GWPC'S CLASS VI WORKGROUP-CURRENT ACTIVITIES: DATA MANAGEMENT AND CLASS VI/CCS: REGULATORY TRAINING CURRICULUM

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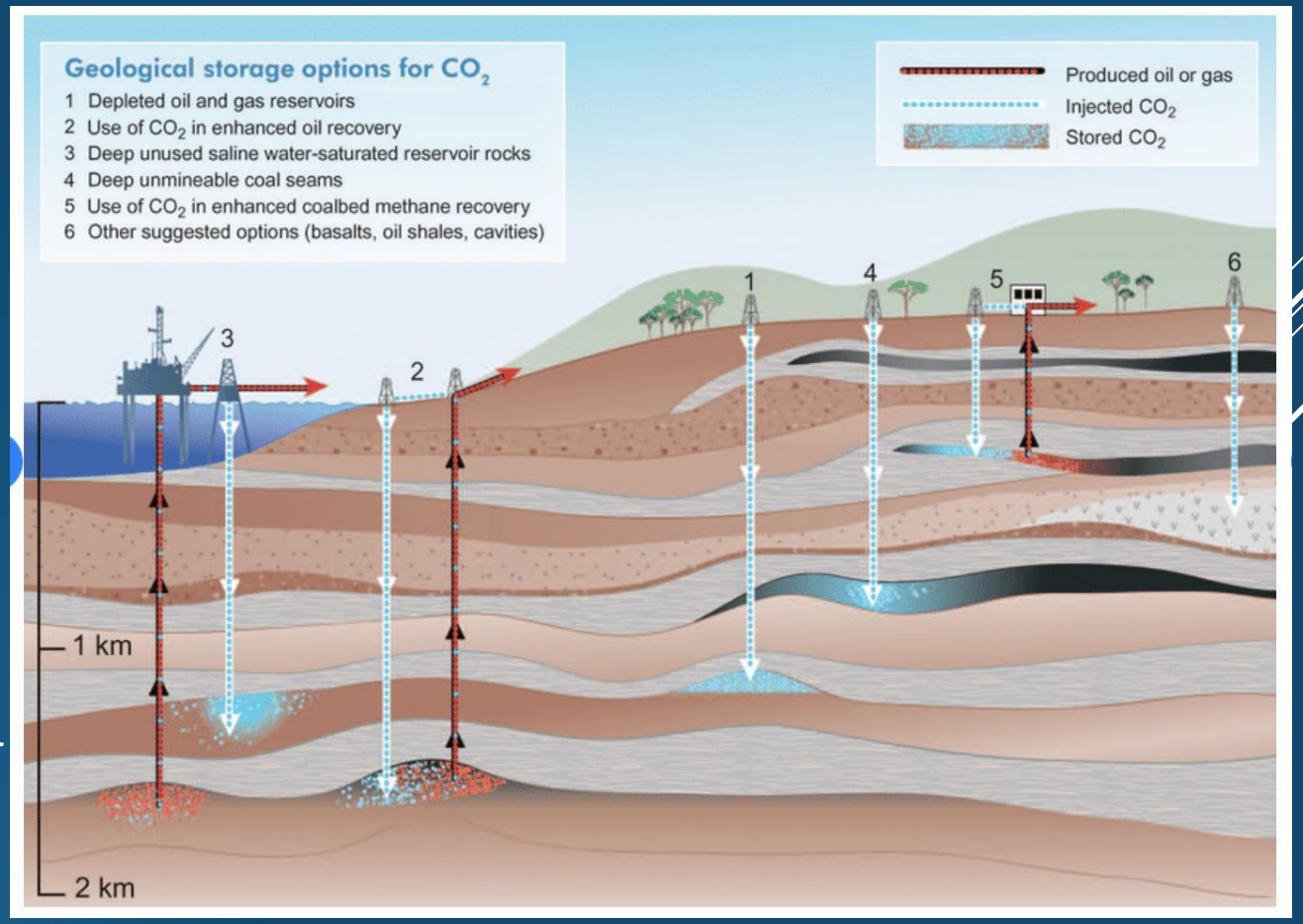
DATA MANAGEMENT: RBDMS CLASS VI

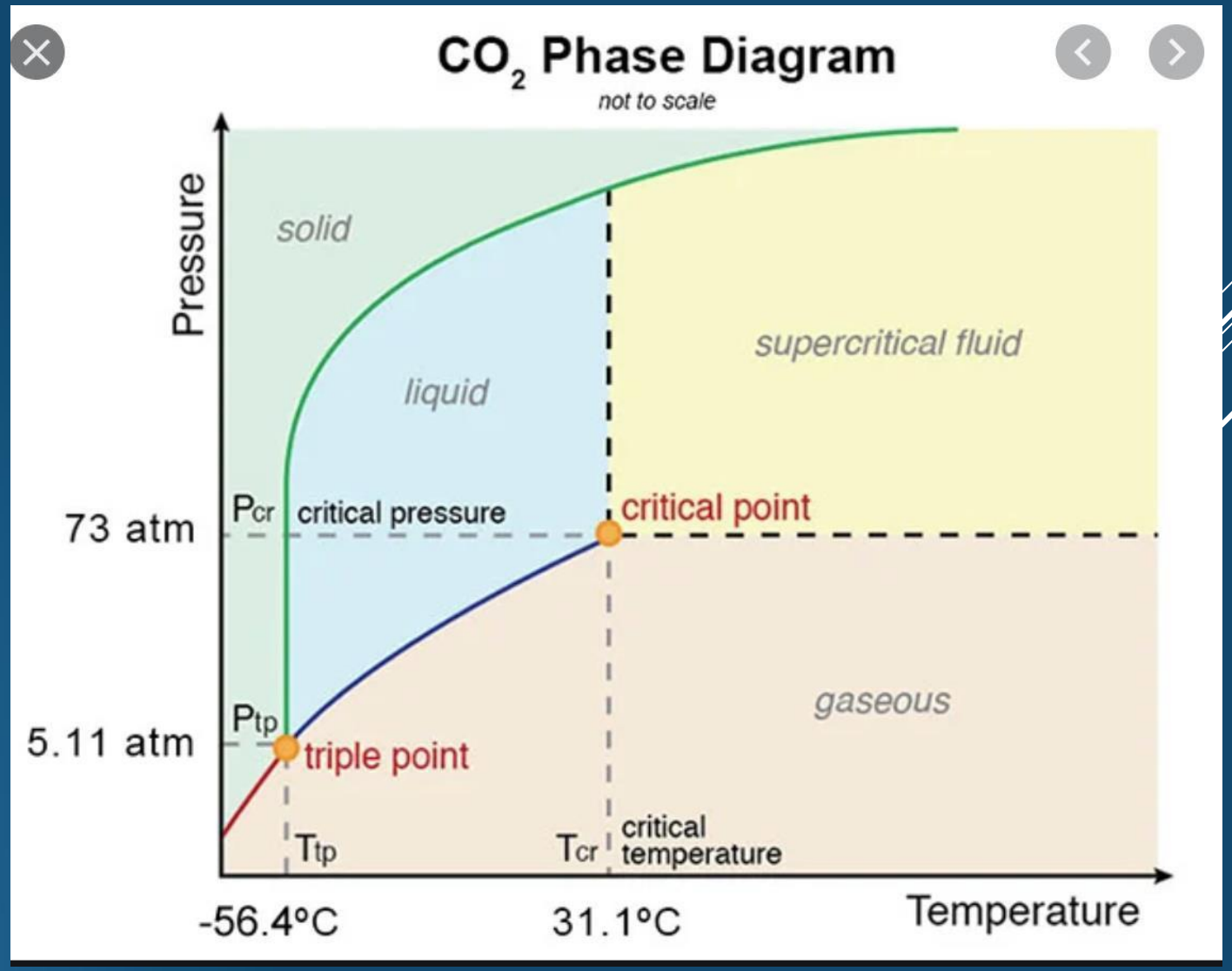
RBDMS CLASS VI

- RBDMS technology is a 75% fit with Class VI
- Initial Requirements gathering complete for North Dakota and Wyoming
- Pilot installed in North Dakota pilot program
- Available to all states regardless of current data management systems
- Connects with non-RBDMS systems to share information
- Pilot meets initial data needs, additional work needed to fully run a Class VI program



RBDMS CLASS VI - GOALS

- Facility based system
- Electronic permitting and reporting
- Interfaces with EPA
- Electronically accepts monitoring data
- Displays trend monitoring analysis
- Dashboards present data in user friendly format to aid in Issue Identification and decision making
- Collects and displays AOR data
- Interfaces with existing RBDMS systems and/or other State legacy systems
- Provides a GIS Interface
- Ability to import modeling data from other programs
- Field inspection



RBDMS CLASS VI

Pilot (ND - Current)

- Utilize existing RBDMS 3.0 Technology and Installation in ND
- Class VI project application
  - Electronic Permitting
  - Review
  - Approval
  - Denial
- Upload and associate documents
- Integrate existing RBDMS Data into Class VI project, where appropriate

Future

- Integrate with other RBDMS functionality/modules
  - Bond
  - Compliance
  - Incidents
  - Hearings
  - Transactions
  - Transfer
  - CO_2 injection reporting
  - Monitoring
  - Testing
- GIS interface
- EPA interface
- Interfacing with non-RBDMS systems

CLASS VI CURRICULUM FOR REGULATORS

CURRENT STATUS

The information in this presentation represents a current iteration of a curriculum. The curriculum outline has been completed by the CCS Task Force and will be distributed to full Class VI Workgroup for next step development.

CURRICULUM DESIGNED USING A MODULAR APPROACH

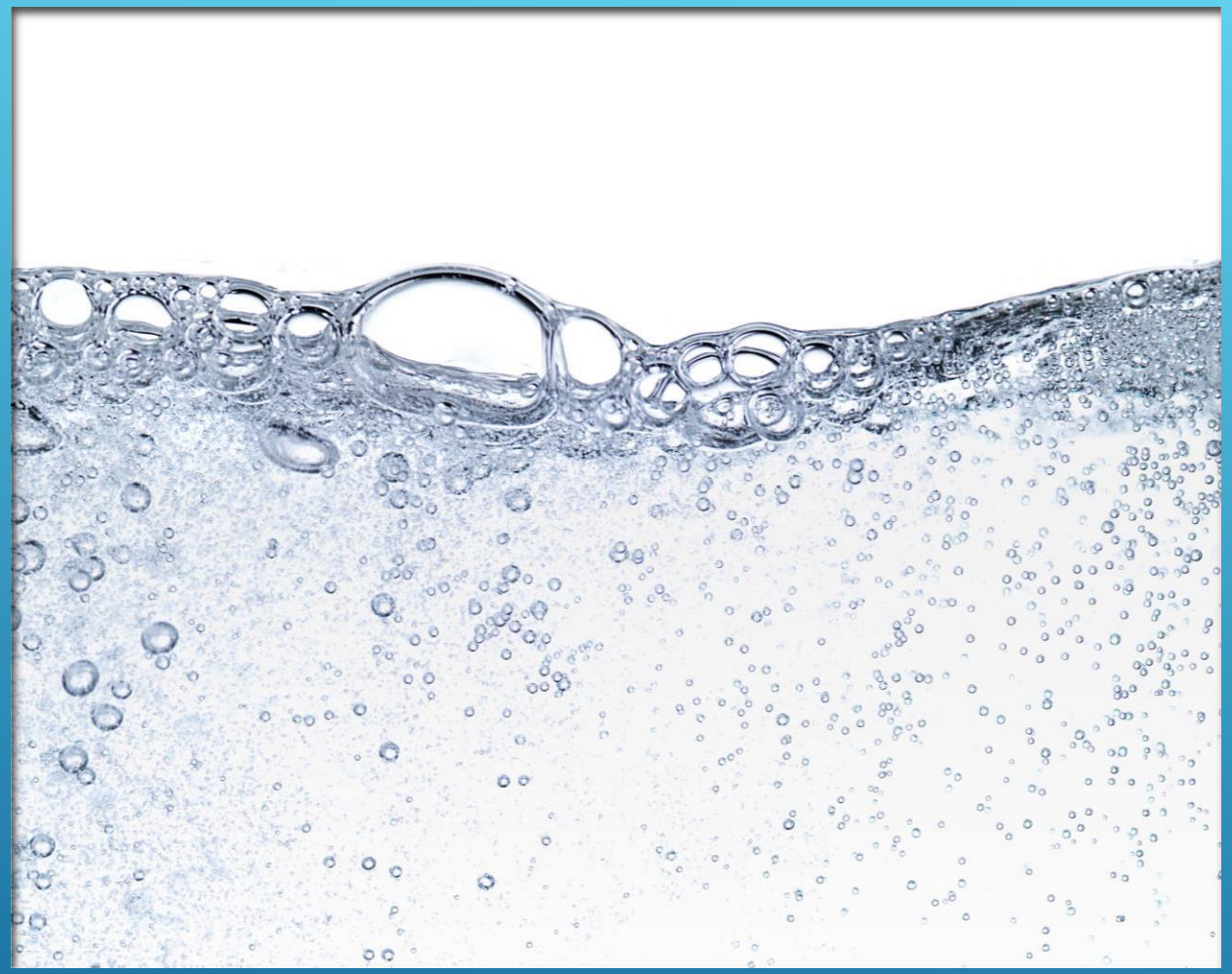
1. Programs Overview
2. The Annotated "Bookshelf"
3. Properties and Characteristics of CO_2
4. Storage Site Characterization
5. Fluid Flow Modelling
6. Site Specific Risk Analysis
7. Monitoring Plans
8. Well Construction and Pre-injection Testing
9. Evaluating monitoring and Testing During Injection
10. Leakage and Corrective Action/ Remediation Plans
11. Closure and Post Injection Site Care (PISC)
12. Class II EOR vs. Class VI Storage of CO_2
13. Financial Assurance

Module 1 is a high-level overview of the intersection between the GreenHouse Gas (GHG) and the Underground Injection Control (UIC) programs.

1. GREENHOUSE GAS (GHG) AND UNDERGROUND INJECTION CONTROL (UIC) PROGRAMS

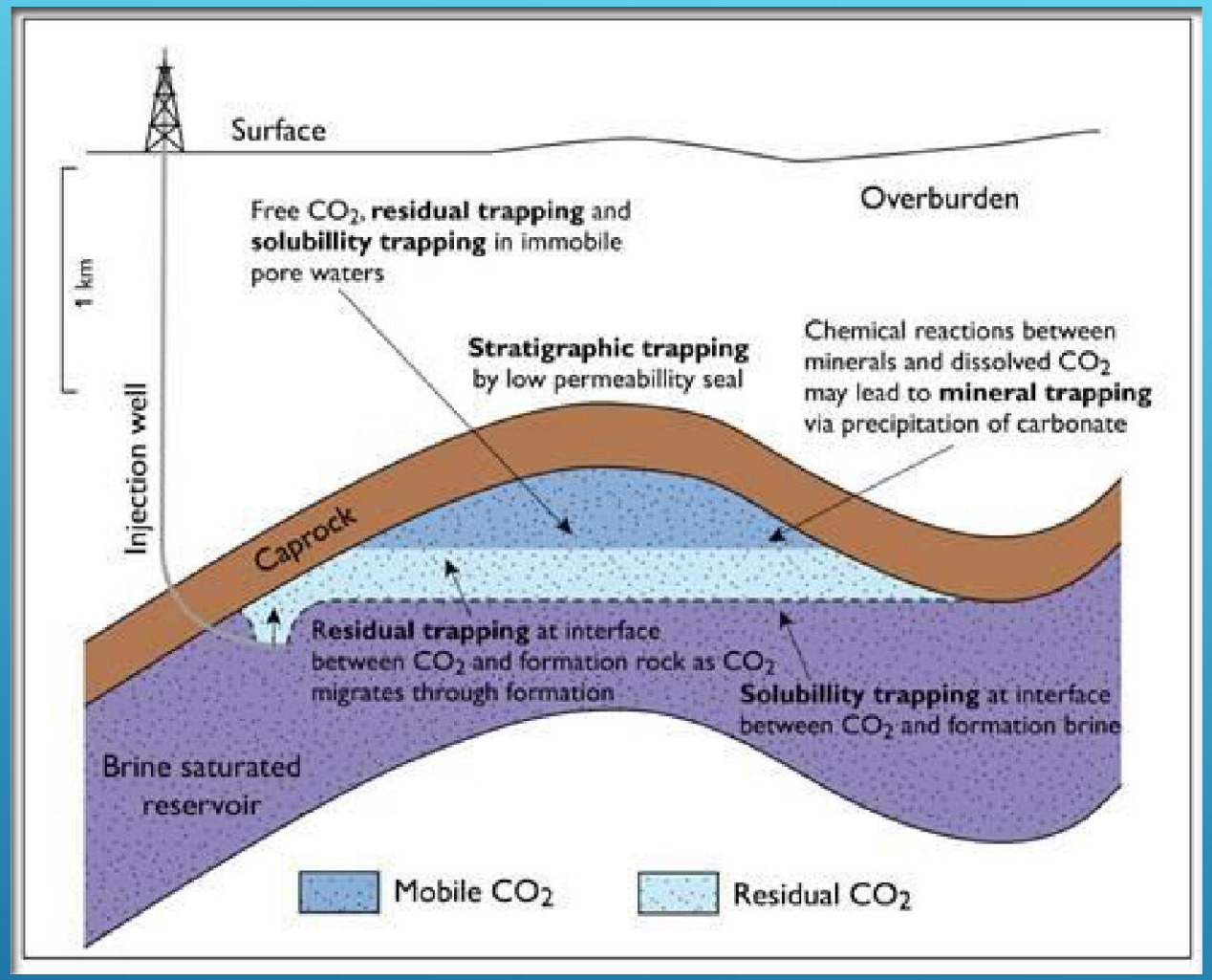
Module 2 covers a "Bookshelf" of reference materials from, introductory to advanced, students can use during permit review.

2. THE ANNOTATED "BOOKSHELF"



Module 3 covers specific properties and characteristics of CO_2 as they relate to permitting.

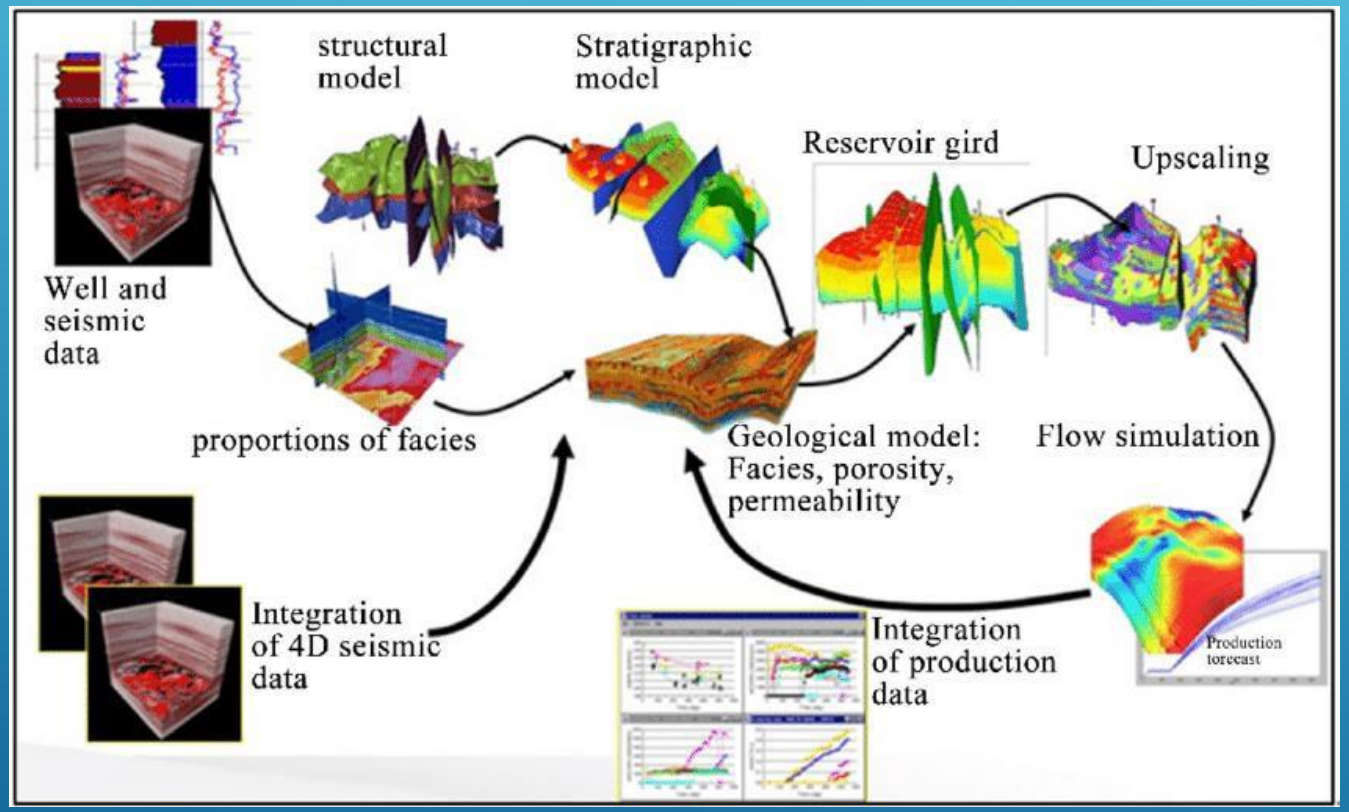
3. PROPERTIES AND CHARACTERISTICS OF CO_2



Module 4 covers the characterization of sites

4. STORAGE SITE CHARACTERIZATION

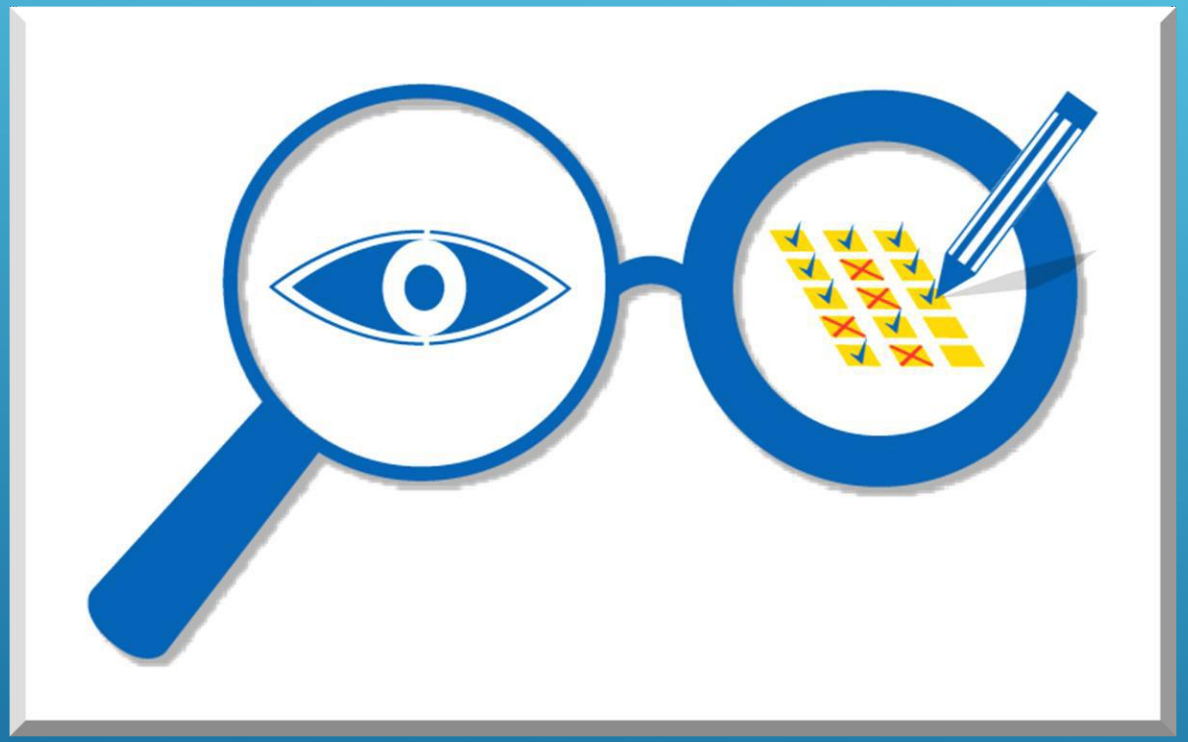
5. FLUID FLOW MODELLING



Module 5 covers the principals of fluid flow modelling from the standpoint of permit review and contractor oversight.

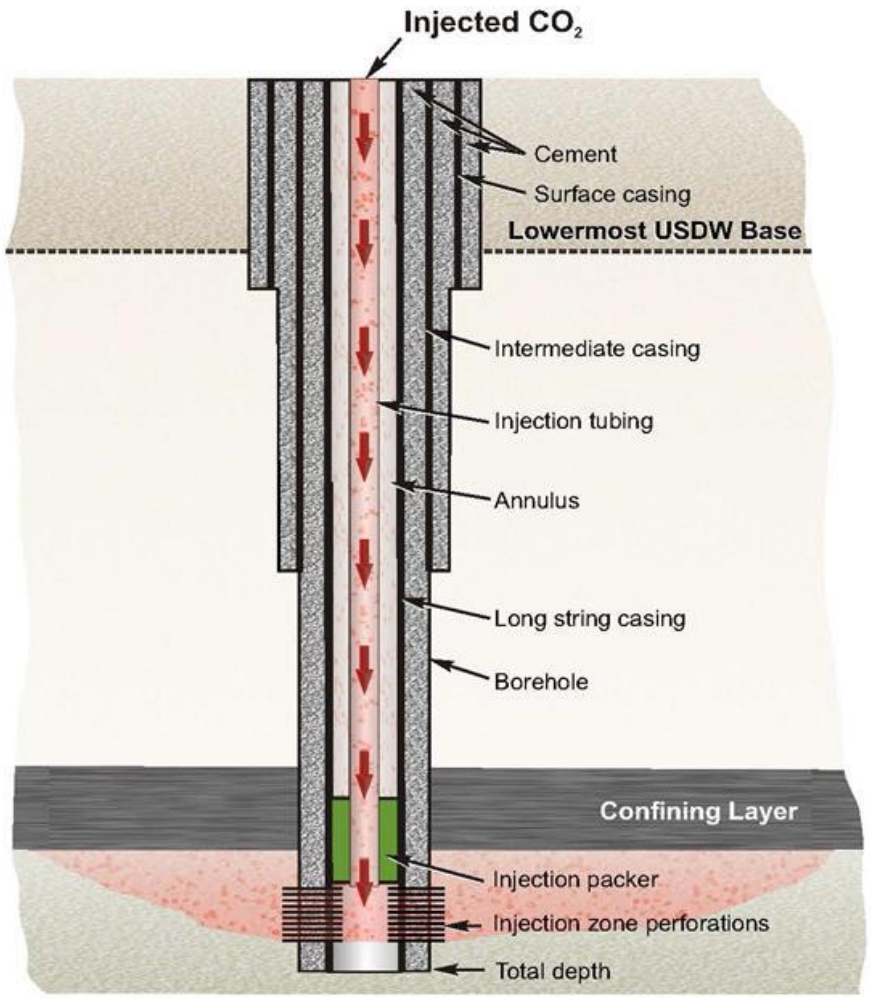
6. SITE SPECIFIC RISK ANALYSIS

Module 6 provides a framework for assessing risk at a specific site



Module 7 covers the design of monitoring plans

7. MONITORING PLANS



Note: figure is not to scale

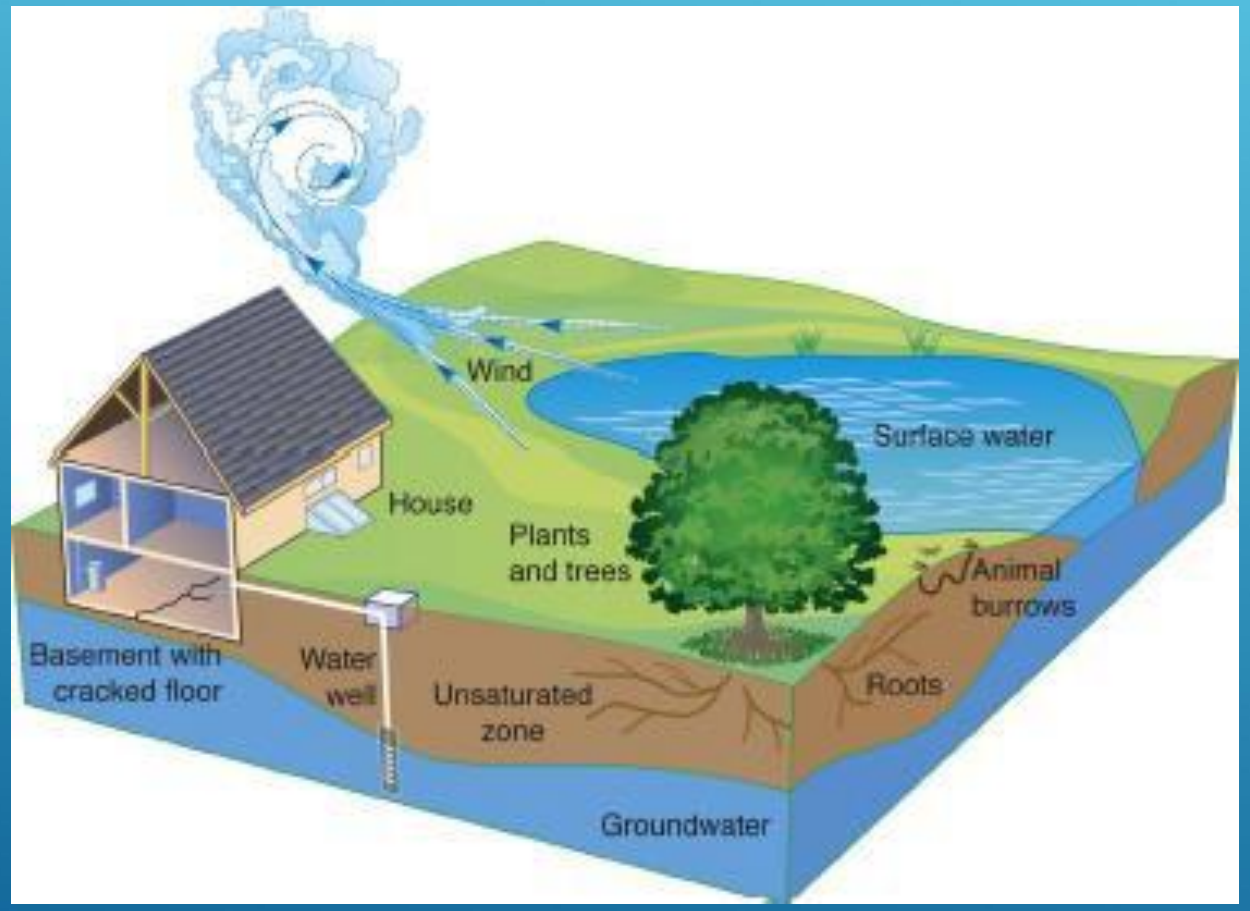
Module 8 covers data collected before and following permitting such as well construction and pre-injection testing.

8. WELL CONSTRUCTION AND PRE-INJECTION TESTING

9. EVALUATING MONITORING AND TESTING DURING INJECTION

Module 9 covers what to do with monitoring and testing results.

10. LEAKAGE AND CORRECTIVE ACTION/ REMEDIATION PLANS

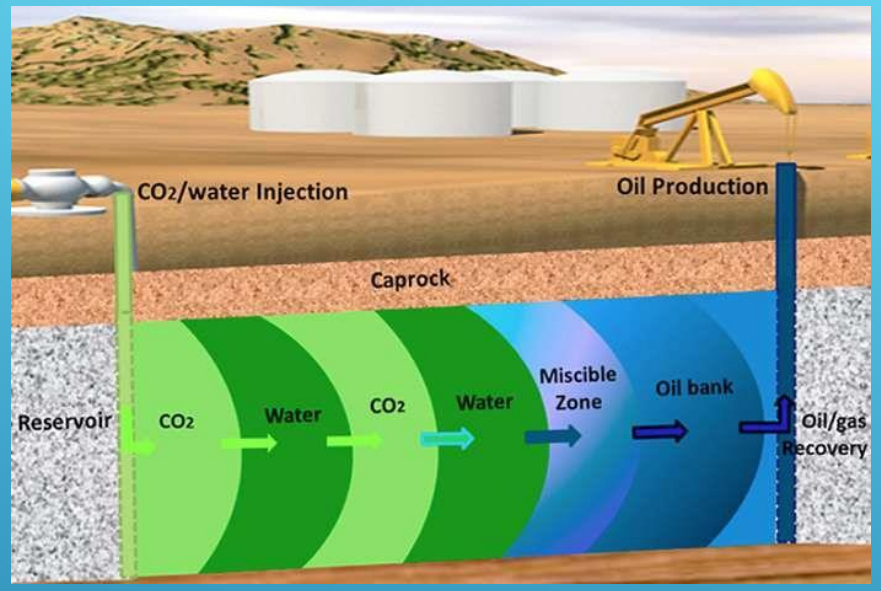


Module 10 discusses how a successful project will prevent CO_2 leakage outside of the injection zone and avoid triggering remediation and induced seismicity.

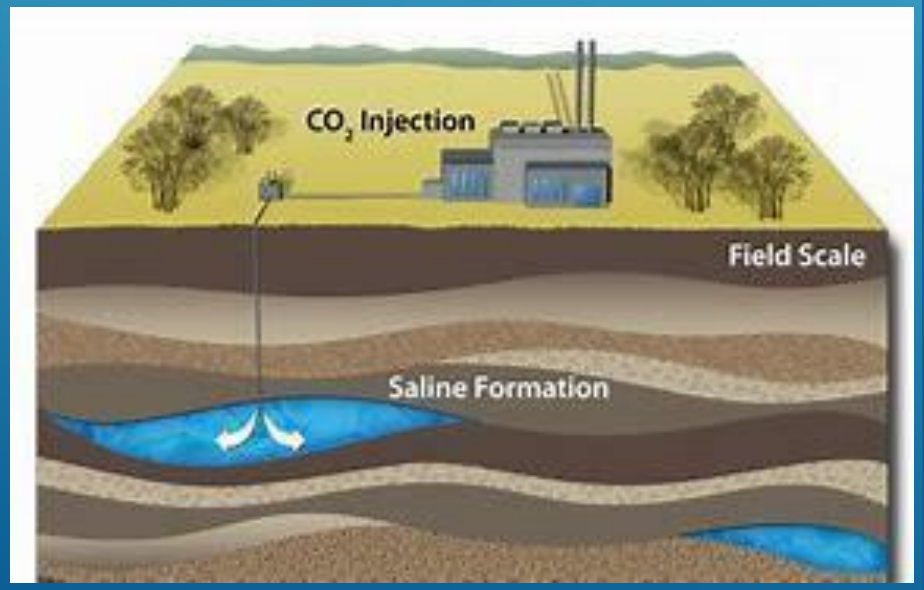
PISC

11. SITE CLOSURE AND POST INJECTION SITE CARE (PISC)

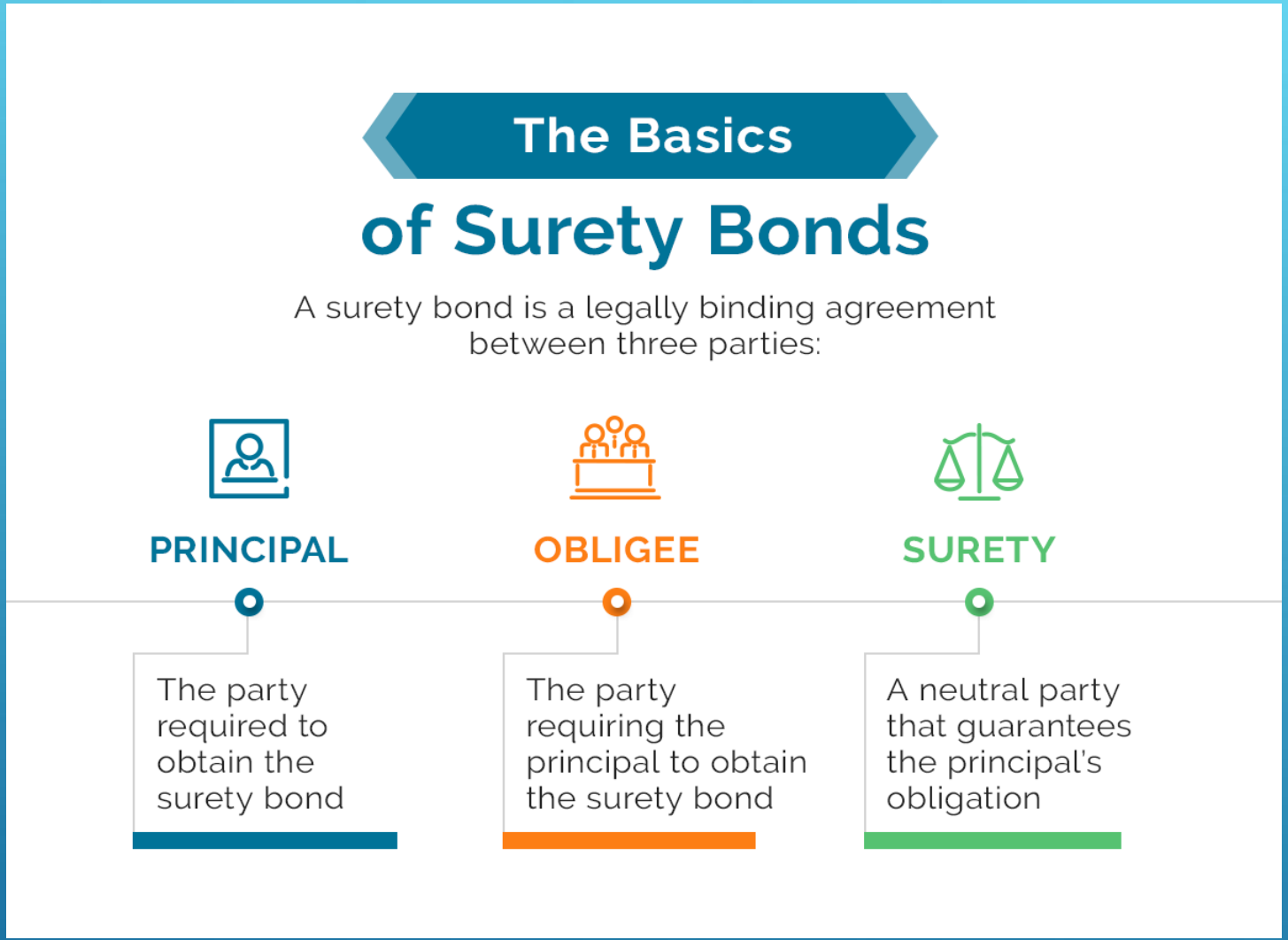
Module 11 covers the closure and post injection site care (PISC) period. This involves the long-term retention of CO_2.



12. CLASS II EOR VS. CLASS VI STORAGE OF CO_2



Module 12 compares CO_2 storage in an Enhanced Oil Recovery (EOR) and a saline aquifer project.



Module 13 covers financial assurance elements of Class VI projects.

13. FINANCIAL ASSURANCE

PATH FORWARD

- Distribute to Full Class VI Workgroup to Review the curriculum for corrections (May 2022)
- Finalize curriculum (GWPC Annual Forum)
- Evaluate training formats
- Develop training materials based on the curriculum and chosen training format(s)
- Develop training schedules
- Deploy training program(s)

CURRICULUM TASK FORCE

- Alabama Geologic Survey
- Bureau of Economic Geology
- Environmental Defense Fund
- US Department of Energy
- US Environmental Protection Agency
- Underground Injection Technology Council
- Railroad Commission of Texas
- LA Department of Natural Resources
- Wyoming DEQ
- University North Dakota
- Stanford Center for Carbon Storage
- Industry Representatives
- Consulting Community
- Ground Water Protection Council

CLASS VI WORKGROUP – FUTURE EFFORTS

NEW TASK FORCE GROUPS

Call on Workgroup to set up additional Task Forces for continued development on Class VI implementation

- Potential Groups:
  - Curriculum Implementation
  - Primacy Support/Assistance

IMPORTANT PROVISO

Implementing the Path Forward on the efforts being managed at GWPC depends on our ability to obtain sufficient funding and assistance from those involved in deployment of the Class VI program.

CURRICULUM CONTACTS

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