

EVALUATION OF MOST-EFFECTIVE PRACTICES

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Most-Effective Practices

- Most-effective practices are those that are considered the most successful at meeting the intended goals of the practice. Such practices may evolve over time to be more effective as field conditions or goals change.



Issues reviewed by the Committee

- **Induced seismicity**
 - Earthquake activity resulting from human activity that causes a rate of energy release, or seismicity, which would be expected beyond the normal level of historical seismic activity
- **Wellbore integrity**
 - Means that gas and fluid from outside or inside the wellbore do not unintentionally enter or migrate from one point to another along the wellbore, especially into drinking water aquifers or the atmosphere.
- **Waste management**
 - Methods used to store, treat, recycle, transport, and dispose of liquid and solid wastes

Source: http://esd1.lbl.gov/research/projects/induced_seismicity/primer.html.

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Wellbore Integrity

Research Questions

- **Is guidance for ensuring lifetime integrity of OGD wellbores broadly and effectively implemented?**
- **Is available guidance sufficient to ensure lifetime integrity of OGD wellbores?**

Cross-cutting themes:

- Temporal and spatial variability related to geology
- OGD facility variability

Relationship to ongoing research: Would build on the ongoing work of others (e.g., API's Recommended Practices)



Wellbore Integrity

Research Goals and Examples of Research Activities

- **Goals:** (1) Determine whether guidance is being broadly and effectively implemented and (2) is sufficient to ensure the lifetime integrity of wellbores as OGD technology and practices evolve.
- **Example activities:**
 - Much work ongoing by others, and some topics should continue to be a focus of research, for example:
 - Improve cement bonding
 - Improve cement materials to handle variable geologic conditions and formation-fluid flow
 - Identify and, if present, mitigate the role of abandoned and orphaned wells in transmitting fluids to groundwater or surface water as a result of communication with OGD wells

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Accidental Waste Releases

Research Questions

- **What are the frequency and characteristics of accidental releases of OGD solid and liquid waste?**
- **How can collection and sharing of data documenting these releases be improved?**

Cross-cutting themes:

- Temporal variability related to changes in industry practice and regulation over time
- Spatial variability related to geology that influences the composition of wastes
- OGD variability

Relationship to ongoing research: Would build on the ongoing work of others (e.g., Brantley and others who have investigated violation records)

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Accidental Waste Releases

Research Goals and Examples of Research Activities

- **Goals:** Define and document accidental releases of wastes in a manner that could facilitate the study of any impacts from the releases and how they might be avoided or mitigated.
- **Example activities:**
 - Document and archive reports of incidents required by regulation in electronic database format, starting with existing systems for reporting data and information related to OGD.
 - Collaboration among multiple stakeholder groups would be critical to (1) make the best use of existing reporting systems; and (2) define a practical and flexible system without creating onerous reporting and database management requirements.

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Permitted Waste Management

Research Questions

- **What are the potential impacts from permitted practices for managing OGD solid and liquid waste?**
- **What are the most effective practices for managing wastes from OGD?**



Permitted Waste Management

Research Goals and Examples of Research Activities

- **Goals:** Establish a framework that is based on the most-effective practices for managing wastes safely.
- **Example activities:**
 - Such a framework would be developed starting with existing systems for reporting data and information related to OGD (e.g., FracFocus, state-specific versions of the GWPC's Risk Based Data Management System, and other state agency databases).
 - Comparisons of waste management methods used in various hydrocarbon plays with the various state requirements would be useful in determining the most protective waste handling and treatment systems.

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