



Underground Natural Gas Storage

Pipeline Advisory Committees

December 13, 2017

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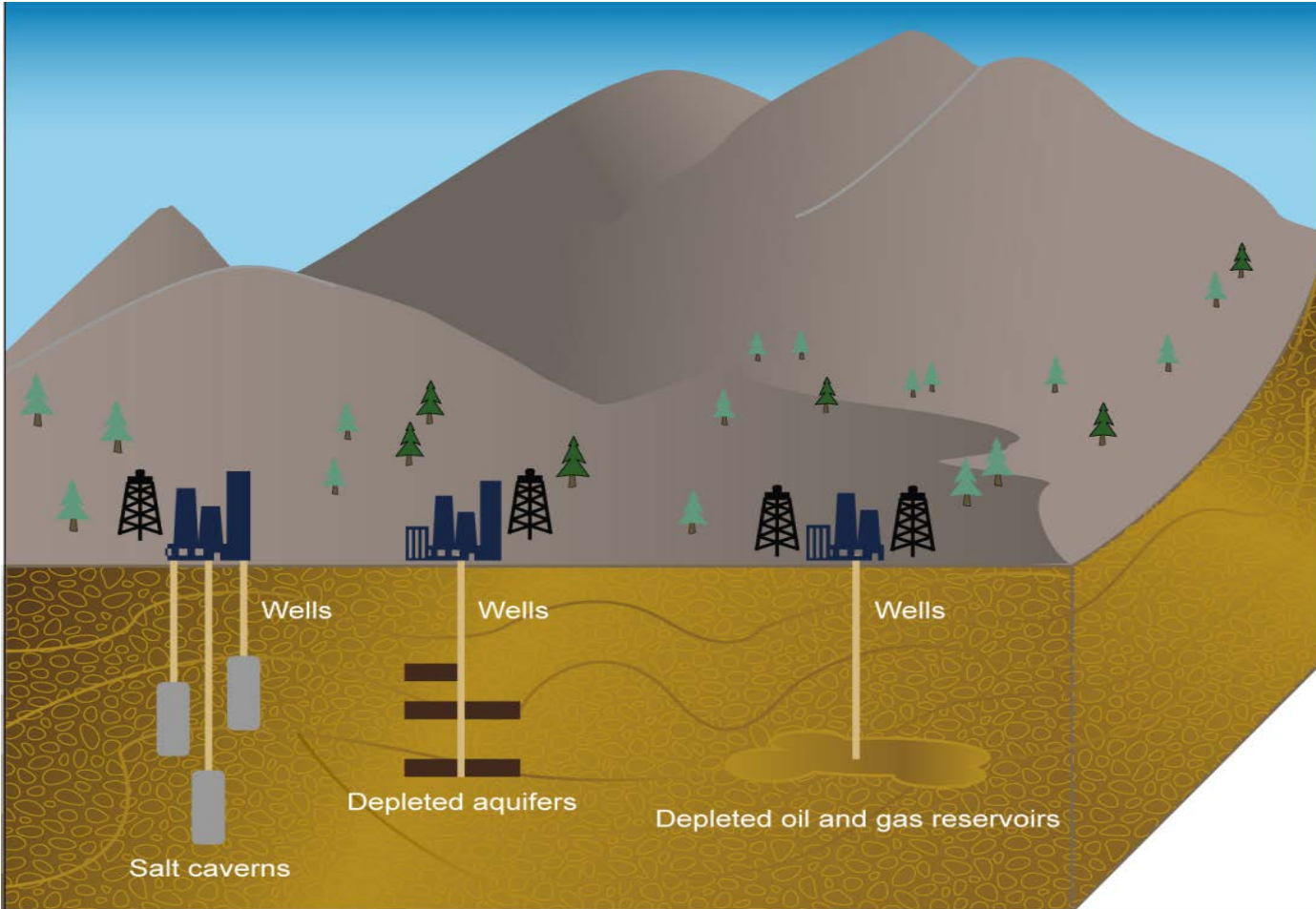


Underground Natural Gas Storage

- Critical role in our ability to have Energy Independence
- Buffers seasonal variations in supply & demand
- Significant growth in domestic shale gas has prompted renewed interest and investment
- NG Storage increased 16% over the past 10 years
- In 2016, the value of natural gas in storage was \$15+ billion



Types of Underground Natural Gas Storage



Source: Energy Information Administration and U.S. Department of Energy. | GAO-18-XXX



“To protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives.”



Pipes Act of 2016

- Establish regulations and inspection program for Underground Natural Gas Storage (UGS)
- Interim Final Rule published on December 19, 2016, which incorporated industry-established recommended practices
- Develop inspection criteria and related training for both federal and state inspectors
- Inspection in this new area of responsibility begins in 2018



49CFR 192.12

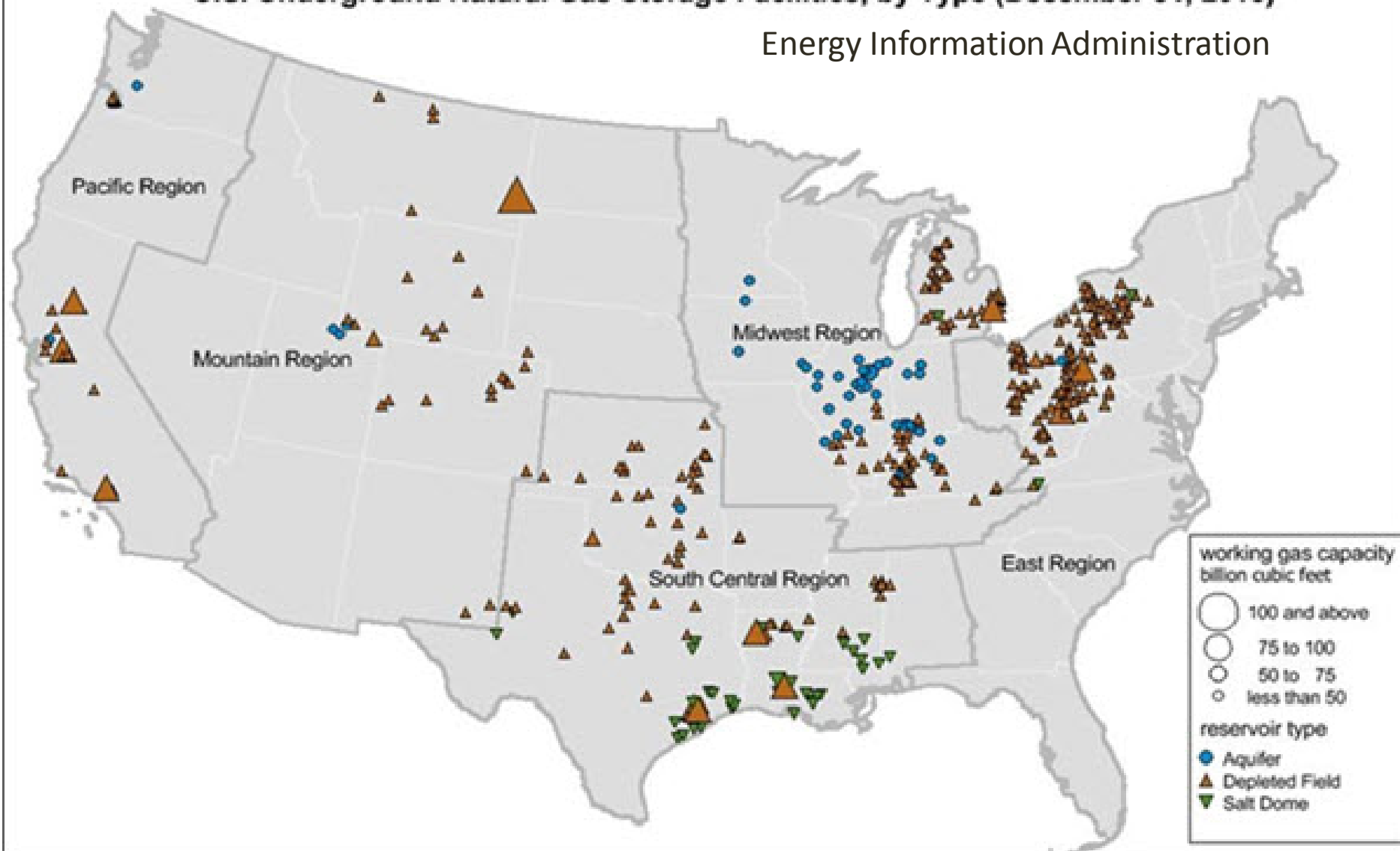
American Petroleum Institute, Recommended Practices

- 12(a), New Salt Domes : API RP-1170
- 12(b), Existing Salt Domes : portions of API RP-1170
- 12(c), New Reservoirs/Aquifers : API RP-1171
- 12(d), Existing Res/Aquifers : portions of API RP-1171
- 12(e), Procedures
- 12(f), Deviations



U.S. Underground Natural Gas Storage Facilities, by Type (December 31, 2015)

Energy Information Administration



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General Statistics

- 128 Operators
- 4800 BCF Working Capacity
- 406 Storage Fields, 50/50 Intra-Inter
- 85% Reservoir-Aquifer, 15% Salt Domes
- 17000 Wells
- Tally based on EIA Information
- ~12% increase in PHMSA inspection burden
- First Annual Reports will clarify Data in 1Q18



States Statistics

- UGS facilities in 31 States
 - 6 with only interstate facilities
- Top 10 States with largest number of Facilities :
 - PA, MI, TX, IL, WV, NY, KY, OH, IN, LA
- Top 10 States with largest Working Gas Capacity:
 - MI, TX, LA, PA, CA, IL, WV, OH, MS, MT



States Certification

- State Regulators for UGS mostly not the agencies responsible for topside horizontal pipelines
- Similar, but separate Program, to the established State Reimbursement Program for topside pipelines
- Requests from States for Certification in CY2018 inspections



Local or State Permits and Licenses

- UGS Operators interact with local, state and other federal agencies
- The new regulations do not supersede permits, certifications or licenses for UGS facilities that are required by local, state or other federal agencies



2017 Major Activities

- Expand & Refine FAQs
- Industry Safety Assessments
- User Fees
- Second Comment Period
- State Certification Program
- Final Rule Development
- Inspection Criteria & Enforcement Guidance
- UGS Goals for PHMSA Strategic & Annual Plans



Frequently Asked Questions

- (7) initially issued in December, 2016
- Expanded set of (21) issued in April, 2017
- The content of the original (7) FAQs is embodied in the current set
- Refine and expand in concurrence with Final Rule



Industry UGS Safety Assessments

- PHMSA Team, States & Contractors
- Purpose & Outcomes
 - Operators' ability to explain the nature and complexity of UGS operations
 - Discuss logistics and complications with new regulations
 - Help to shape the eventual Inspection Process
 - No specific site visit reports about compliance or adherence to the RPs
 - Summary Report posted on October 30



Industry Safety Assessments

| 2017 | Week of | Operator, Facility | Type | State |
|------|---------|--------------------------------|-----------|-------|
| May | 15 | Kinder Morgan, Totem | Reservoir | CO |
| June | 12 | Boardwalk, Petal | Salt Dome | MS |
| June | 19 | Spectra, Moss Bluff | Salt Dome | TX |
| June | 26 | TransCanada, Muttonville | Reservoir | MI |
| July | 10 | Cardinal, Cadeville/Perryville | Res/Dome | LA |
| July | 10 | Peoples Gas, Manlove | Aquifer | IL |
| July | 17 | Merchant Energy, East Cheyenne | Reservoir | CO |
| July | 31 | PG&E, McDonald Island | Reservoir | CA |



Assessment Highlights

- Facility design characteristics are generally aligned with the provisions in the RP's
- Working towards compliance and conducting gap analysis to determine areas of needed improvement
- Prioritizing compliance with the mandatory provisions, prior to considering how to comply with the non-mandatory items
- Operators have a generally good working relationship with their state agencies for well permitting and licensing
- Subsurface safety valves are not typically used, except in isolated circumstances, and more prevalent in IL & CA



UGS User Fees

- Current Annual Budget of \$8mm
- Invoices send to 128 Operators
- As of September ...
 - Amount Collected \$ 7,691,218
 - Amount Outstanding \$ 308,521
- A few facilities disputing the fee



Federal Register Notice

June 20, 2017

- Petition for Reconsideration and Comments about the Interim Final Rule
- Address the issues in a FR, expected in 2018
- In the interim, and for one year after the FR
 - PHMSA will not issue any enforcement citations for failure to meet provisions that are non-mandatory in API RPs 1170/1171
 - PHMSA will not issue enforcement citations for non-compliance with the requirement to justify and document deviations from the non-mandatory provisions



2018 Major Activities

- Test Run Inspection Materials
- IFR Compliance Date : January 18, 2018
- Final Rule Forecast
- Inspector Training
- Public Workshop & Technical Forum
- Prioritize Storage Fields for Inspection
- Initial Federal & State Inspections



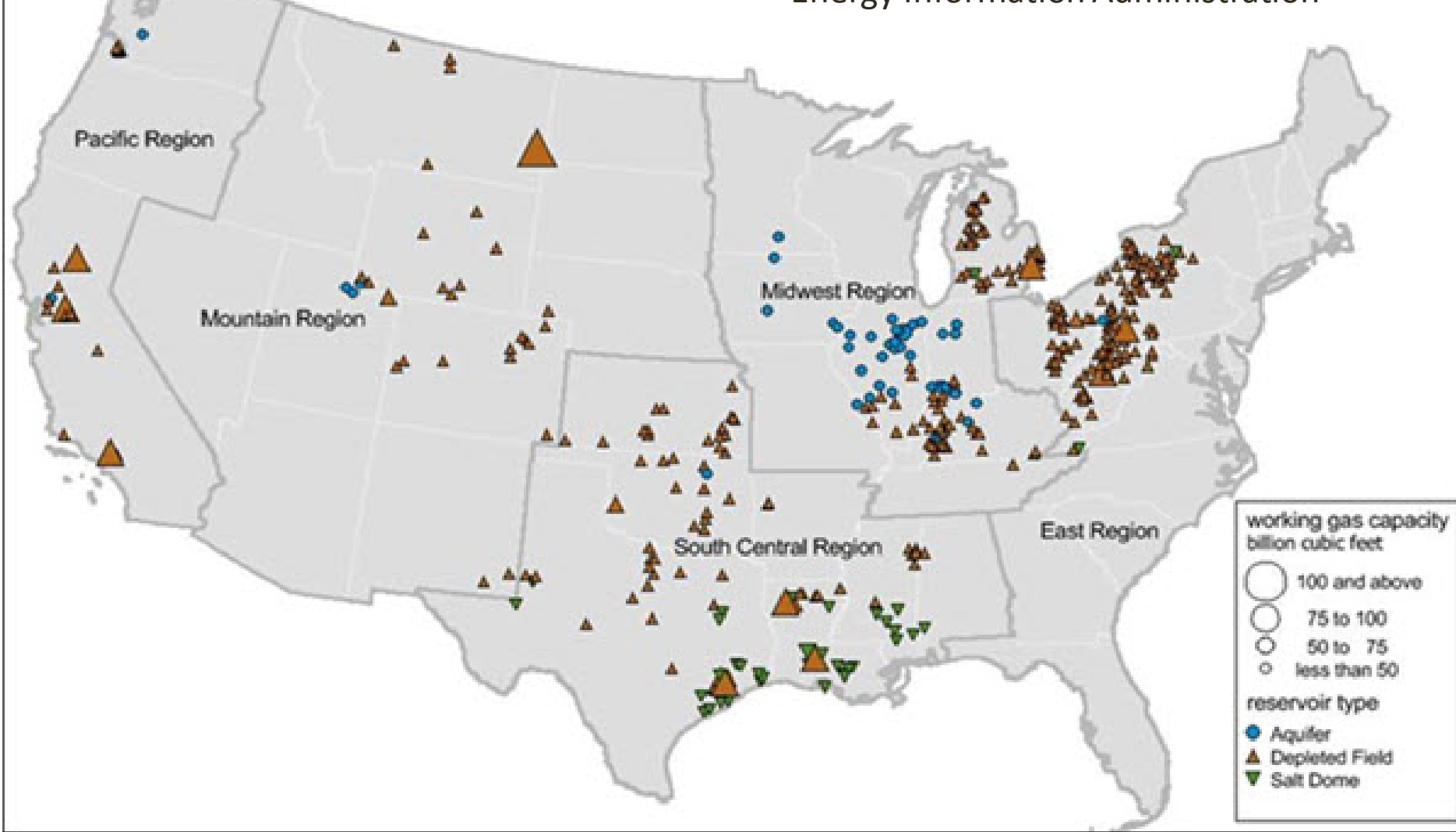
Inspector Training

- T&Q Center, Oklahoma City
- Federal & State Inspectors
- Combination : Web & Classroom
- 3 Class sessions anticipated for 2018
- Field Wellhead installation
- Classroom Wellhead cutaway
- States can inspect prior to completing training



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