Greenhouse Gas Reporting Program

Subpart RR: Geologic Sequestration of Carbon Dioxide



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Updated 2/8/12

For a copy of these slides, visit: <u>http://www.epa.gov/climatechange/emissions/training.html</u>

Outline

- Overview and Schedule
- Electronic Greenhouse Gas Reporting Tool (e-GGRT)
- Summary of Subpart RR requirements
 - Applicability
 - Submissions due prior to annual reporting

Overview of Subparts RR and UU

- EPA has finalized greenhouse gas (GHG) reporting mechanisms for facilities that conduct geologic sequestration (subpart RR) and all other facilities that inject carbon dioxide (CO₂) underground for enhanced oil and gas recovery or any other purpose (subpart UU).
 - Proposal signed on March 22, 2010.
 - Final rule signed on November 22, 2010.
- This rule is complementary to and builds on EPA's Underground Injection Control (UIC) permit requirements
- On November 9, 2011 EPA finalized Technical Corrections, Clarifying and Other Amendments to seven subparts, including RR and UU.

Geologic Sequestration of Carbon Dioxide (Subpart RR)

- Facilities that conduct geologic sequestration by injecting CO₂ for long-term containment in subsurface geologic formations are required to:
 - Report basic information on CO₂ received for injection.
 - Develop and implement an EPA-approved site-specific monitoring, reporting, and verification (MRV) plan.
 - Report the amount of CO_2 geologically sequestered using a mass balance approach and annual monitoring activities.
- All facilities that hold a UIC Class VI permit must report under Subpart RR.

Geologic Sequestration of Carbon Dioxide (Subpart RR)

- Facilities that conduct enhanced oil and gas recovery are not required to report geologic sequestration under Subpart RR unless
 - 1. the owner or operator chooses to opt-in to Subpart RR or,
 - 2. the facility holds a UIC Class VI permit for the well or group of wells used to enhance oil and gas recovery
- R&D projects will be granted an exemption from Subpart RR provided they meet the eligibility requirements

Injection of Carbon Dioxide (Subpart UU)

- Under Subpart UU, all facilities that inject CO₂ underground for purposes besides geologic sequestration, such as for enhanced oil and gas recovery or any other purpose, are required to report basic information on CO₂ received for injection.
- Geologic sequestration R&D projects that receive an exemption from Subpart RR are required to report under Subpart UU.

Subpart RR Submissions

- Registration and Certificate of Representation (COR) for each facility
- One of the following:
 - Proposed Monitoring, Reporting, and Verification (MRV) plan
 - MRV plan extension request
 - R&D project exemption request
- Annual reports (starting in 2012 for data collected in 2011)

Use e-GGRT for facility registration and submissions



Subpart RR Submissions Schedule

- 1. Register your facility and submit your Certificate of Representation 60 days before making a submission under Subpart RR.
- 2. Submit a proposed MRV plan, MRV plan submission extension request (up to 180 day extension), or R&D project exemption request through e-GGRT by the following deadlines:

Facility issued UIC permit on or before December 31, 2010

 Submit MRV plan, MRV plan extension request, or R&D project exemption request by June 30, 2011

Facility issued UIC permit on or after January 1, 2011

 Submit MRV plan, MRV plan extension request, or R&D project exemption request within 180 days of receiving final UIC permit

Electronic Greenhouse Gas Reporting Tool (e-GGRT)



For more information



On the GHG Reporting Program:

http://www.epa.gov/climate/climatechange/emissions/ghgrulemaking.html

On the GHG Data System: http://www.ccdsupport.com

Contact Us:

http://www.epa.gov/climate/climatechange/emissions/ghgrule_contactus.htm

Organization Type*: My question		On 'Contact Us' page GGRT for data system	
concerns*:	Reporting System Question e-GGRT (electronic GHG Reporting Tool) Rule Related Question]
	 40 CFR part 98 (Final rule published on 10/30/2009) Proposed Rule	010)	11

Overview

- Purpose of this portion of the webinar
- About e-GGRT
- e-GGRT user registration
- e-GGRT facility/supplier registration
- Registering Designated Representatives (DR), Alternate Designated Representatives (ADR) and Agents
- Questions & Answers

About Today's Webinar

- Today, we will explain how reporters will register in e-GGRT to submit the Certificate of Representation
- We will NOT discuss how facilities and suppliers will use e-GGRT to create and submit annual GHG reports

 This will be discussed in future webinars
- We will not be discussing ...
 - Applicability Determinations
 - GHG emission calculations
 - Proposed rulemakings

About e-GGRT

- Web-based system
 - Will guide reporters through data entry and submission
 - Built-in calculations
- Reporters may choose to format their annual GHG report according to the e-GGRT XML schema
 - These reporters must meet the same registration and submission deadlines as all other reporters

About e-GGRT

- All data is submitted to EPA electronically in e-GGRT
 - Except the one-time Electronic Signature Agreement (ESA) which is submitted on paper
- e-GGRT supports <u>reporting</u> required under Part 98
 - e-GGRT does NOT support <u>record keeping</u> requirements under Part 98

About e-GGRT



• System Requirements

- Internet Explorer 7+ or Firefox 3+
- Javascript enabled in the browser
- Transport Layer Security (TLS) enabled in the browser
- PDF reader (e.g. Adobe Reader)
- Access to printer (for Electronic Signature Agreement)
- Access to the Internet
- Personal (private) email account
- E-GGRT performs a browser test and will redirect to these pages if you fail
- E-GGRT enforces a ten-minute inactivity timeout.

Your browser does not fulfill the *e-GGRT* system's browser compatibility requirements

The following browser versions are supported

- Microsoft Internet Explorer 7.0 (or above) <u>Go to Download website</u>
- + Mozilla Firefox 3.0 (or above) $\underline{Go \text{ to Download website}}$

Your current Browser is Microsoft Internet Explorer v6.0

EPA Home | Privacy and Security Notice | Contact Us

Your browser does not fulfill the e-GGRT system's browser compatibility requirements.

Reason: JavaScript is disabled on this browser.

Solution: You must enable JavaScript on this browser before you can use e-GGRT. Instructions for enabling JavaScript are provided below. After you have enabled JavaScript, refresh this page.

Internet Explorer (7.0 and 8.0)

- 1. Select 'Tools' from the top menu
- Choose 'Internet Options'
 Click on the 'Security' tab
- Click on the 'Security' ta
 Click on 'Custom Level'
- Scroll down until you see section labeled 'Scripting'
- 6. Under 'Active Scripting', select 'Enable' and click OK

Mozilla Firefox (3+)

- 1. Select 'Tools' from the top menu
- 2. Choose 'Options'
- Choose 'Content' from the top navigation
 Select the checkbox next to 'Enable JavaScript' and click OK

User Registration: Getting Started

- Information you will need includes:
 - Name
 - Mailing address
 - Email address
- If you are an EPA Central Data Exchange (CDX) user:
 CDX User Name and Password
- If you are a CAMD Business System (CBS) reporter:
 CBS User Name and Password





User Registration: Login Page

Context sensitive help on every page

United States Environmental Protection

🕜 e-GGRT Help

Welcome to EPA's electronic Greenhouse Gas Reporting Tool

About e-GGRT

EPA's electronic Greenhouse Gas Reporting Tool (e-GGRT) supports facility and supplier reporting for the Mandatory Reporting of Greenhouse Gases Rule. The rule requires electronic reporting of greenhouse gas (GHG) emissions from large sources and suppliers in the United States,

Additional information on e-GGRT

e-GGRT LOGIN
User name:
Password:
LOGIN

e-GGR

Electronic Greenhouse Gas Reporting Tool

Forgot your User name or Password?

New e-GGRT Users Must Register New users must complete a one-time registration process. After establishing a user account you can register your facility.

NEW USER REGISTRATION

You are already registered if...

You have a CDX Account If you have an existing CDX Web account, login above with your CDX Username and Password. If you have a CDX account then log in with your CDX credentials here

at the e-GGRT login page:

As a new e-GGRT user you will start

https://ghgreporting.epa.gov

Otherwise, click the green NEW USER REGISTRATION button

Warning Notice

EPA's e-GGRT Registration procedure is part of a United States Environmental Protection Agency (EPA) computer system, which is for authorized use only. Unauthorized access or use of this computer system may subject violators to criminal, civil, and/or administrative action. All information on this computer system may be monitored, recorded, read, copied, and disclosed by and to authorized personnel for official purposes, including law enforcement. Access or use of this computer system by any person, whether authorized or unauthorized, constitutes consent to these terms.

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User Registration: On-Screen Directions

About the e-GGRT One-tim

SHOULD YOU REGISTER TO USE e-G

You will need to create an e-GGRT user a Facility or Supplier affected by EPA's

If you are uncertain, the Applicability Too is required to report greenhouse gas (GH to Suppliers and other affected entities c

Environmental Protection

USER REGISTRATION

🕜 e-GGRT Help



On-screen directions will guide you through the user registration process.

→ Most e-GGRT pages allow you to freely navigate and come back later to complete them. New user registration, however, requires you to complete the four steps in one session.

User Registration Process	
Create User Profile	Enter identifying information (name, address, contact information); set your username, password, and a secret password reset question.
Pick Challenge Questions	Pick, and supply answers to, five challenge questions. You will be asked one of these questions anytime you certify and sign a submission in e-GGRT.
Electronic Signature Agreement	Print the Electronic Signature Agreement (ESA). Sign the form, then mail or courier to EPA.
	You will not be able to use e-GGRT until EPA has received and processed this paper agreement with your signature.
Print Summary	Print the summary of your registration for your records. If you have questions regarding your registration, including the status of your ESA, you can refer to this document.
Start Using e-GGRT	EPA will not activate your account until your ESA has been received and processed. An account activation notice will be sent to the email address you used for registration. You will then be able to use e-GGRT.
BEGIN REGISTRATION	

User Registration: Your User Profile United States Environmental Protection Agency **2-**666 Electronic Greenhouse Gas USER REGISTRATION Reporting Tool (?)e-GGRT Help User Profile Challenge Questions Print Summary Signature Agreement Help with User Registration YOUR USER PROFILE By completing and saving this form you will establish your e-GGRT u Please note the following when NOTE: You will not be able to return to this screen, so please double filling out your profile: information before you save. Profile information will be used on the **Certificate of Representation** Title* Ms. (if you are a DR or ADR) First Name* Jane or Notice of Delegation Middle Initial (if you are an Agent) Last Name* Small Suffix ~ Select ADDRESS INFORMATION Organization (Employer)* Smalltown Carbon Mailing Address Line 1* 123 Main Street Mailing Address Line 2 City* Small ill

User Registration: On-Screen Directions

CONTACT INFORMATION Email * Re-enter Email * Phone Number* Phone Extension FAX	jsmall@sc.com jsmall@sc.com 123-456-7890	Throughout the registration process on- screen directions and validation messages will provide help	
USER NAME & PASSWORD	Your user name may r with a number.	not contain spaces or symbols. Do not begin your user name	User name is required.
Password* Confirm Password*	but do not start with a	e at least 8 characters long and contain at least one number, number, Do not use spaces or symbols in your password. Your be part of your password. Password confirmation is required.	Password is required.
Secret Question* Secret Answer* CANCEL SAVE	Your secret question a have forgotten your use relevance to you and b kryptonite		

User Registration: Challenge Questions

United S Environr Agency USER REGISTRATION	states nental Protection		Challenge Questions and Answers later to support Electronic
e-GGRT Help Help with User Registration			Signatures so keep them stored securely.
	-CHALLENGE QUESTIONS Question 1* Answer 1*	What is the first and middle name of your oldest sibling?	
	Question 2* Answer 2* Question 3*	What is your favorite pet's name? What is your favorite hobby?	
	Answer 3* Question 4* Answer 4*	What is your favorite TV show?	
	Question 5* Answer 5*	Where did you first meet your spouse?	
	SAVE		

/ E-GGRT will use

User Registration: Electronic Signature Agreement

	ates Iental Protection	Signature
USER REGISTRATION		Reporting Tool
e-GGRT Help Help with User Registration	User Profile Challenge Questions Signature Form Print Summary	You can al as a PDF f
	 YOUR ELECTRONIC SIGNATURE AGREEMENT (ESA). You will not be able to use e-GGRT functionality until EPA receives this paper form. Please allow 10 business days for processing. Print: Your Electronic Signature Agreement Form Read your form Sign and date your form Mail your form to: e-GGRT Help Desk SAIC 8301 Greensboro Drive, Mail Stop E-11-2 McLean, VA 22102 Wait for EPA to receive your form, after which you will receive an account activation notice by email and can begin using e-GGRT. 	
		eGGRT RY2010.6.8 UA2-4

On this final page you can print out your Electronic Signature Agreement.

You can also save a copy as a PDF file.

User Registration: Electronic Signature Agreement

Electronic Signature and Use Agreement



User Registration: Electronic Signature Agreement Approved!



Notifications from e-GGRT will be sent to the email address in your user profile.

Make sure your email accepts mail from eggrt@ccdsupport.com



e-GGRT: EFA has received your ESA - You can now GHGreporting to: Peter Kokopeli Please respond to Reply

For questions about the GHG Reporting Program or e-GGRT, contact EPA at GHGMRR@epa.gov

A Notice from EPA's electronic Greenhouse Gas Reporting Tool

EPA has received your e-GGRT Electronic Signature Agreement (ESA) form.

You may now login and begin to use e-GGRT, including registering facilities or suppliers, and accepting e-GGRT invitations to be a Designated Representative or Agent.

If you believe you received this message in error, or have questions, please contact the Help Desk at Monday through Friday during regular business hours.

20019 21220

Registering A Facility



Log-In to e-GGRT at: https://ghgreporting.epa.gov

Facility Registration



Facility Registration



Facility Registration

HOME FACILITY REGISTRA	ATION FACILITY MANAGEMENT		E	lectronic Greenhouse Gas Reporting Tool Hello, K.C. My Profile Logout		
e-GGRT Help	Carbon Emitters Factory				P	
Help with Facility Registration	Search Facility Info Appoi WHO ARE THE DR AND ADI Each e-GGRT facility is requi Representative (DR). The DR	R? red to have one, and only one, Desi will certify and sign the Facility or S can appoint one, and only one, Alt	upplier's	Grey boxes in provide expla may also click time for more	natory text. (HELP at an	
		ation, e-GGRT will send an e-mail in how to accept their role for this faci	lity.	otes a required field		
	DESIGNATED REPRESENTAT Who will be the DR for* this Facility or Supplier?	IVE (DR) ● I will be the DR ● I want to appoint a DR.	someo	n appoint yours ne else. EPAw		
	First Name*	John	appoin	tments		
	Last Name *	Smith]			
	Middle Initial					
	Phone*	202-123-4567				
	E-mail* Re-enter E-mail*		The e	mail will be use	d by e-	
	ALTERNATE DESIGNATED R Who will be the ADR for* this Facility?	JohnSmith@CarbonHQ.com EPRESENTATIVE (ADR) I want to appoint an ADR, or There will be no ADR. (Note: A	appoi	to invite the DF ntee to accept t		
	First Name*	Jane	• E	nter the ADR's	info here,	
	Last Name*	Doe		applicable. An		
	Middle Initial			lso be added at		
	Phone* E-mail*	240-123-4567 JaneDoe@CarbonHQ.com		me but must be		
			a	pproved by the	DR	30

Appointments and Invitations: DR & ADR



Appointments and Invitations: Agent(s) 3 APPOINTEE 1) 2 **EPA SET UP RECEIVES** email **APPROVES &** USES code AGENT(S) **E-GGRT sends email** To ACCEPT Role 4 DELEGATOR **RECEIVES** email **REVIEWS Agent** Delegation DELEGATOR Signs Notice of Delegation

Using an Invitation Code

	HOME FACILITY REGISTR		rotection FACILITY MANAGEMENT	DATA REPORTING	REPORTS		Electronic Greenhouse Gas Reporting Tool
							Hello, Peter Kokopeli My Profile Logout
	 e-GGRT Help About e-GGRT Home 	Faci VAN REG	LITIES PENDING REGIST lity or Supplier GUARD CORP ISTER A FACILITY R FACILITIES:	RATION: Your Role REGISTRAR	Registration Pending	n Status	ACCEPT AN INVITATION: Responding to a Facility Invitation? Paste the Invitation Code into the field below, then click 'GO' 94C3E807C81CEDA2B2490 GO
		Faci	lity or Supplier			Your Role	e-GGRT Announcements
		ACN	IE STEEL			DR	2010-09-01 08:00:00.0 Welcome to e-GGRT!
			1				For more information, tutorials and
Hom and r	e Page lists facilitie role	S		After an APF an email inv ROLE, he or e-GGRT and	itation f she ca	ior a n log into	FAQs click the e-GGRT Help link on this page. See the GHG Reporting Program website for training opportunities.
				invitation co	ode into	this box.	eGGRT RY2010.6.8 UA1-2

Accepting the Appointment

to submit reports. If you accept the role, you w Representation (COR) in the	ill digitally sign and submit a Certificate of screens that follow.	denotes a required field
You have been identified by Po ANYREPORTER 123 Main Street ANYTOWN, USA, ANY2	eter Kokopeli as the Designated Representative (DR) for	:
Do you accept this* appointment? If you do not accept,		
please explain		
Peter Kokopeli suggested the Uncle JOE 202-123-4567 Joe.Uncle@mail.com	following person as your Alternate Designated Represen	tative for this facility:
Do you confirm the ADR* appointment?	 Yes No — change the ADR appointment (note, this option only applies when an ADR was appoint on No — do NOT appoint an ADR at this time 	ointed)
NEXT		
		eGGRT RY2010.6.8 FR3-4

Certificate of Representation

Faci	ility or Supplier Name	STEVE SHOP
		6251 SIDE ROAD REDDING CA, 96001
)wners and Operators	Steve Trout;
		EDIT Facility Information
REP	RESENTATIVE INFORM	ATION
	Designated Representative	Peter Kokopeli 1200 Pennsylvania Ave, NW Washington DC, 22222
		kokopeli.peter@epa.gov
CER	TIFICATION STATEMEN	rs
refully review the		I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the facility or supplier, as applicable.
ertification Statemen	nts.	I certify that I have all the necessary authority to carry out my duties and responsibilities under 40 CFR part 98 on behalf of the owners and operators of the facility or supplier, as applicable, and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.
at <mark>e</mark> ments can also b	e	I certify that the owners and operators of the facility or supplier, as applicable, shall be bound by any order issued to me by the Administrator or a court regarding the facility or supplier.
und in Section 98.4 Rule	of	If there are multiple owners and operators of the facility or supplier, as applicable, I certify that I have given a written notice of my selection as the 'designated representative' or 'alternate designated representative', as applicable, and of the agreement by which I was selected to each

Facility Summary

HOME FACILITY REGISTI	States mental Protection RATION FACILITY MANAGEMENT		Electronic Greenhouse Gas Reporting Tool Hello, Elijah My Profile Logou	
🕐 e-GGRT Help About Facility Management	DeMasi Carbon Services, Inc Facility Summary			
Subpart RR: Geologic Sequestration of Carbon Dioxide	"Facility Profile" information, the f	or this summary page, depending upon your role, you can make changes to the acility Profile" information, the facility's representatives Designated Representative R) and Alternate Designated Representative (ADR), and to your Agents if you are a		
	Facility Representatives		E Certificate of Representation	
	Designated Representative Alternate Designated Representative		CHANGE Agent (for this facility) for none appointed Add Agent Remove selected	
	Facility Profile			
	Facility Information	AJ Test Facility IV 123 Test Street Falls Church VA 22043	EDIT	
	Owners and Operators	AJ		
Subpart RR Start Page



e-GGRT Support

- E-GGRT Help Desk will be able to answer questions and provide support to e-GGRT users
- Telephone: 1-877-444-1188

GHGREPORTING@epa.gov[e-GGRT] GHGMRR@epa.gov[RULE]

• URLs:

• Email:

www.ccdsupport.com [Help] https://ghgreporting.epa.gov [e-GGRT]

Before you Contact the e-GGRT Help Desk

• Can I login to e-GGRT using my CAMD Business System user name and password?

No. You can, however, use your CDX user name and password to login to e-GGRT.

- **How do I reset my CDX password?** If you have not yet logged into e-GGRT and you need to reset your CDX password, go to https://cdx.epa.gov/SSL/cdx/login.asp. The "Forgot Password" link on the e-GGRT home page will not work unless you have successfully logged into e-GGRT at least once.
- **Can I reuse my CAMD Business System Electronic Signature Agreement, or do I need to mail in a new one?** If you already have an Electronic Signature Agreement on file with the CAMD Business System, e-GGRT can reuse it if you provide your CAMD Business System user name and password when requested during user registration, and no additional Electronic Signature Agreement is needed

e-GGRT Help Site www.ccdsupport.com

		V.C. 36
Home		
Welcome to e-GGRT Help		
This site contains news, tutorials, FAQs, help and ot	her information about e-GGRT.	
e-GGRT News	Learn about e-GGRT	Pelp
 <u>E-GGRT Help Desk Closed on</u> Jan. 17 <u>Maintenance Scheduled Saturday</u> 	<u>Getting Started</u> <u>Tutorials</u> <u>Registration Instructions</u>	 <u>About GHG Reporting Program</u> and Part 98 <u>FAQs</u>
Jan. 22 EPA Releases E-GGRT Tutorials EPA Proposes Updates to Greenhouse Gas Reporting Program	E-GGRT XML Reporting Schema Outreach and Training	<u>Known Issues</u> <u>Contact Us</u>
GHGRP Rulemaking Notices E-GGRT Webinars GHG Rulemaking RSS Feed		

Additional Information

Questions?

Subpart RR Topics for Today

- Applicability
 - Who is subject to Subpart RR?
- Submission due prior to annual reporting
 - R&D Project Exemption Request OR
 - Proposed Monitoring, Reporting, and Verification (MRV) Plan

Applicability: Which Facilities Must Report Under Subpart RR?

- Subpart RR source category includes:
 - Any well or group of wells that inject a CO₂ stream for longterm containment in subsurface geologic formations
 - All wells permitted as UIC Class VI wells
- Facilities that conduct enhanced oil and gas recovery are not required to report geologic sequestration under Subpart RR unless
 - 1. the owner or operator chooses to opt-in to Subpart RR or,
 - 2. the facility holds a UIC Class VI permit for the well or group of wells used to enhance oil and gas recovery

Facilities that report under Subpart RR are not required to report under Subpart UU

R&D Project Exemption Request Process Overview



Note: EPA decision may be appealed by an interested person to EPA Environmental Appeals Board

R&D Exemption Request Submission Page (example)

SEPA United St Environm Agency	tates nental Protection		e-GGRT 🔑
HOME FACILITY REGISTR	ATION FACILITY MANAGEMEN	DATA REPORTING	Electronic Greenhouse Gas Reporting Tool
MY FACILITIES	SUMMARY		Hello, Elijah My Profile Logout
e-GGRT Help Link to a relevant PDF Resources by Subpart: Subpart RR	-	, Inc. (2010) Gic Sequestration of Carb R Overview » R&D Project Exemption I	_
Support RK	R&D EXEMPTION REQUES	r	
	exemption from subpart RR.	Irch and development (R&D) projects will To receive a subpart RR R&D exemption w, then SUBMIT and CERTIFY.	
	R&D PROJECT EXEMPTION F	REQUEST	
	Name of Project*	DeMasi Carbon Services, Inc.	
	CO2 injection (for R&D) Start Date		
	CO2 injection (for R&D) End Date		
	Research Purpose		.::
	Source and type of funding		
	Class of Underground Injection Control permit	Select	v
	Underground Injection Control permit Start Date		
	Underground Injection Control permit End Date		
	Tacility Summary	ELSAVE	
	SUBMIT and CERTIFY R&D P	ROJECT EXEMPTION REQUEST	
			uest you may proceed to certify and submit. This process and answering a challenge/security question).

R&D Project Exemption

- R&D projects will be granted an exemption from Subpart RR provided they meet the eligibility requirements
- A project is eligible for the exemption if it meets the Subpart RR definition of R&D project:
 - a project for the purpose of investigating practices, monitoring techniques, or injection verification, or engaging in other applied research, that will enable safe and effective long-term containment of a CO_2 stream in subsurface geologic formations, including research and short duration CO_2 injection tests conducted as a precursor to long-term storage
- R&D project exemption requests must be submitted using the webform that is provided in e-GGRT.
- **NOTE**: Projects receiving a Subpart RR R&D exemption report under Subpart UU.

R&D Project Exemption Request Content

- A submission in support of an exemption as an R&D project must contain the following information:
 - The planned duration of CO_2 injection for the project
 - The planned annual CO_2 injection volumes during this time period
 - The research purposes of the project
 - The source and type of funding for the project
 - The class and duration of UIC permit or, for an offshore facility not subject to the Safe Drinking Water Act, a description of the legal instrument authorizing geologic sequestration

R&D Project Exemption Request Content

- The research purpose in the reporter's request provides a key piece of information on which EPA will base its decision to grant or deny the R&D exemption request.
 - EPA encourages reporters applying for an exemption to provide detailed information about the research purpose.
 - Examples:
 - Description of monitoring technologies tested at the GS project
 - Citations for published research at the site, if they exist
 - How the research is moving the science of monitoring GS sites forward
 - Description of the short-term injectivity testing, if this is the purpose of the exemption request
- Other aspects of the submission also provide relevant information on the project
 - For example, the estimated duration the project will aid in determining the length of time of the exemption

MRV Plan Review Process Overview



(1) EPA decision may be appealed by an interested person to EPA Environmental Appeals Board (2) MRV plan resubmittals follow the same process

MRV Plan Submission Page (example)

IOME FACILITY REGISTR		RTING	Reporting Tool Hello, Elijah My Profile Logout
e-GGRT Help ink to a relevant PDF esources by Subpart: ubpart RR	DeMasi Carbon Services, Inc. (2010) Subpart RR: Geologic Seques Facility Summary » Subpart RR Overview OVERVIEW OF SUBPART RR The MRR requires reporting of greenhouse ga carbon dioxide underground for geologic sequ Subpart RR deadlines for submitting a Propos Verification (MRV) Plan (or extension request project exemption request can be found using on the left.	ses (GHGs) from facilities that inject estration (GS). If you are subject to sed Monitoring, Reporting, and) or Research and Development (R&D	de
	Name of Project none ADD a R&D Project Exemption Request MRV PLAN EXTENSION REQUEST Name of Project none ADD a MRV Plan Extension Request MRV PLAN MRV PLAN MRV PLAN MRV PLAN UPL Browse UPL	Certifier	oad MRV plan as a sing ile, submit, and certify Status

MRV Plan Submission Extension Request (example)



Contents of MRV Plan

- 1. Delineation of the maximum monitoring area (MMA) and active monitoring areas (AMAs)
- 2. Identification of potential surface leakage for pathways in the MMA
- 3. A strategy for detecting and quantifying surface leakage of CO₂
- 4. A strategy for establishing the expected baseline for monitoring CO_2 surface leakage
- 5. Site-specific variables for the mass balance equation
- 6. Well identification number(s)
- 7. Proposed date to begin collecting data for calculating total amount sequestered (Equations RR-11 and RR-12)
 - Date must be after expected baselines are established and the leakage detection and quantification strategy is implemented in the initial AMA

1. Monitoring Areas

- Maximum monitoring area is the area expected to contain the free phase CO₂ plume until the CO₂ plume has stabilized plus an all-around buffer zone of at least one-half mile
- Active monitoring area is the area that will be monitored over a specific time interval from the first year of the period (n) to the last year in the period (t).
 - This allows operators to phase in monitoring so that during any given time interval, only that part of the MMA in which leakage might occur needs to be monitored.

2. Potential Leakage Pathways

- MRV plan must identify the likelihood, magnitude, and timing of potential leakage from each pathway
- Example pathways:
 - Wells
 - Injection well(s)
 - Monitoring wells
 - Active/abandoned oil and gas wells
 - Faults, fractures, and bedding plane partings
 - Confining zone competency, extent and dip

3. Surface Leakage Detection, Verification, and Quantification Strategy



- Detection
 - Leakage detection systems may include continuous measurements and/or regular periodic surveys (e.g. water chemistry, airborne surveys, mechanical integrity testing)
 - Detection capability should be described in the MRV plan
- Verification
 - Leakage verification allows reporter to confirm the location and source of leakage that has been detected
 - MRV plan may describe the methods and criteria for determining how an anomalous reading or condition will be evaluated to determine if it represents a leak, and to verify the location and source of the leak
- Quantification
 - MRV plan must include a discussion of how leaks will be quantified once they are detected and verified
 - Multiple monitoring technologies and quantification techniques can address different leakage pathways and leakage calculation methods

4. Strategy for establishing the expected baseline

- Expected baselines allow the reporter to discern whether the results of monitoring are attributable to leakage of injected $\rm CO_2$
- Parameters may be environmental such as subsurface pressure, soil flux rates, etc., or operational, such as the injection pressure and the annular pressure in the well
- The MRV plan should describe how the baselines will be determined and how they could be used to detect monitoring anomalies

5. Entrained CO₂ in produced fluids

- Fluids produced at GS facilities may contain CO2 that is not captured in the gas phase CO2 measurement downstream of the gas-liquid separator
 - Dissolved gas in the oil or water phase of the produced fluids
 - Dissolved in water extracted from the injection zone
- Equation RR-9 describes the mass balance of CO2 at the gas-liquid separator including amount of CO2 in the produced oil and water
 - In the MRV plan, the reporter should estimate the percentage of entrained CO2 in produced oil or other fluid
 - For example, this can be determined using industry standard laboratory analyses

When Are Annual Reports Due?

- Subpart RR
 - Submit annual reports to EPA in 2012 reporting basic information on CO_2 received in 2011.
 - Once EPA-approved MRV plan is implemented, add data to annual reports on the amount of CO_2 that is geologically sequestered based on mass balance approach and annual monitoring activities.
- Subpart UU
 - Submit annual reports to EPA in 2012 reporting basic information on CO_2 received in 2011.

For More Information

- Subpart RR Information and Help
 - <u>http://www.epa.gov/climatechange/emissions/subpart/rr.html</u>
 - Email: GHGMRR@epa.gov
- e-GGRT Information and Help
 - <u>http://www.ccdsupport.com</u>
 - Email: GHGreporting@epa.gov
- GHG Reporting Program Information:
 - <u>http://www.epa.gov/climate/climatechange/emissions/ghgrulemaking.html</u>