

## Summary of EPA Webinars on Financial Responsibility for Geologic Sequestration Wells

### EPA provided the following disclaimer to the webinar participants:

The purpose of this public webinar series is for information sharing, and views or opinions expressed during the presentation belong to the speaker and do not necessarily represent the views and opinions of the U.S. EPA.

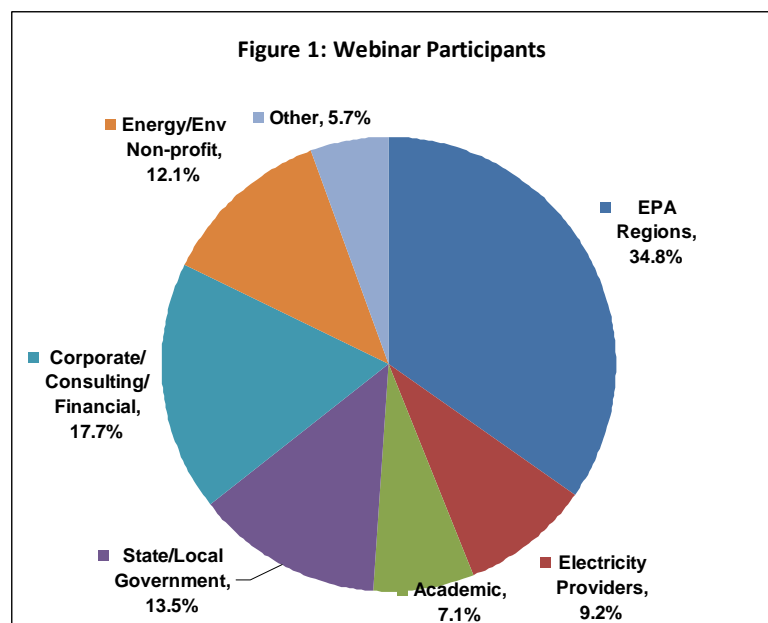
EPA does not have express authority in the Safe Drinking Water Act to accept and use funds for financial assurance. Consequently, the Agency cannot implement some of the financial assurance mechanisms described in these webinars due to the requirement under the Miscellaneous Receipt Act to deposit funds EPA receives for the use of the Government into the Treasury.

In April and May 2009, EPA sponsored a series of webinars on financial responsibility for carbon dioxide geologic sequestration (GS) wells. The goal of the series was to encourage information sharing on potential financial mechanisms that well owners and operators could use to meet the financial responsibility requirements for GS projects. EPA plans to use the information gathered through the webinar series to inform its decisions as it develops guidance related to financial responsibility for GS wells. The webinars addressed the following topics:

- Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements (held on April 28, 2009).
- Insurance (held on May 20, 2009).
- Self-Insurance: Financial Test and Corporate Guarantee (held on May 26, 2009).

Collectively, about 100 people attended the webinars (many participants attended more than one webinar). The participants represented a range of organizations with interest in and unique perspectives on financial responsibility for GS, including EPA regions, corporate, consulting, and financial services, state/municipal governments, energy/environmental non-profits, electricity providers (e.g., energy companies and utilities), and academia. Figure 1 presents the breakout of participants' affiliations.

Each webinar consisted of a presentation on specific financial responsibility instruments, followed by a facilitated discussion where participants shared their experiences with and thoughts about the various instruments. The purpose of this report is to summarize the webinar series.



## Webinar overviews

Below is a brief summary of the three webinar presentations. All three presenters gave an overview of the phases of a GS project and highlighted the phases for which EPA has proposed financial responsibility requirements (i.e., corrective action, injection well plugging, post-injection site care and site closure, and emergency and remedial response). Note that the webinars did not address long-term liability for GS projects. Generally, the presenters then reviewed the financial responsibility mechanisms in detail and provided a historical background for their use by describing the current requirements and guidance for wells regulated by the Underground Injection Control (UIC) Program and state primacy partners. All presenters noted that Class I hazardous waste disposal wells have specific requirements under 40 CFR 144.63, while all other well classes follow the general requirement in 40 CFR 144.52(a)(7).

- In the first webinar, Steve Platt of EPA Region 3 presented “Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements.” Mr. Platt described a trust fund as repository of funds set aside to cover the full estimated cost of properly plugging wells and implementing post-closure activities. The funds are administered by a trustee designated by the grantor who establishes the trust. A letter of credit is a guarantee, issued by a bank or other regulated institution, that a specified dollar amount will be available to a specified party under certain conditions and that funds will be paid into a standby trust. Mr. Platt described a surety bond as guarantee by a surety company that specified obligations, such as plugging of the well, will be fulfilled. Mr. Platt also highlighted the difference between performance and financial guarantee bonds. As required for letters of credit and surety bonds, standby trusts are a mechanism for the UIC program to receive the funds guaranteed. Mr. Platt noted that a standby trust is not a stand-alone financial instrument to guarantee financial responsibility, unlike a trust fund. For each mechanism, Mr. Platt noted EPA’s history and long-standing experience with the mechanism.
- In the second webinar, Charles Hernick of The Cadmus Group, Inc. gave the presentation on “Insurance.” Mr. Hernick reviewed the characteristics of insurance in detail and explained the differences between third party and captive insurance. In general, insurance can be characterized as a contract for the insurer to pay/reimburse the insured up to the maximum amount the policy covers for a specified risk, as long as the insured pays the policy premium. The premium is based on insurer’s determination of risk. Captive insurance—where a company forms a subsidiary to act as the insurer—tends to more closely resemble a self-insurance mechanism than a third party mechanism. He defined the term insurance, in the context of his presentation, to refer only to third-party insurance. The use of insurance for proposed Class VI wells, Mr. Hernick explained, could be used to cover two types of risk scenarios. The first would cover uncertain risks, such as emergency and remedial response, and the second type would cover defined environmental objectives such as well plugging.
- In the third webinar, Dale Ruhter of EPA’s Office of Resource Conservation and Recovery presented the “History of RCRA Subtitle C Financial Test.” Mr. Ruhter described background information on the test and its original intent. Mr. Ruhter then

provided an overview of the tests and noted that, although revisions were proposed in 1991, they have been neither finalized nor withdrawn.

- Also in the third webinar, Paul Bailey of ICF International presented “Self-Insurance: Financial Test and Corporate Guarantee.” Mr. Bailey started by describing the UIC Class II Well guidance, which presents a two-part approach for use of a “financial statement” mechanism for operators with a minimum net worth of \$1 million. He summarized the details and provided examples of the two-part approach. Mr. Bailey also covered the Class II Well guidance for corporate guarantee. Mr. Bailey continued on to describe the details of the Class I self-insurance regulation, modeled on the Resource Conservation and Recovery Act (RCRA) Subtitle C requirements for closure and post-closure, as another possible model for GS self-insurance. With regard to the role of cost estimates, Mr. Bailey noted that depending on the case, cost estimates may not be needed for self-insurance or the cost estimate may be represented in the financial test itself. He emphasized that including a cost may be more important for gaining public acceptability than it is for actual test performance. Mr. Bailey added that, although historically there is a very low risk of failure associated with self-insurance, there is no guarantee of the funds being available like there is with some other financial responsibility mechanisms.

Appendix A presents the slides for each webinar.

### **Discussion overview**

Following the presentations, EPA held a facilitated discussion to encourage participants to share their experiences using the financial responsibility instruments, the strengths and weaknesses of each, and their appropriateness and applicability to the various phases of GS projects. The following sections summarize the discussion. Note: this summary reflects the opinions of the webinar participants, and not necessarily that of EPA.

#### ***Webinar 1: Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements***

Participants at the first webinar provided the following insights on the desirability of trust funds, letters of credit, and surety bonds for financial assurance for GS:

- The concern is not the financial mechanisms, but the risk that they cover. The availability of these instruments will depend on the risk associated with the project. Some third parties will be more or less willing to cover that risk.
- It is unclear whether GS projects will require a new instrument, but surety bonds, letters of credit, and trust funds do not seem to have changed much. It may be worth talking to insurers to determine what new types of mechanisms could be available.
- Self insurance tests rely on performance over the last two years, but this may not accurately reflect the health of a company. Strong guidance on the use of self-insurance is needed, e.g., on specific language to be used in the letter of credit and other mechanisms. (See the discussion of Webinar 3 for additional input on self-insurance.)

Participants offered the following perspectives on the individual financial responsibility instruments presented:

- Letters of credit are simply not available now to the extent that they once were, and therefore, may not be as significant an option as in the past. This may also be true for surety bonds to a lesser extent. The availability of these mechanisms would be a problem for the large corporations that may be involved in GS.
- Banks in areas of the country with a large number of Class II wells are used to issuing letters of credit and surety bonds; this is less the case in areas where there are fewer wells.
- One participant believed that, based on his third-party knowledge, states and EPA do not have the legal resources to use letters of credit, and that surety bonds are superior to the other options.
- One state finds letters of credit effective and that stand-by trusts are acceptable if they are drawing on the letter of credit or the surety bond. This state adapts language from the RCRA Program for UIC.
- Stand-by trusts are easy to obtain because they are sometimes the lowest-cost option; operators will shop around for banks and sometimes end up making very low annual contributions. The availability of standby trusts varies, however.
- Some commenters said that, while bond ratings might have been a good measure of financial strength a year ago, several formerly AAA-rated companies are now experiencing financial difficulties.

Commenters offered the following discussion of pay-in periods in for trust funds:

- For large, well-capitalized, companies, a pay-in period is perhaps not required or as useful as it is for small companies.
- One state is examining the use of surety bonds for the early phases of a GS project, with a trust fund for the longer-term aspects of GS, thereby allowing for the pay-in over the life of the project.
- One EPA region does not usually allow a pay-in period any longer than 2 or 3 years and sets out the pay-in requirements in an administrative order or other enforcement action.

Participants offered the following additional perspectives on financial responsibility demonstrations:

- The cost estimate for plugging a well should be based on a contractor's cost, not the operator's cost because the fund may need to be used to hire a contractor for remediation.
- Corporations are set up to minimize risk, and the parties signing the papers for the financial responsibility mechanisms are not the engineers familiar with the work or the risk.

### ***Webinar 2: Insurance***

Participants discussed circumstances (other than non-payment of premiums) under which an insurance company can cancel a GS operator's policy.

- One participant expressed concern that, if an insurance company feels that the owner/operator did not disclose all of the available information about the project, it is unclear whether the policy would continue to be in force.
- EPA should reduce the possibility of policy cancellation; there needs to be an endorsement document that substantiates which documenters are disclosed and that those documents are acceptable to all parties.
- While an insurance certificate shows evidence of a policy, it does not ensure that it conforms to regulations.

The discussion continued on to the topic of individuals' experiences with insurance for projects in the UIC Program or in other industries.

- A participant who recently worked on a policy for a US Department of Energy (DOE) pilot project said that the applicability of insurance and the cost involved is site specific and varies considerably from one situation to the next.
- Another participant, who also worked with a DOE partnership, said the partnership ended up working with environmental insurers to determine how to manage their risk, and developed a policy that took advantage of environmental markets to fill in the gaps of managing some of the risk.
- A participant from an electric utility has had experience exploring specific insurance avenues both in commercial insurance as well as mutual insurance arrangements. Although there is some interest in using gas and electric mutuals for insurance purposes, mutual companies may be reluctant to provide the high levels of coverage that may be necessary for GS projects.

- Utility companies may use captive insurance, but they are looking at third party insurance in order to use the marketplace to absorb some financial risk.

The group also discussed the desirability of insurance for GS projects:

- Some participants believed that uncertainties exist regarding what insurers are willing to offer and whether insurance is appropriate.
- Any insurance mechanisms that are used for GS would need to last the life of the project.
- It is important to carefully understand what a policy covers. There has been much debate between underwriters and industry on this topic.
- One participant believed that EPA should not impose specific requirements. Because of the economic downturn, insurance companies have suffered losses in their investment portfolios and imposing specific rules may discourage participations.

The group discussed whether insurance could be combined with other financial assurance mechanisms to cover a single phase of a GS project (e.g., well closure) and, if so, which mechanism would kick-in first in the event that a GS owner/operator fails.

- This should be clarified at the outset of project.
- Procedures to manage surety bonds address these types of situations.

Participants offered the following opinions regarding the merits of captive insurance:

- One participant offered that captive insurance includes “pure” single-owner insurance entities and “group” captives, which are multi-owner insurance companies. The latter includes both small group captives (such as risk retention groups) and large group captives, typically called “mutual insurers.”
- One participant said he did not find captive insurance to be desirable because the specifics of what is involved are not always straightforward.
- EPA should look at how insurance is financed for various organizations – whether it is rated or unrated, and various measurements; captive insurance should at least be considered.

The group discussed how underwriters determine the price of a policy and whether they have sufficient knowledge of GS to make accurate estimates.

- EPA should look into this, possibly by meeting with insurers.
- EPA should not propose eligibility requirements for insurers, instead the market will drive the selection of financially viable insurers.

- Once demonstration projects are complete and industries become engaged at a commercial scale, mainline carriers will start to accept this risk if it is shown that there are no losses associated with the industry.
- It would be useful to have a list of approved insurance providers; such a list could change based on ratings.

Participants offered the following input related to the applicability of insurance during various phases of a GS project:

- It is important to recognize the difference between covering liabilities versus covering activities such as well plugging and site closure. The availability of multiple mechanisms could help keep costs down.
- Insurance probably works best for the operational phases of a facility, which does not involve unusual technologies (with the exception of sequestering the carbon dioxide). Insurance becomes problematic during site closure and post-closure care.

### ***Webinar 3: Self-Insurance: Financial Test and Corporate Guarantee***

Participants identified the following concerns about self-insurance for GS projects:

- Self-insurance is a high risk proposition because if it fails, there is nothing on which to fall back.
- Once a company enters bankruptcy, even with a 10 day notice (after bankruptcy proceedings have started) there is little the regulator can do; this provides an indication that other methods of demonstrating financial responsibility provide more protection.
- Self-insurance mechanisms are great while the companies are making money, but economic times change.
- Pooling of industry funds may be a good option, but it takes some time for the pool to grow.
- There are concerns about the timeframe of the proposed post injection site care requirement relative to when the test is administered.
- EPA should include self-insurance as an option because it has demonstrated success in other programs and there is no evidence that it should not be used for GS.
- The complications discussed in this webinar, plus the need to constantly monitor the company, may indicate that letters of credit and trust funds are a simpler approach to demonstrating financial responsibility.

Participants offered the following input regarding the cost of GS activities and the tangible net worth threshold for GS projects:

- The \$10 million tangible net worth threshold seems low, considering the size of GS projects and what needs to be covered.
- EPA should examine the risks associated with GS and estimate the costs associated with particular phases—especially the costs of dealing with extreme events. This type of analysis would help inform the necessary size of a corporation for passing a financial test.

Participants offered the following input regarding evaluating financial tests:

- Differences have been observed between the content of an income statement and what is provided by a certified public accountant. This requires some effort on the part of the regulator to ensure that the numbers can be duplicated.
- Validating information is important; the Form 10-K (for publicly traded companies) is often a better choice to review than the annual report to shareholders.
- Both the financial test and corporate guarantee require a lot of information and time to review and verify effective assurance.
- Conducting financial tests on multi-level companies is difficult because it is hard to know which level of the company will actually be financially responsible.
- Participants discussed difficulties related to bond ratings. Regarding the acceptability of bond ratings, especially those on the lower end of an investment grade rating (BBB or Baa), one participant claimed that, since companies pay the rating agencies, they may resist giving a company a below investment-grade rating. Thus, bond ratings may lag behind the companies' performance if they are close to the threshold. Regulators need to know why a company's bonds are rated the way they are. A company's risk investment profile will come across in the rating.

Participants discussed whether self-insurance or corporate guarantees are more appropriate during certain phases of a GS project, compared to other mechanisms:

- There are currently very few third party mechanisms available for GS. Some insurance companies will only cover the injection phase (i.e., when the company is making money). Participants thought that the viability of GS could be limited if self-insurance is not an option.
- Several participants suggested that, as things progress with GS, there will be more certainty regarding what the best financial mechanisms are. Therefore it may not be necessary to solve all the questions now. EPA should focus on well plugging first, and the bigger unknowns related to financial assurance (e.g., site closure and care) can be solved later.

## **Appendix A – Slide Presentations for the Three Webinars**

## Webinar on Underground Injection Control (UIC) Program Applications

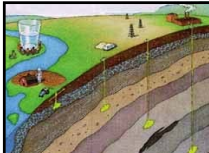
# Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements

**April 28, 2009**

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*Webinar on Financial Responsibility Instruments for GS Wells*



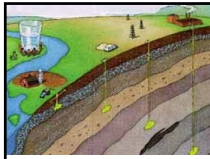
## Webinar on Financial Assurance Mechanisms: Overview

- **Welcome**
  - Joseph Tiago, U.S. EPA, Headquarters
- **Presentation on Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements**
  - Stephen Platt, U.S. EPA, Region 3
- **Discussion Facilitator**
  - Vanessa Leiby, The Cadmus Group, Inc.



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## Welcome

- First in a series of EPA webcasts to discuss potential financial responsibility mechanisms for GS wells
  - **Part 1. Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements – April 28, 2009**
  - Part 2. Insurance – May 20, 2009
  - Part 3. Self Insurance: Financial Tests and Corporate Guarantee – May 26, 2009



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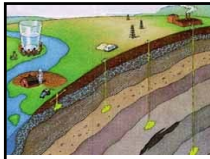
## Webinar on Financial Assurance Mechanisms: *Disclaimer*

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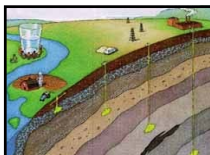
## Purpose

- **Review**
  - Proposed financial responsibility requirements for GS
  - Mechanisms available to meet the current requirements
- **Discuss**
  - Trust funds
  - Letters of credit
  - Surety bonds
  - Standby trust agreements (for letters of credit & surety bonds)



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## Desired Outcome

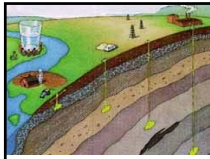
At the end of this webinar series:

- Participants will have exchanged information on their experiences with these financial assurance instruments.
  
- Participants will have shared information on special considerations for meeting the unique needs of geologic sequestration wells.



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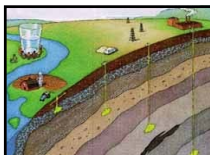
## Carbon Dioxide GS Rulemaking: Milestones

- **Federal Requirements Under the UIC Program for Carbon Dioxide Geologic Sequestration Wells**
  - Proposal published: July 25, 2008
  - Comment period closed: December 24, 2008
- **Notice of Data Availability: Spring 2009**
- **Final rule expected 2010 or 2011**



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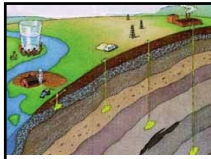
## Carbon Dioxide GS Rulemaking: Proposed Financial Responsibility Requirements

- **The owner or operator must demonstrate and maintain financial responsibility and resources for:**
  - Corrective action (that meets the requirements of §146.84),
  - Injection well plugging (that meets the requirements of §146.92),
  - Post-injection site care and site closure (that meets the requirements of §146.93), and
  - Emergency and remedial response (that meets the requirements of §146.94) in a manner prescribed by the Director
  
- **The operator must provide an adjustment of the cost estimate to the Director if the Director has reason to believe that the original demonstration is no longer adequate to cover the cost of injection well plugging and post-injection site care and site closure**



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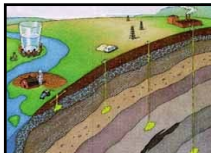
## Carbon Dioxide GS Rulemaking: Summary of Comments Received on Proposed Regulations

- EPA received comments in the following areas:
  - Usefulness/ appropriateness of various instruments
  - Improvements for some instruments
  - Need for flexibility to encourage commercial scale development of CCS
  - Need for guidance on financial responsibility



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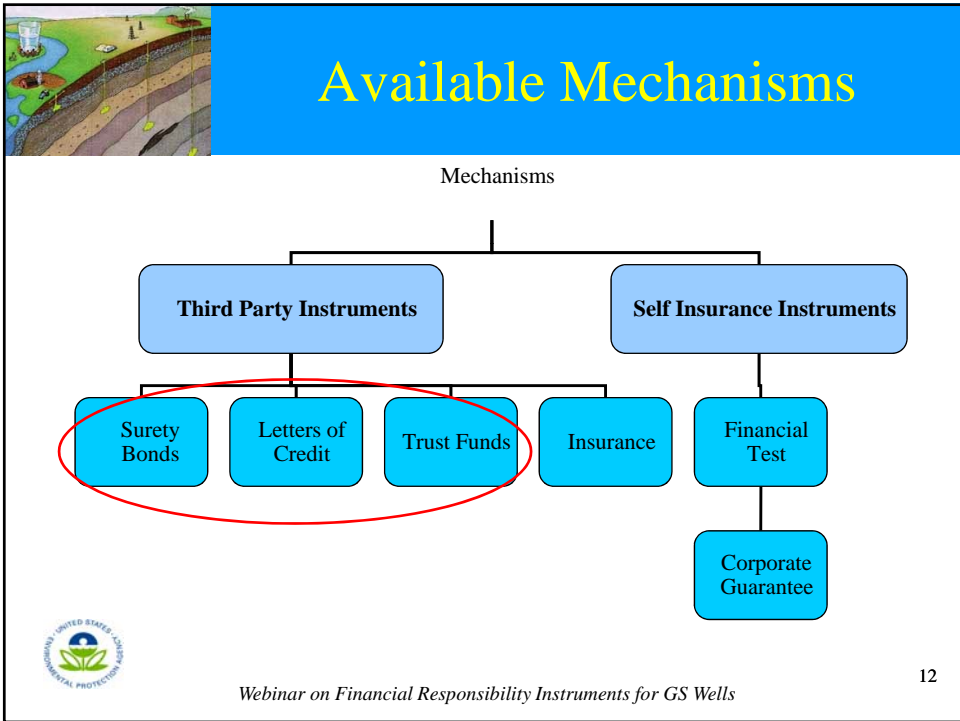
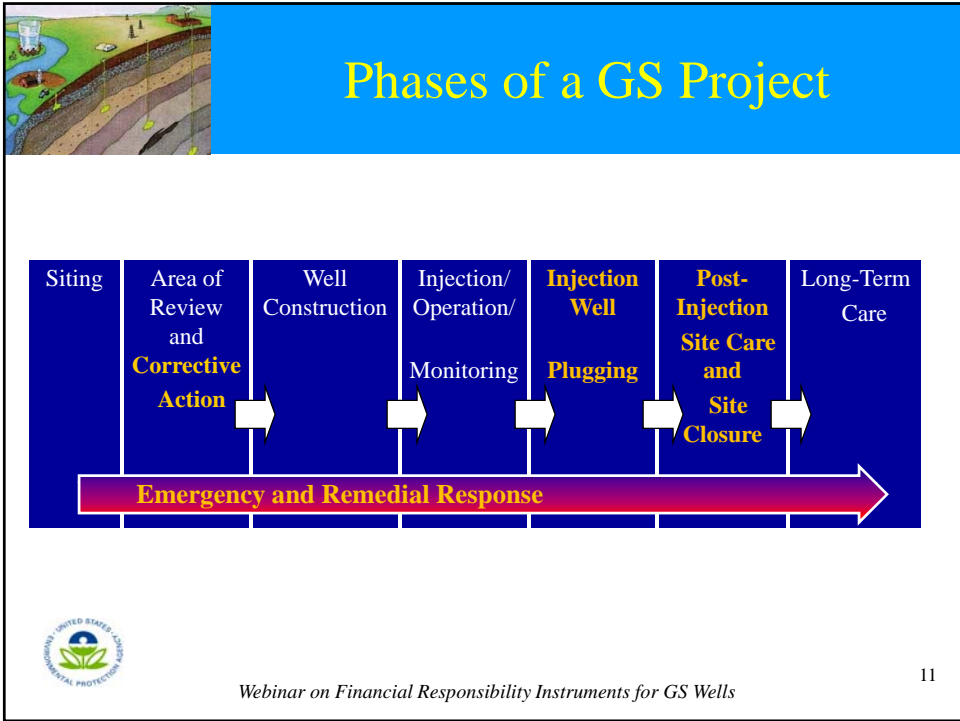
## Presentation on Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements

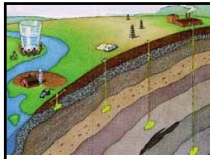
Stephen Platt, U.S. EPA, Region 3



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## Trust Funds

What is a trust fund?

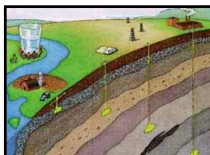
**Note: Class I has specific requirements under 40 CFR 144.63 and other well classes don't. They follow the general requirement in 40 CFR 144.52(a)(7)**

- Repository of funds set aside for a specific purpose
- Administered by a trustee; designated by the grantor who establishes the trust
- Funds must cover the full estimated cost of properly plugging wells and implementing post-closure activities
- For Class II, interest can go to owner/operator if the amount in the fund exceeds plugging/post closure costs; otherwise, interest is reinvested



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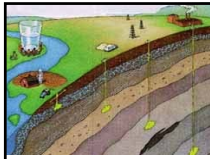
## Trust Funds: Current UIC Program Trustee Responsibilities

- Invest deposited funds, with guidance from the owner/operator
- Provide EPA with an annual valuation of the fund
- Accept additional deposits or release funds as the owner/operator drills addition wells or implements plugging and closure activities on some wells
  - EPA may delay payments if the cost of the entire operation changes, or the Agency may release funds if the value exceeds estimated closure costs



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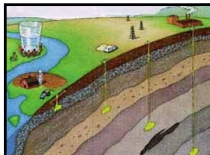
## Trust Funds: Current UIC Trust Requirements

- Trusts must meet the following requirements for Class I (other classes do not have specific requirements):
  - Be established at a bank or other eligible institution
  - Contain funds equal to estimated costs associated with plugging and post-closure activities
  - Specify the acceptable ways that the trustee can invest the fund's money
  - It must designate EPA as the beneficiary.
  - Be accompanied by a "certificate of acknowledgement" Investing deposited funds, with guidance from the owner/operator
  - Specify conditions for authorizing payments or the return of funds
  
- Trustee must be free of conflicts of interest



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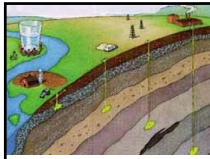
## Trust Funds: Current UIC Program Pay-In Periods

- The owner or operator may deposit funds into the trust fund in phases; that is, either over the term of the initial permit or over the remaining operating life of the injection well (as estimated in the well plugging plan), whichever period is shorter
  
- The pay-in period should factor in the possibility that the owner or operator may face financial distress prior to the trust being fully funded



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## Letter of Credit

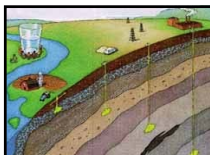
### What is a Letter of Credit?

- Guarantee that a set amount of money will be available to a specified party under certain conditions
- It should:
  - Provide that funds will be paid into a standby trust
  - Be issued by a by a bank or other regulated and examined institution
  - Allow UIC Program Director to draw upon letter of credit if the owner/operator fails to provide a substitute within 90 days
  - Have a standby trust fund



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## Surety Bonds

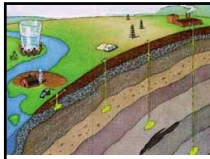
### What is a surety bond?

- Guarantee by a surety company that specified obligations such as plugging and abandoning UIC wells will be fulfilled
- Should meet the following criteria:
  - Be backed by a standby trust fund
  - Be issued by an eligible surety company
  - Require that the issuing institution provide 120-day notice if it plans not to reissue credit
  - May draw upon the letter and must provide that the UIC program director may draw upon the letter of credit if owner/operator fails provide a substitute within 90 days
- Two types of surety bonds can demonstrate financial responsibility:
  - Financial guarantee bond
  - Performance bonds



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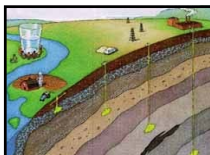
## Types of Surety Bonds

- **Performance Bond**
  - Directly tied to contract between contractor and project owner
  - Guarantees that contractor will properly plug the GS wells. If contractor defaults on contract, surety company will:
    - Finance original contractor to complete the project
    - Pay for a new contractor to plug the wells
    - Contract out the plugging of the wells
    - Pay the amount of the bond
- **Financial Guarantee Bond**
  - May be identical to performance bond, however, claim pay-out normally takes the form of monetary compensation rather than negotiating with contractors



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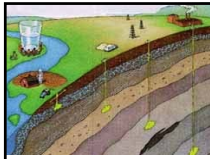
## Eligibility Requirements for Sureties Under Current UIC Requirements

- For Class I UIC wells, eligible surety bond providers must be listed by the U.S. Department of Treasury on its Circular 570 (40 CFR 144)
- Class II Guidance suggests using such providers



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## Standby Trusts

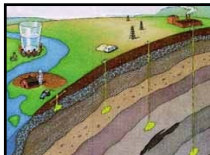
### What is a standby trust?

- Required for letters of credit and surety bonds
- A mechanism to receive on behalf of the UIC program director the funds guaranteed by surety bonds or letters of credit
- Unlike a funded trust, a standby trust is not a stand-alone financial instrument to guarantee financial responsibility



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## Facilitated Discussion

Moderator:

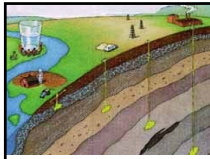
Vanessa Leiby, The Cadmus Group, Inc.

*Please type in questions using the webcast question pane on your control panel, or you may respond by phone.*



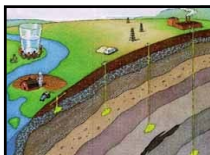
Webinar on Financial Responsibility Instruments for GS Wells

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## Questions for Discussion

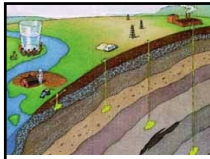
- What experience have you had with trust funds, letters of credit, and/or surety bonds?
- If EPA were to obtain legal authority, should these mechanisms be considered for financial assurance for GS? Why or why not?
  - Trust funds?
  - Letters of Credit?
  - Surety Bonds?
- What guidance should EPA provide for GS and other wells?
- Describe your experience from the state/regional perspective with the management of trust funds, letters of credit, and/or surety bonds?



## Questions for Discussion

- How well do trust funds, letters of credit, and surety bonds work for UIC wells? What additional eligibility requirements should be considered for sureties?
- Are bond ratings an appropriate measure of financial strength?
- Is payment over time appropriate for a trust fund?
- If appropriate, what constitutes an appropriate pay in period?
- Are standby trust agreements readily obtained?





*Thank You!*

## **More information about the Geologic Sequestration of Carbon Dioxide (CO<sub>2</sub>)**

- EPA Geologic Sequestration of Carbon Dioxide Website:  
[http://www.epa.gov/safewater/uic/wells\\_sequestration.html](http://www.epa.gov/safewater/uic/wells_sequestration.html)
- Text of the Proposed rule for Federal Requirements Under the UIC Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells:  
<http://www.epa.gov/fedrgstr/EPA-WATER/2008/July/Day-25/w16626.pdf>
- Docket for the rule: [www.regulations.gov](http://www.regulations.gov), Docket ID EPA-HQ-OW-2008-0390



*Webinar on Financial Responsibility Instruments for GS Wells*

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## Webinar on Underground Injection Control (UIC) Program Applications

# Insurance

May 20, 2009

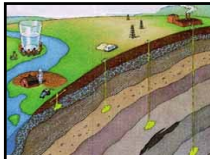
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### Webinar on Financial Assurance Mechanisms: Control Panel Navigation

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The logo of the United States Environmental Protection Agency, featuring a stylized green plant with a blue sun and the text "UNITED STATES ENVIRONMENTAL PROTECTION AGENCY" around the perimeter.

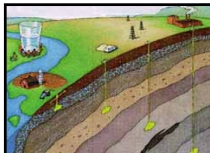


## Webinar on Financial Assurance Mechanisms: Overview

- Welcome
  - Bruce Kobelski, U.S. EPA, Headquarters
- Presentation on Insurance
  - Charles Hernick, The Cadmus Group, Inc.
- Discussion Facilitator
  - Vanessa Leiby, The Cadmus Group, Inc.



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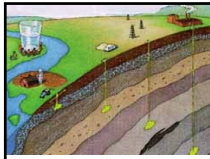


## Webinar on Financial Assurance Mechanisms: Welcome

- Second in a series of EPA webcasts to discuss potential financial responsibility mechanisms for GS wells
  - Part 1. Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements – April 28, 2009
  - **Part 2. Insurance – May 20, 2009**
  - Part 3. Self Insurance: Financial Tests and Corporate Guarantee – May 26, 2009



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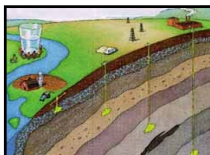


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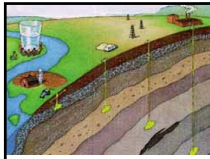


## Webinar on Financial Assurance Mechanisms: *Purpose*

- **Review of:**
  - Proposed financial responsibility requirements
  - Insurance mechanisms available to meet the requirements
    - Third Party Insurance
    - Captive Insurance
- **Facilitated Discussion on:**
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  - When in the GS lifecycle insurance may be most appropriate
  - What type of guidance is needed



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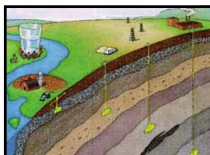
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At the end of this webinar series:

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- Participants will have shared information on special considerations for meeting the unique needs of geologic sequestration wells.



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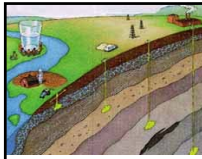


## Carbon Dioxide GS Rulemaking: Milestones

- **Federal Requirements Under the UIC Program for Carbon Dioxide Geologic Sequestration Wells**
  - Proposal published: July 25, 2008
  - Comment period closed: December 24, 2008
- **Notice of Data Availability: 2009**
- **Final rule expected 2010 or 2011**



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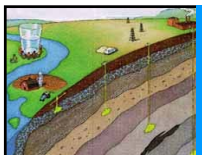


## Carbon Dioxide GS Rulemaking: Proposed Financial Responsibility Requirements

- §146.85(a) The owner or operator must demonstrate and maintain financial responsibility and resources for:
  - Corrective action (that meets the requirements of §146.84),
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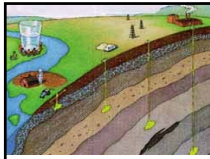


## Carbon Dioxide GS Rulemaking: Summary of Comments Received on Proposed Regulations

- EPA received comments in the following areas:
  - Usefulness/ appropriateness of various instruments
  - Improvements for some instruments
  - Need for flexibility to encourage commercial scale development of CCS
  - Need for guidance on financial responsibility



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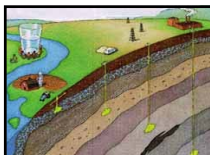
## Webinar on Financial Assurance Mechanisms

### Presentation on Insurance

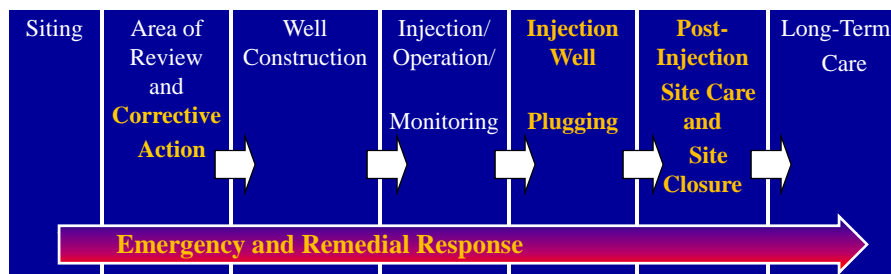
Charles Hernick, The Cadmus Group, Inc.



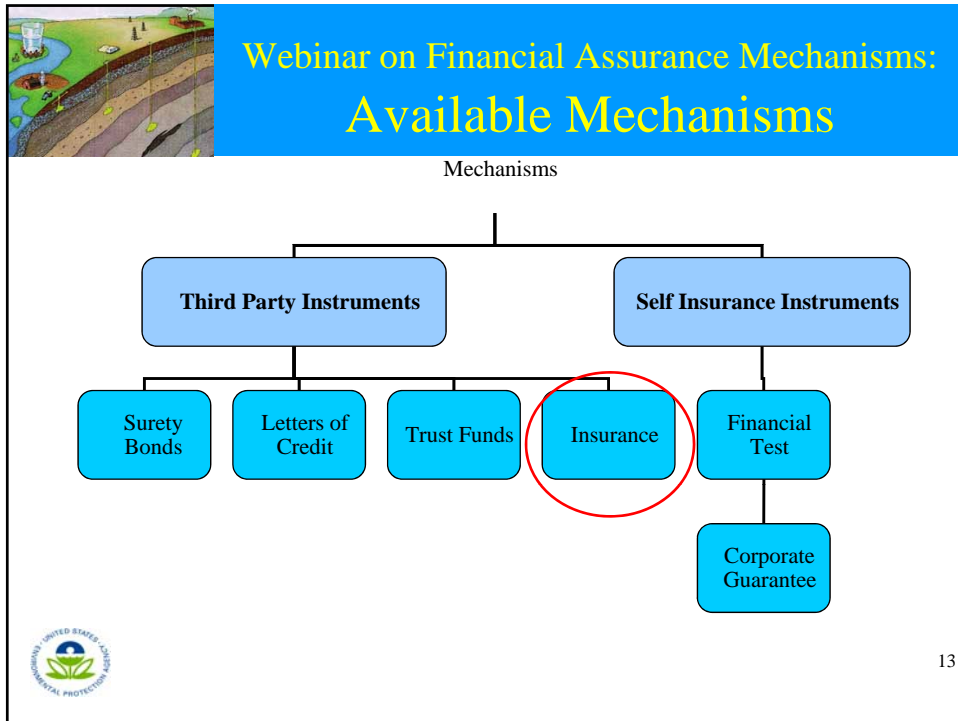
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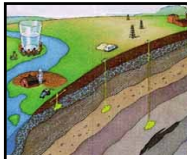
## Webinar on Financial Assurance Mechanisms: Phases of a GS Project



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- 
- Webinar on Financial Assurance Mechanisms:  
**Overview of Insurance**
- **Characteristics and Definitions**
    - Contract between the insurer and insured
    - Policy covers specific risks up to a maximum amount
    - Insured pays policy premium
    - Premium based on carrier's determination of risk
    - If event occurs, insurer pays/reimburses insured
    - **Third Party/Commercial:** Insurance carrier is not affiliated with the insured party by ownership
    - **Captive Insurance:** The insured company or companies share ownership of their insurance carrier
- 14

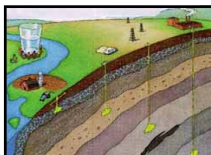


## Webinar on Financial Assurance Mechanisms: Class I Hazardous Waste Wells

- Class I has specific requirements under 40 CFR 144.63 (Other well classes do not; rather, they follow the general requirement in 40 CFR 144.52(a)(7))
- The owner/operator has primary responsibility for closure and post-closure obligations and any needed corrective action
- Options for closure and post-closure include trust funds, surety bonds, letters of credit, insurance, proof of owner/operator financial responsibility, guaranty of related party



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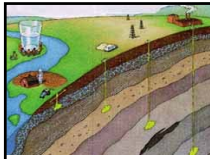


## Webinar on Financial Assurance Mechanisms: Class I Hazardous Waste Wells

- **Insurance**
  - Does not specify language for insurance policies
    - Requires a Certificate of Insurance from owner/operator that policy conforms to regulations
  - Insurer must pay out funds upon the direction of regulatory agency
  - Amount of coverage to be equal to covered event



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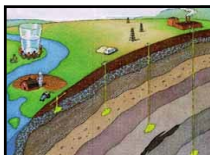


## Webinar on Financial Assurance Mechanisms: Class II Financial Instruments

- Class II wells follow a general requirement in 40 CFR 144.52(a)(7)
- Guidance provides a choice of financial instruments (EPA UIC Program Guidance # 67, May 9, 1990)
- The permittee, including the transferor of a permit, is required to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director 144.52 (a) (7) (i)



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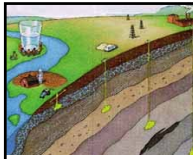


## Webinar on Financial Assurance Mechanisms: Class II Financial Instruments

- For EPA-administered programs, the transferor of a Class I, II, or III well is required to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director (40 CFR 144.28 (d)(1))
- Instruments specifically named: surety bonds, trust funds, letters of credit, financial statements
- Insurance not specifically named in 1990 guidance



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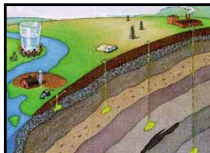


## Webinar on Financial Assurance Mechanisms: Applicability of Insurance to GS

- There are current third party policies written for GS
- Reflect underwriters' assessment of risks:
  - Pollution, business interruption, loss of well control, transmission of CO<sub>2</sub>, induced seismicity, operational issues (human failure)
  - Possible damages: ground water, mineral stocks, plant and human death, release to atmosphere (tax credit loss), migration out of reservoir
- Risk reduction starts with site selection



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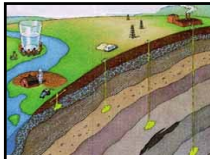


## Webinar on Financial Assurance Mechanisms: Applicability of Insurance to GS (cont.)

- Environmental Finance Advisory Board (EFAB) Recommendations on captive insurance for the RCRA program (March 20, 2007):
  - The financially responsible affiliate should *either* (a) pass the financial test and unconditionally guarantee the obligations of the captive *or* (b) possess investment grade rating, or
  - The captive entity issuing the insurance policy should have a rating of “secure” or better by AM Best or comparable rating agency
  - The rating of the captive should be formally reviewed by the rating agency annually, and States should be notified within 30-days of a rating change, an outlook change, or a rating being placed under review
- Class I Hazardous Requirements: Carriers must “be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer,” in at least one state; no minimum rating



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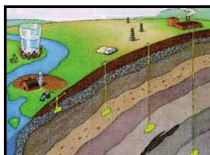


## Webinar on Financial Assurance Mechanisms: Insurance for GS: Strengths

- Provides assurance to regulating agency
- Provides source of payment to the insured or other parties
- Assumes adequate coverage for risk
- Addresses environmental risks that are known to occur (although it is difficult to predict risk in general)
- Provides site-specific flexibility
- Carrier may not require collateral or credit restrictions
- Allows for more competitive price and fewer restriction on capital
- Expands variety of mechanisms available



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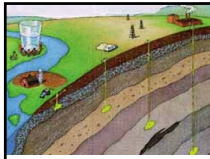


## Webinar on Financial Assurance Mechanisms: Insurance for GS: Weaknesses

- Site specific policies may lead to complex documents and decisions for regulators
  - In the event of a claim, responsible party may still be obligated to reimburse the carrier
  - Insurance regulations vary by state
  - Insurers make their own assessments of risk and payment
- All parties need to be well informed to make sure coverage is adequate
- Cost estimates may vary in accuracy; look at **limit of liability**
- Delayed or denied payment of legitimate claims possible
- Ongoing debate about whether the legal separation implies sufficient financial separation for captive Insurance



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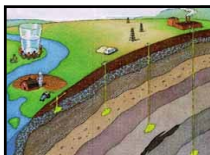


## Webinar on Financial Assurance Mechanisms: Insurance Examples

- Growing body of literature on financial assurance for GS—many studies focus on insurance
  - Obtain private insurance or bonds from injection through post-closure
    - Caps and premiums are risk-based and based on site performance
  - Permitting for early projects could be regulated under modified UIC program with CCS-specific legislation in place; individual applicants must show proof of financial resources for site care and remediation
  - Alternative for early projects is Price Anderson model – individual insurance with liability cap using lower thresholds



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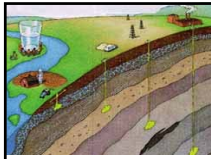
## Webinar on Financial Assurance Mechanisms: Insurance Examples

### Price-Anderson Act Model Financial Requirements *(for Nuclear projects)*

- Licensees required to obtain maximum amount of private liability insurance available on market, currently \$300 million (or show proof of comparable resources)
- Licensees are strictly liable for “extraordinary nuclear occurrences”



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## Webinar on Financial Assurance Mechanisms:

### Facilitated Discussion

Moderator:  
Vanessa Leiby, The Cadmus Group, Inc.

*Please type in questions using the webcast question pane on your control panel, or you may respond by phone.*



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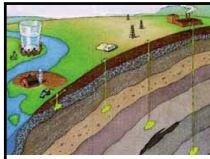


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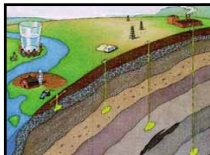


## Webinar on Financial Assurance Mechanisms: Questions for Discussion

- Should insurance be considered for financial assurance for GS? Why or why not?
- What experiences have you had with insurance for GS or other related industries?
- Can/should specific procedures for insurance be established in the GS rule?
- Are captive and third party insurance equally suited to GS?
- Should EPA propose requirements for determining which insurers are eligible to provide policies for GS?
- If insurance is considered for GS, what type of guidance should be available?

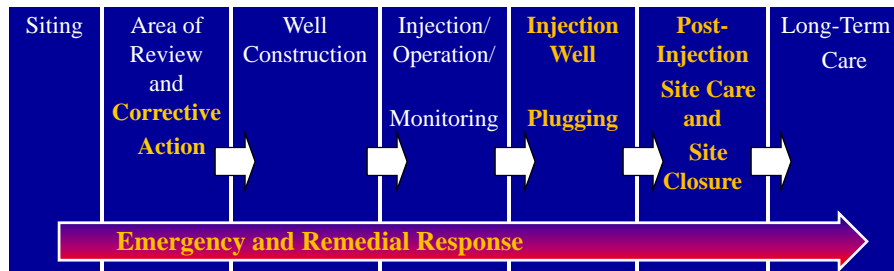


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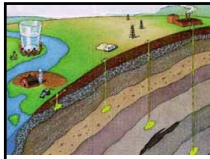


## Webinar on Financial Assurance Mechanisms: Questions for Discussion

- Does insurance make more sense for a financial responsibility demonstration during one phase (or all phases) compared to other mechanisms?



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Webinar on Financial Assurance Mechanisms:  
*Thank You!*

**More information about the Geologic Sequestration of  
Carbon Dioxide (CO<sub>2</sub>)**

- EPA Geologic Sequestration of Carbon Dioxide Website:  
[http://www.epa.gov/safewater/uic/wells\\_sequestration.html](http://www.epa.gov/safewater/uic/wells_sequestration.html)
- Text of the Proposed rule for Federal Requirements Under the UIC Program for  
Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells:  
<http://www.epa.gov/fedrgstr/EPA-WATER/2008/July/Day-25/w16626.pdf>
- Docket for the rule: [www.regulations.gov](http://www.regulations.gov), Docket ID EPA-HQ-OW-2008-0390



## Webinar on Underground Injection Control (UIC) Program Applications

# Self-Insurance: Financial Test and Corporate Guarantee

May 26, 2009

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### Webinar on Financial Assurance Mechanisms: Control Panel Navigation

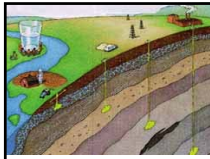
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NAMES - ALPHABETICALLY  
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## Webinar on Financial Assurance Mechanisms: Overview

- Welcome
  - Joseph Tiago, U.S. EPA, Headquarters
- History of RCRA Subtitle C Financial Test
  - Dale Ruhter, U.S. EPA, Headquarters
- Presentation on Self-Insurance
  - Paul Bailey, ICF International
- Discussion Facilitator
  - Vanessa Leiby, The Cadmus Group, Inc.



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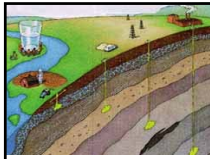


## Webinar on Financial Assurance Mechanisms: Welcome

- **Third in a series of EPA webinars to discuss potential financial responsibility mechanisms for GS wells**
  - Part 1. Trust Funds, Letters of Credit, and Surety Bonds with Standby Trust Agreements – April 28, 2009
  - Part 2. Insurance – May 20, 2009
  - **Part 3. Self Insurance: Financial Test and Corporate Guarantee – May 26, 2009**



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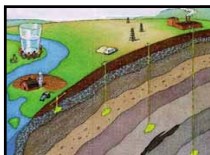


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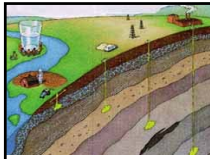


## Webinar on Financial Assurance Mechanisms: *Purpose*

- **Review of:**
  - Proposed financial responsibility requirements
  - History of RCRA Subtitle C Financial Test
  - Self-insurance: financial test and corporate guarantee mechanisms available to meet the requirements
- **Facilitated Discussion on:**
  - Experiences using self-insurance
  - When in the GS lifecycle self-insurance may be most appropriate
  - What type of guidance is needed



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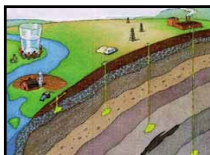
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At the end of this webinar series:

- Participants will have exchanged information on their experiences with self-insurance (financial test and corporate guarantee) as financial assurance mechanisms
- Participants will have shared information on special considerations for meeting the unique needs of geologic sequestration wells



7




## Webinar on Financial Assurance Mechanisms: CO<sub>2</sub> GS Rulemaking: Milestones

- **Federal Requirements Under the UIC Program for Carbon Dioxide Geologic Sequestration Wells**
  - Proposal published: July 25, 2008
  - Comment period closed: December 24, 2008
- **Notice of Data Availability: 2009**
- **Final rule expected 2010 or 2011**




8




### Webinar on Financial Assurance Mechanisms: CO<sub>2</sub> GS Rulemaking: Proposed Financial Responsibility Requirements

- §146.85(a) The owner or operator must demonstrate and maintain financial responsibility and resources for:
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  - Injection well plugging (that meets the requirements of §146.92),
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- §146.85(d) The operator must provide an adjustment of the cost estimate to the Director if the Director has reason to believe that the original demonstration is no longer adequate to cover the cost of injection well plugging and post-injection site care and site closure




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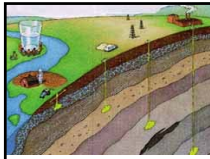


### Webinar on Financial Assurance Mechanisms: CO<sub>2</sub> GS Rulemaking: Summary of Comments Received on Proposed Regulations

- EPA received comments in the following areas:
  - Usefulness/ appropriateness of various instruments
  - Improvements for some instruments
  - Need for flexibility to encourage commercial scale development of CCS
  - Need for guidance on financial responsibility



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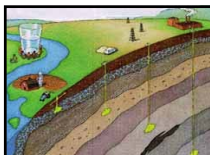
## Webinar on Financial Assurance Mechanisms

### **Presentation on History of RCRA Subtitle C Financial Test**

Dale Ruhter, U.S. EPA, Headquarters



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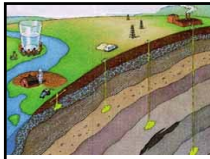


## Webinar on Financial Assurance Mechanisms RCRA Subtitle C Financial Test: Background

- The current financial test used in the RCRA Subtitle C program was initially promulgated in 1982
- The intent of the test is to allow firms that are capable of meeting their environmental obligations to self-assure, thus avoiding the cost of obtaining a third-party instrument
- The test was developed based on criteria of performance, availability, and public and private costs
- A summary of the RCRA Subtitle C financial test for closure and post-closure is below



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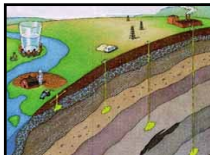


## Webinar on Financial Assurance Mechanisms RCRA Subtitle C Financial Test: Usage

- The financial test and corporate guarantee cover an estimated:
  - 37% of the Treatment, Storage, or Disposal facilities (TSDs), and
  - 56% of the TSDs' RCRA closure and post-closure obligations
- Financial tests similar to that for RCRA Subtitle C closure and post-closure are also used by other programs, such as Class I UIC facilities for plugging and abandonment



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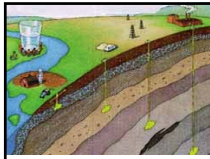


## Webinar on Financial Assurance Mechanisms RCRA Subtitle C Financial Test: Subsequent Developments

- The Agency first proposed revisions to the RCRA Subtitle C financial test in 1991
  - These revisions have been neither finalized nor withdrawn
- In 2005, EPA promulgated a different financial test that can be used by a subset of hazardous waste facilities (those operating under a RCRA standardized permit)



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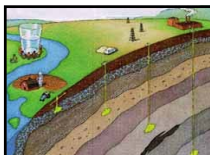


## Webinar on Financial Assurance Mechanisms RCRA Subtitle C Financial Test for Closure and Post-Closure

- **RCRA Subtitle C Financial Test – Alternative I**
  - Must meet two of the following three ratios:
    - Total liabilities to net worth less than 2.0;
    - Sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and,
    - Current assets to current liabilities greater than 1.5; and
  - Net working capital and tangible net worth each at least six times the sum of current closure and post-closure cost estimates and the current plugging and abandonment cost estimates; and
  - Tangible net worth of at least \$10 million; and
  - Assets in the U.S. of at least 90% of total assets or at least six times the sum of current closure and post-closure cost estimates and the current plugging and abandonment cost estimates



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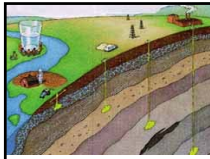


## Webinar on Financial Assurance Mechanisms RCRA Subtitle C Financial Test for Closure and Post Closure

- **RCRA Subtitle C Financial Test – Alternative II**
  - A current rating for the most recent bond issuance of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; and
  - Tangible net worth of at least six times the sum of current closure and post-closure cost estimates and the current plugging and abandonment cost estimates; and
  - Tangible net worth of at least \$10 million; and
  - Assets in the U.S. of at least 90% of total assets or at least six times the sum of current closure and post-closure cost estimates and the current plugging and abandonment cost estimates



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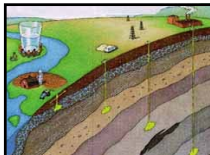


## Presentation on Self-Insurance: Financial Test and Corporate Guarantee

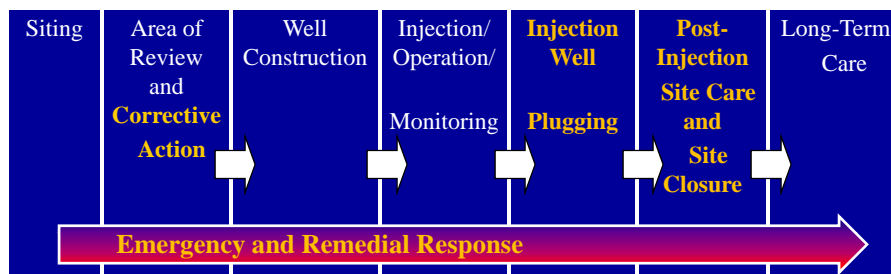
Paul Bailey, ICF International



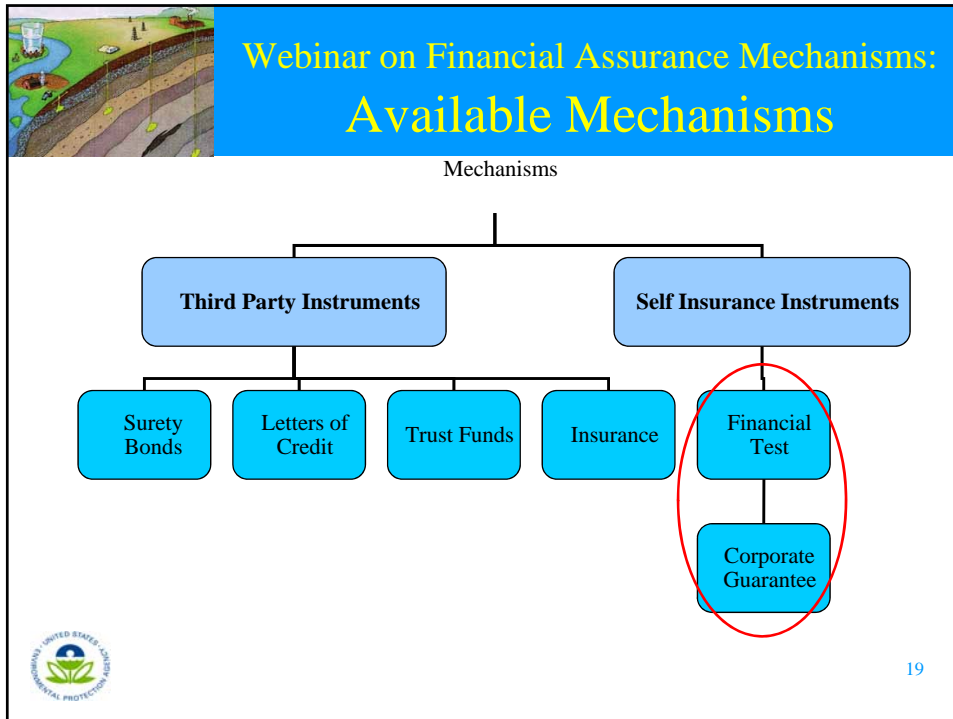
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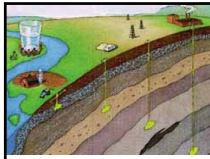
## Webinar on Financial Assurance Mechanisms: Phases of a GS Project



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- 
- Webinar on Financial Assurance Mechanisms:  
**Self-Insurance Models**
- Class II Self-Insurance
  - Class I Self-Insurance
- 20



## Webinar on Financial Assurance Mechanisms: Class II Guidance for Self-Insurance

- UIC Class II Well guidance (EPA UIC Program Guidance # 67, May 9, 1990) presents a two-part approach for use of a “financial statement” mechanism for those with a minimum net worth of \$1 million:
  - Part 1: Meet “financial coverage criteria”
  - Part 2: Pass bond rating alternative or five financial tests



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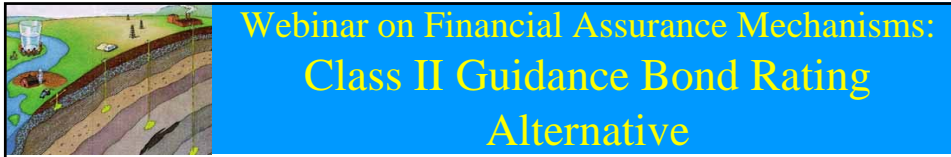
## Webinar on Financial Assurance Mechanisms: Class II Guidance Financial Coverage Criteria

- History of plugging wells
- Remaining economic life of production fields or leases
- Number of years in business
- Number of production fields
- Number of wells
- Estimated cost of well plugging
- Financial condition

*(Source: EPA UIC Program Guidance # 67, May 9, 1990)*




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**Webinar on Financial Assurance Mechanisms:  
Class II Guidance Bond Rating  
Alternative**

- Most recent rating on bonds used to raise capital should be within the four highest categories:
  - Standard & Poor's (AAA, AA, A, or BBB)
  - Moody's (Aaa, Aa, A, or Baa)
- Submit annual report of bond rating




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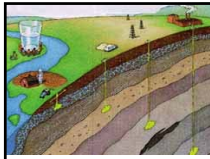
**Webinar on Financial Assurance Mechanisms:  
Class II Guidance Financial Tests**

Type of Ratio	Formula	Threshold
1) Debt-Equity Ratio	$\frac{\text{Current Liabilities}}{\text{Net Worth}}$	< 1.0
2) Debt-Equity	$\frac{\text{Long Term Liabilities}}{\text{Net Worth}}$	< 2.0
3) Liquidity	$\frac{\text{Current Assets} - \text{Current Liabilities}}{\text{Total Assets}}$	> -0.10
4) Cash Return on Liabilities	$\frac{\text{Net Income} + \text{Depreciation} + \text{Depletion} + \text{Amortization}}{\text{Total Liabilities}}$	> 0.10
5) Net Profit	Revenues - Expenses	> 0

*(Source: EPA UIC Program Guidance # 67, May 9, 1990)*



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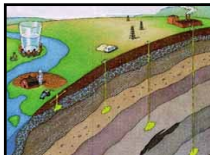
## Webinar on Financial Assurance Mechanisms: Class II Financial Test Submission

- **Provide either:**
  - A full auditor's opinion from independent Certified Public Accountant (CPA)
  - A "Glossy" financial statement
  - A 10K Report, submitted to the Securities and Exchange Commission
  - A Federal Energy Regulatory Commission Form 2 Report

*(Source: EPA UIC Program Guidance # 67, May 9, 1990)*



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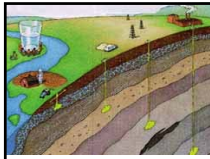
## Webinar on Financial Assurance Mechanisms: Class II Guidance Corporate Guarantee

- May be issued by a large parent corporation that owns at least 50% of the subsidiary's voting stock
- Parent must have been in business at least five years and have net worth at least \$1 million
- Guarantee typically made in writing by a corporate officer authorized to legally bind the parent
- Presumably, parent must pass all 5 financial tests

*(Source: EPA UIC Program Guidance # 67, May 9, 1990)*



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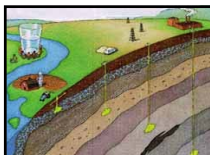
## Webinar on Financial Assurance Mechanisms: Class I Self -Insurance

- Self-insurance option is spelled out at 40 CFR 144 Subpart F, specifically §144.63(f)
- Must satisfy one of two financial tests
- Must submit signed Chief Financial Officer letter, independent CPA's (1) report on examination of financial statements and (2) special report reconciling numbers
- Auditor's opinion must be "clean"

(Source: 40 CFR 144.63(f)(10))



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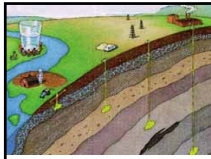
## Webinar on Financial Assurance Mechanisms: Class I Financial Test Alternative I

- Two of the following three ratios:
  - $\text{Total Liabilities} / \text{Net Worth} < 2.0$
  - $\text{sum of net income plus depreciation, depletion and amortization (NIDDA)} / \text{Total Liabilities} > 0.1$
  - $\text{Current Assets} / \text{Current Liabilities} > 1.5$
- Net Working Capital (NWC) and Tangible Net Worth (TNW) each at least 6 times the cost estimate
- TNW at least \$10 million
- Assets in U.S at least 90% of total assets *or* at least 6 times the cost estimate

(Source: 40 CFR 144.63(f)(10))



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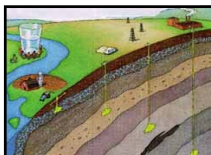
## Webinar on Financial Assurance Mechanisms: Class I Financial Test Alternative 2

- Current rating for most recent bond issuance of AAA, AA, A or BBB (S&P) or Aaa, Aa, A, or Baa (Moody's)
- TNW at least 6 times the cost estimate
- TNW at least \$10 million
- Assets in U.S at least 90% of total assets *or* at least 6 times the cost estimate

(Source: 40 CFR 144.63(f)(10))



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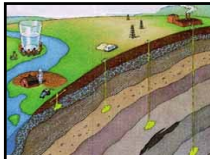
## Webinar on Financial Assurance Mechanisms: Class I Corporate Guarantee

- Written guarantee by parent following specified terms
- Parent must satisfy self-insurance requirements

(Source: 40 CFR 144.63(f)(10))



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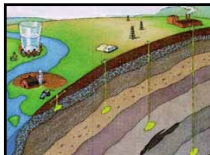


## Webinar on Financial Assurance Mechanisms: Role of Cost Estimate

- Class II (no role) vs. Class I hazardous (included in “multiples”)
- RCRA financial tests use either site-specific or categorical cost information
- Unlike other mechanisms, not limited to the amount of assurance



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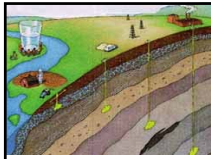


## Webinar on Financial Assurance Mechanisms: Potential Strengths of Self Insurance

- Historically - Very low risk of failure
- Solid analytical and experiential foundation for class I tests:
  - EPA Office of Inspector General report (March 30, 2001) indicates that firms with less than \$10 million in tangible net worth went bankrupt four times more frequently than firms with tangible net worth greater than \$10 million.
- Low cost (annual documentation)



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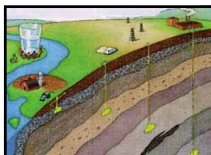


## Webinar on Financial Assurance Mechanisms: Potential Weaknesses of Self Insurance

- No guarantees
- Risk of inadequate or excessive oversight



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## Webinar on Financial Assurance Mechanisms:

### **Facilitated Discussion**

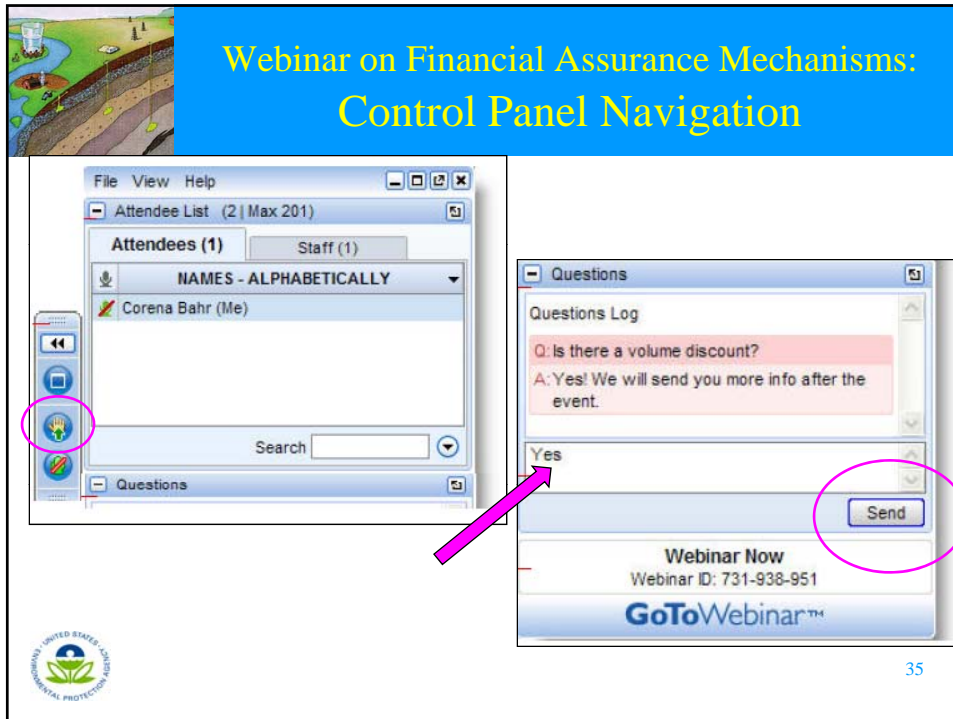
Moderator:

Vanessa Leiby, The Cadmus Group, Inc.

*Please type in questions using the webcast question pane on your control panel, or you may respond by phone.*



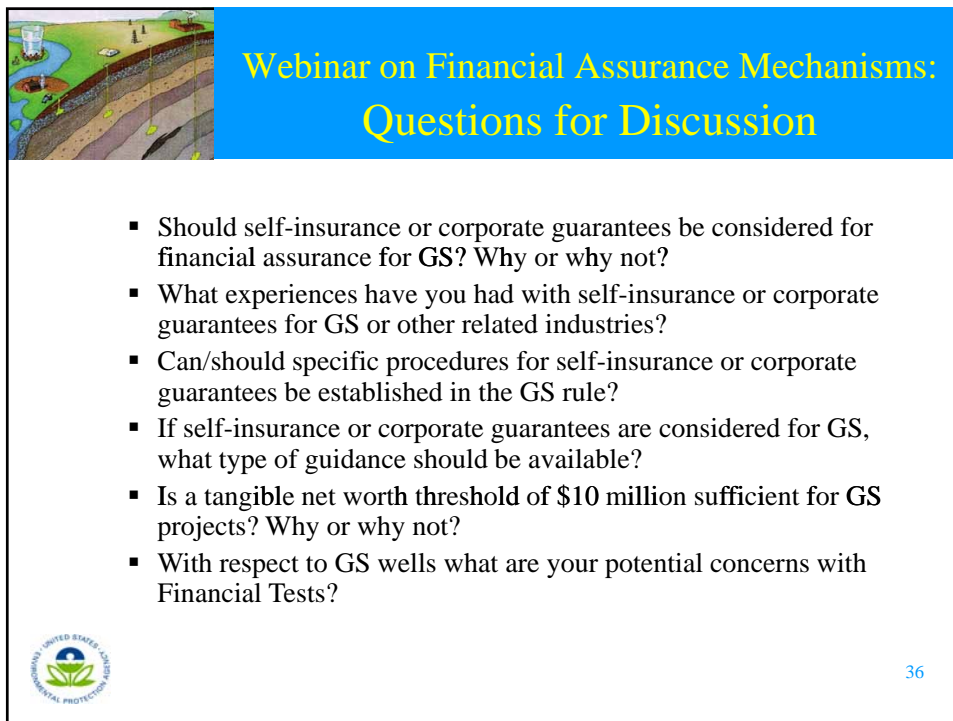
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**Webinar on Financial Assurance Mechanisms:  
Control Panel Navigation**

The image shows a screenshot of a webinar control panel. On the left, the 'Attendee List' window shows 'Attendees (1)' with 'Corena Bahr (Me)' listed. A pink circle highlights a 'Send' button in the bottom right corner of the control panel. A pink arrow points from this button to the 'Send' button in the 'Questions' window on the right. The 'Questions' window shows a 'Questions Log' with a question: 'Q: Is there a volume discount?' and an answer: 'A: Yes! We will send you more info after the event.' Below the log, the word 'Yes' is entered, and a pink circle highlights the 'Send' button. At the bottom of the control panel, it says 'Webinar Now' and 'Webinar ID: 731-938-951' with the 'GoToWebinar™' logo. The EPA logo is in the bottom left corner.

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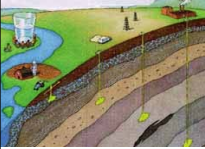


**Webinar on Financial Assurance Mechanisms:  
Questions for Discussion**

- Should self-insurance or corporate guarantees be considered for financial assurance for GS? Why or why not?
- What experiences have you had with self-insurance or corporate guarantees for GS or other related industries?
- Can/should specific procedures for self-insurance or corporate guarantees be established in the GS rule?
- If self-insurance or corporate guarantees are considered for GS, what type of guidance should be available?
- Is a tangible net worth threshold of \$10 million sufficient for GS projects? Why or why not?
- With respect to GS wells what are your potential concerns with Financial Tests?

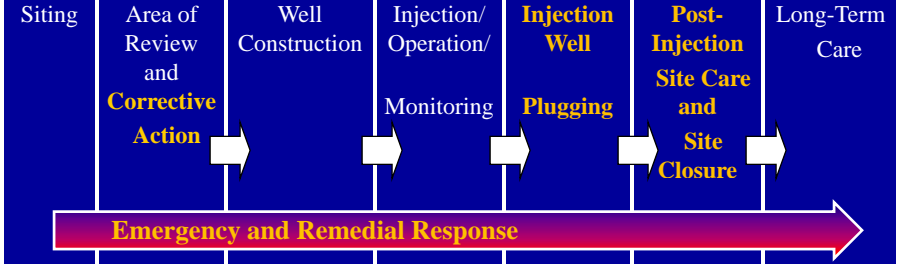
The EPA logo is in the bottom left corner.

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## Webinar on Financial Assurance Mechanisms: Questions for Discussion

- Does self insurance or corporate guarantees make more sense for a financial responsibility demonstration during one phase (or all phases) compared to other mechanisms?

Siting	Area of Review and <b>Corrective Action</b>	Well Construction	Injection/ Operation/ Monitoring	Injection Well <b>Plugging</b>	Post- Injection Site Care and Site Closure	Long-Term Care
						
						




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## Webinar on Financial Assurance Mechanisms: *Thank You!*

### More information about the Geologic Sequestration of Carbon Dioxide (CO<sub>2</sub>)

- EPA Geologic Sequestration of Carbon Dioxide Website:  
[http://www.epa.gov/safewater/uic/wells\\_sequestration.html](http://www.epa.gov/safewater/uic/wells_sequestration.html)
- Text of the Proposed rule for Federal Requirements Under the UIC Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells:  
<http://www.epa.gov/fedrstr/EPA-WATER/2008/July/Day-25/w16626.pdf>
- Docket for the rule: [www.regulations.gov](http://www.regulations.gov), Docket ID EPA-HQ-OW-2008-0390



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