API 5C1? (UNGS.RESWELLDES.CASINGHANDLING.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.6) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 29. Casing Connections - Design Do records demonstrate that the casing connections can withstand loads associated with placement of the casing? (UNGS.RESWELLDES.CASINGCONN1.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 30. Casing Connections - Gas Seal Does the process ensure that the casing connections can maintain a gas seal under anticipated wellbore flow conditions and subsequent work? (UNGS.RESWELLDES.CASINGCONN2.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 31. Casing Connections - Gas Seal Do records indicate that casing connections have the ability to maintain a gas seal under well flow conditions and subsequent work? (UNGS.RESWELLDES.CASINGCONN2.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 32. Casing Connections - Specifications Does the process ensure that casing connections are made up according to manufacturer specifications or in accordance with API 5CT? (UNGS.RESWELLDES.CASINGCONN3.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 33. Casing Connections - Specifications Do records demonstrate that the casing connections are made up according to manufacturer specifications or in accordance with API 5CT? (UNGS.RESWELLDES.CASINGCONN3.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 34. Casing Connections - Thread Compound Does the process ensure that casing thread compound or lubricant is compatible with the expected wellbore environment? (UNGS.RESWELLDES.CASINGCONN4.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 35. Casing Connections - Thread Compound Do records demonstrate that the casing thread compound or lubricant is compatible with the expected wellbore environment? (UNGS.RESWELLDES.CASINGCONN4.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 36. Casing Connections - Lubricant Specs Does the process ensure that casing thread compound or lubricant is consistent with the manufacturer’s recommended lubricant or API 5A3? (UNGS.RESWELLDES.CASINGCONN5.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 37. Casing Connections - Lubricant Specs Do records demonstrate that the casing thread compound or lubricant is consistent with the manufacturer’s recommended lubricant or API 5A3? (UNGS.RESWELLDES.CASINGCONN5.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.3.7) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 38. Casing Cement Does the process ensure that the cement slurry or slurry combination is designed for hydrostatic weight control and strength requirements for the storage reservoir? (UNGS.RESWELLDES.CASINGCEMENT.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 39. Casing Cement Do records demonstrate that the cement slurry or slurry combination used for the storage reservoir are/were designed for hydrostatic weight control and strength requirements? (UNGS.RESWELLDES.CASINGCEMENT.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 40. Cement Slurry Design Does the process ensure that the fracture gradient of the storage zone is not exceeded during cement pumping operations? (UNGS.RESWELLDES.CEMENTSLURRY.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.4) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 41. Cement Slurry Design Do records demonstrate that the storage zone fracture gradient was not exceeded during cement pumping operations? (UNGS.RESWELLDES.CEMENTSLURRY.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.4) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 42. Cement Pumping Design Does the process require that competent uncontaminated cement be placed around the casing shoe and around the circumference of the casing? (UNGS.RESWELLDES.CEMENTPUMPING.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.5; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 43. Cement Pumping Design Do records indicate that competent, uncontaminated cement is placed at casing shoes and around the circumference of the casing? (UNGS.RESWELLDES.CEMENTPUMPING.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 44. Cement Bond Evaluation Is there a process for evaluating the cement placement and bond quality through cement bond log or other means that can demonstrate the sealing potential of the cement? (UNGS.RESWELLDES.CEMENTBOND.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.6; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 45. Cement Bond Evaluation Do records demonstrate that the bond or seal quality and cement placement were evaluated by cement bond log or other means and demonstrated the bond or seal quality and placement of the cement? (UNGS.RESWELLDES.CEMENTBOND.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.4.6) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 46. Well Completion and Stimulation Does the process require that well completion and stimulation operations are done to verify that pressure, flow rates, and other mechanical conditions have no adverse impact on the storage reservoir, caprock, or the mechanical integrity of the well? (UNGS.RESWELLDES.COMPLETION.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.5.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 47. Well Completion and Stimulation Do records demonstrate that the pressure, flow rates, and other mechanical conditions have been verified to indicate that there is no adverse impact on the storage reservoir, caprock, or the mechanical integrity of the well? (UNGS.RESWELLDES.COMPLETION.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.5.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 48. Fracture Stimulation Does the process for fracture treatment, if used, ensure that the fracture height or length does not compromise the integrity of the storage reservoir? (UNGS.RESWELLDES.STIMULATION.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.5.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 49. Fracture Stimulation Do records demonstrate that the integrity of the storage reservoir has not been compromised by fracture treatment? (UNGS.RESWELLDES.STIMULATION.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.5.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 50. Well Remediation For wells identified as having compromised mechanical integrity, does the process require evaluation and responsive action within a timeframe corresponding to the severity of the integrity risk? (UNGS.RESWELLDES.REMEDIATION.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.6.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 51. Well Remediation For wells identified as having compromised mechanical integrity, do records demonstrate that they were evaluated and remediated within a time frame corresponding to the severity of the integrity risk? (UNGS.RESWELLDES.REMEDIATION.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.6.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 52. Well Closure (Plugging and Abandonment) Does the process for abandonment of a well require a design for long-term isolation of the storage zone and any other penetrated zones from the surface? (UNGS.RESWELLDES.CLOSURE.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 53. Well Closure (Plugging and Abandonment) Do the records demonstrate that well abandonment for long term isolation of the storage zone and any other penetrated zone from the surface was achieved? (UNGS.RESWELLDES.CLOSURE.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 54. Well Closure (Plugging and Abandonment) Records Does the process define a retention period for abandonment records? (UNGS.RESWELLDES.CLOSUREREC.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 55. Well Closure (Plugging and Abandonment) Records Do records demonstrate that the retention period for abandonment records was followed? (UNGS.RESWELLDES.CLOSUREREC.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 56. Well Closure (Plugging and Abandonment) Observations Do field observations indicate that the operator followed the outlined abandonment process? (UNGS.RESWELLDES.CLOSUREALL.O) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 57. Storage Zone Isolation - Plugs Does the abandonment process require use of cement plugs and/or mechanical plugs to isolate the storage zone from fluid migration? (UNGS.RESWELLDES.PLUGS.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 58. Storage Zone Isolation - Plugs Do records demonstrate which type of abandonment plug was used as defined by API 1171, Section 6.7.2? (UNGS.RESWELLDES.PLUGS.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 59. Storage Zone Isolation - Determination Does the process ensure that the location of groundwater and hydrocarbon bearing zones (in addition to the storage zone/s) were determined to prevent communication between any of those zones during and after plugging of the wells? (UNGS.RESWELLDES.ISOLATION.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 60. Storage Zone Isolation - Determination Do records indicate the depths of the groundwater and hydrocarbon zones penetrated by the well to be abandoned? (UNGS.RESWELLDES.ISOLATION.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 61. Storage Zone Isolation - Cement Evaluation Does the process require that the casing and cement across the water and hydrocarbon zones be properly evaluated before abandoning of the well? (UNGS.RESWELLDES.CEMENTEVAL.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 64. Storage Zone Isolation - Cement Plug Depth Do the records indicate that abandonment plug depths were achieved and verified? (UNGS.RESWELLDES.CEMENTPLUGDEPTH.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 68. Abandoned Well Maintenance - Failed Plug Repair Does the process include the repair of failed plugs in an abandoned well? (UNGS.RESWELLDES.PLUGREPAIR.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 70. Abandoned Well Maintenance - Well Leak Repair Does the abandonment process include the repair of a well having any leak indication that may suggest a lack of isolation of the storage reservoir? (UNGS.RESWELLDES.WELLREPAIR.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 71. Abandoned Well Maintenance - Well Leak Repair Do records demonstrate that abandoned wells having an indication of leaks were repaired according to procedure? (UNGS.RESWELLDES.WELLREPAIR.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 72. Abandoned Well Maintenance - Surface Plug Does the abandonment process require the installation of a surface plug and cap? (UNGS.RESWELLDES.SURFACEPLUG.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 74. Abandoned Well Maintenance - Cap Identification Does the process require the abandoned well surface cap to include the API number or another form of identification? (UNGS.RESWELLDES.CAPIDENTIF.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 75. Abandoned Well Maintenance - Cap Identification Do field observations indicate evidence of an abandoned well surface cap, along with its identification, installed on each abandoned well? (UNGS.RESWELLDES.CAPIDENTIF.O) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.7.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 76. EHS - People & Environmental Safeguards Does the design and construction process incorporate safeguards to protect the environment and the safety and health of workers and the public into well design and during well work activities? (UNGS.RESWELLDES.EHSPEOPLEENV.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.8.1; API RP1171, Section 5.5.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 77. EHS - People & Environmental Safeguards Do records indicate that safeguards to the environment, safety, and health of workers and the public were used in well design and construction, and during well work activities? (UNGS.RESWELLDES.EHSPEOPLEENV.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.8.1; API RP1171, Section 5.5.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 79. EHS - Water & Groundwater Safeguards Do records demonstrate that the surface water and ground water safeguards were used in well design and during drilling and well work operations? (UNGS.RESWELLDES.EHSWATER.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.8.1; API RP1171, Section 5.5.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 80. EHS - Monitoring Worksite Conditions Does the construction process ensure that the worksite is monitored during well drilling, construction, and well work activities to protect the environment and the safety and health of workers and the public? (UNGS.RESWELLDES.EHSWORKSITE.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.8.1; API RP1171, Section 5.5.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 83. Well Testing and Commissioning Does the process require that production casing be tested to demonstrate mechanical integrity and suitability for the designed operating conditions prior to commissioning per API RP 1171, Section 6.9.1? (UNGS.RESWELLDES.WELLTESTING.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.9.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 84. Well Testing and Commissioning Do records demonstrate that the production casing was tested to demonstrate mechanical integrity and suitability for designed operating conditions prior to commissioning per API RP 1171 Section 6.9.1? (UNGS.RESWELLDES.WELLTESTING.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.9.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 85. Well Testing Design Does the process require test design such that the maximum pressure on the packer seat and the pressure at any point in the wellbore during the test does not compromise the mechanical integrity of the well? (UNGS.RESWELLDES.WELLTESTDES.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.9.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 86. Well Testing Design Do records demonstrate that the test was designed so the maximum pressure does not compromise the mechanical integrity of the wells? (UNGS.RESWELLDES.WELLTESTDES.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.9.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 87. Monitoring of Construction Activities Does the process require documentation and retention of records of deviations where such deviations from the original design or in the procedures are required to resolve encountered issues or problems during well activities? (UNGS.RESWELLDES.CONSTRMONITOR.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.10.4; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 89. Monitoring Construction Activities - Maintaining Integrity Does the process require that well issues or problems are resolved in a manner that maintains the functional integrity of the well and reservoir prior to commissioning? (UNGS.RESWELLDES.MAINTINTEGRITY.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.10.4; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 94. Permitting, Procedures, Personnel, and Equipment Records Retention Does the process define a retention period for records relating to permitting, procedures, personnel, and equipment? (UNGS.RESWELLDES.GENRECORDSRET.P) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 6.11.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 9. Recordkeeping of Testing and Monitoring Activities Do records include the required items, as applicable and available, listed in API RP 1171, Section 7.5? (UNGS.RESINITIAL.RECORDS.R) | | | | | | | | | 192.12(b)(1) (API RP1171, Section 7.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 7.5) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 8? (UNGS.RESRISK.IMPROGRAM.P) | | | | | | | | | 192.12(d)(1) (192.12(d)(4); 192.12(b)(2); 192.12(b)(1); API RP1171 Section 8) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 8? (UNGS.RESRISK.IMPROGRAM.R) | | | | | | | | | 192.12(d)(1) (192.12(d)(4); 192.12(b)(2); 192.12(b)(1); API RP1171 Section 8) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.4.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.4.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.5.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.5.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.5.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.5.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.6.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.6.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.7.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, 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 Section 8.7.1; API RP1171 Section 8.7.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, 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 Section 8.7.1; API RP1171 Section 8.7.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.7.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.7.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.8) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 8.8) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

## Underground Natural Gas Storage - Reservoirs - Integrity Monitoring

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 1. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 2. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 3. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 4. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 5. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 6. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 7. Well Integrity Evaluation What is the process for determining which method(s), including inspection technologies, are to be (or were) used for the initial and subsequent mechanical integrity evaluations of each well (including each third-party well that penetrates the storage reservoir and buffer zone or areas influenced by storage operations)? (UNGS.RESINTEG.WELLINTEGEVAL.P) | | | | | | | | | 192.12(b)(2) (192.12(b)(1); API RP1171 Section 9.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 8. Well Integrity Evaluation Do records demonstrate how the ongoing mechanical integrity of each well was initially and subsequently mechanically integrity tested in accordance with the risk/integrity management process? (UNGS.RESINTEG.WELLINTEGEVAL.R) | | | | | | | | | 192.12(b)(2) (192.12(b)(1); API RP1171 Section 9.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 9. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 10. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 11. Well Integrity Evaluation Integration into Risk Program How are the risk assessment process and the information derived from the initial (and prior) mechanical integrity evaluations of each well used to determine the type and timing of the next mechanical integrity test for each well? (UNGS.RESINTEG.WELLINTEGRATION.P) | | | | | | | | | 192.12(b)(2) (192.12(b)(1); API RP1171 Section 9.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 12. Well Integrity Evaluation Integration into Risk Program Do records demonstrate that 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 14. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 15. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 17. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 20. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 24. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 25. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 26. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 29. Well Integrity - Closed Well Safety Valve Where a storage well surface or subsurface automatically-closeable safety valve system is installed, do the safety valve records demonstrate that it was manually reopened at the site after closure and not done so remotely? (UNGS.RESINTEG.CLOSEDSAFETYVALVE.R) | | | | | | | | | 192.12(b)(2) (192.12(b)(1); API RP1171 Section 9.3.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 30. 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(b)(2) (192.12(b)(1); API RP1171 Section 9) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 35. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 36. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 37. 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(b)(2) (192.12(b)(1); API RP1171 Section 9.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

## Underground Natural Gas Storage - Reservoirs - Site Security & Safety

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.2.2; API RP1171 Section 10.1; API RP1171 Section 11.9.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.3.2; API RP1171 Section 11.9.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.4.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.6.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.4.2; API RP1171 Section 10.6.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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)) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.4.2; API RP1171 Section 10.6.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.6.1; API RP1171 Section 11.4.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.4.2; API RP1171 Section 10.6.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.4.2; API RP1171 Section 10.6.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.6.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 10.6.3; API RP1171 Section 11.4.2; API RP1171 Section 11.11) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

## Underground Natural Gas Storage - Reservoirs - Procedures & Training

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.2.1; API RP1171 Section 11.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.2.1; API RP1171 Section 11.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.3.2; API RP1171 Section 11.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.3.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 11.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 11.2.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.7.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.7.1; ) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.9.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.9.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.9.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.9.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.11.1; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.11.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.11.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.11.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.12.2; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.12.2) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 11.3? (UNGS.RESPROCED.TRAINOMCHGS.P) | | | | | | | | | 192.12(b)(2) (192.12(b)(1); API RP1171 Section 11.12.2; API RP1171 Section 11.3; API RP1171, Section 11.2.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.12.2; API RP1171 Section 11.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.13.2; API RP1171 Section 11.13.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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 Section 11.13.2; API RP1171 Section 11.13.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 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, Section 11? (UNGS.RESPROCED.RECORDSDOC.P) | | | | | | | | | 192.12(b)(2) (192.12(b)(1); API RP1171 Section 11.13.1) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 26. 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(b)(2) (192.12(b)(1); API RP1171 Section 11.13.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 27. 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(b)(2) (192.12(b)(1); API RP1171 Section 11.13.3) | | | | | | | | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | | Sat+ | Sat | Concern | Unsat | NA | NC |  |  | |  |  |  |  |  |  |  | | | Notes | | | | | | | | |

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