Message

From: Maples, Brandon [Maples.Brandon@epa.gov]
Sent: 7/12/2022 1:28:29 PM
To: Ussery, Ian [Ussery.Ian@epa.gov]; Johnson, Ken-E [Johnson.Ken-E@epa.gov]; Friesenhahn, Brody [friesenhahn.brody@epa.gov]
Subject: RE: annulus presssure EPA R6 gudiance

No, not yet. I was waiting to see if Ken knew anything, but I forgot to ask him yesterday.

From: Ussery, Ian <Ussery.Ian@epa.gov>
Sent: Tuesday, July 12, 2022 8:27 AM
To: Maples, Brandon <Maples.Brandon@epa.gov>; Johnson, Ken-E <Johnson.Ken-E@epa.gov>; Friesenhahn, Brody <friesenhahn.brody@epa.gov>
Subject: RE: annulus presssure EPA R6 gudiance

Did we ever respond to this?

From: Maples, Brandon <Maples.Brandon@epa.gov>
Sent: Friday, July 8, 2022 8:22 AM
To: Ussery, Ian <Ussery.Ian@epa.gov>; Johnson, Ken-E <Johnson.Ken-E@epa.gov>; Friesenhahn, Brody <friesenhahn.brody@epa.gov>
Subject: FW: annulus presssure EPA R6 gudiance

There's no limit for how long a Class VI permit is valid or how quickly they must start injection, is there? As long as they're doing all the required monitoring and reevaluations of APs, AOR, modeling, etc.? I looked in the regs and guidance documents, but I never found anything to indicate when a permit would expire.

From: Jason.Dupres@shell.com <Jason.Dupres@shell.com>
Sent: Thursday, July 7, 2022 12:51 PM
To: Maples, Brandon <Maples.Brandon@epa.gov>
Subject: RE: annulus presssure EPA R6 gudiance

Hi Brandon,

For our Class VI drill permit – how long is it valid for?

And once we get an "authorization to begin injection", how long do we have to actually start the injection? Is it 6 months?

Thanks!
Jason

Jason Dupres
U.S Environmental & Regulatory Lead |Carbon Capture and Storage (CCS)
SHELL

From: Maples, Brandon <Maples.Brandon@epa.gov>
Sent: Tuesday, June 21, 2022 11:19 AM

To: Dupres, Jason B SERC-IGS/C <Jason.Dupres@shell.com>
Cc: Johnson, Ken-E <Johnson.Ken-E@epa.gov>; Ussery, Ian <Ussery.Ian@epa.gov>; Friesenhahn, Brody <friesenhahn.brody@epa.gov>; Yun, Samuel <Yun.Samuel@epa.gov>; Maples, Brandon <Maples.Brandon@epa.gov>
Subject: RE: annulus presssure EPA R6 gudiance

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Jason –

Apologies for the delay in responding! From what we have been able to determine, there does not appear to be any definitive guidance or regulations regarding where annulus pressure must be measured. As Sam indicated previously, regulations dictate that annulus pressure must exceed operating injection pressure (40 CFR 146.88(c) unless such a pressure might harm well integrity or endanger USDWs. Additionally, continuous recording devices must be installed to monitor injection pressure; rate, volume and/or mass, and temperature of carbon dioxide stream; and annulus pressures and fluid volume (40 CFR 146.88(e) and 40 CFR 146.89(b)). Section 3.3 (p. 40-43) of the headquarters guidance document "Underground Injection Control (UIC) Program Class VI Well Testing and Monitoring Guidance" indicates that injection pressure may be defined at either the wellhead or downhole (i.e., bottomhole pressure), with downhole/bottomhole pressure being equal to wellhead pressure plus hydrostatic pressure of the fluid column between the wellhead and bottomhole, minus frictional losses. Section 2.2.2 (p. 14-16) also indicates that an annulus pressure gauge at the surface will require knowledge of temperature and density of the injected fluid in order to determine bottomhole pressures. Based on this information, it is our interpretation that annulus and injection pressure measurements may be made at either location (surface or bottomhole) as long as the two can be appropriately correlated.

Hope this make sense and is helpful, and, again, I apologize for taking so long to get back to you. If you have any other questions or need any other assistance, please feel free to reach out to us!

Thank you,

Brandon Maples
Ground Water/UIC Section
U.S. EPA Region 6
Maples.Brandon@epa.gov
Office: 214-665-7252

From: Jason.Dupres@shell.com <Jason.Dupres@shell.com>
Sent: Saturday, June 11, 2022 12:48 PM
To: Maples, Brandon <Maples.Brandon@epa.gov>
Subject: RE: Area permit question

Thanks Brandon! Appreciate the help.

Jason Dupres
US Environmental/Regulatory Lead | CCS
SHELL

From: Maples, Brandon <Maples.Brandon@epa.gov>
Sent: Friday, June 10, 2022 2:00 PM
To: Dupres, Jason B SERC-IGS/C <Jason.Dupres@shell.com>
Cc: Ussery, Ian <Ussery.Ian@epa.gov>; Friesenhahn, Brody <friesenhahn.brody@epa.gov>; Johnson, Ken-E

<Johnson.Ken-E@epa.gov>; Yun, Samuel <Yun.Samuel@epa.gov>; Maples, Brandon <Maples.Brandon@epa.gov>
Subject: FW: Area permit question

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Jason –

Just wanted to email you and let you know that we're working on getting an answer to your question. We've thus far been unable to find a definitive answer in any of the regulations or guidance, so we're running your question by Headquarters staff to see if they can help. We will keep you updated and let you know what we hear back. In the meantime, feel free to reach out to Ian, Brody, Ken, or me (all cc'd on this email) if you have any other questions in the meantime!

Thank you!

Brandon Maples
Ground Water/UIC Section
U.S. EPA Region 6
Maples.Brandon@epa.gov
Office: 214-665-7252

From: Yun, Samuel <Yun.Samuel@epa.gov>
Sent: Wednesday, June 8, 2022 8:48 AM
To: Friesenhahn, Brody <friesenhahn.brody@epa.gov>; Ussery, Ian <Ussery.Ian@epa.gov>; Maples, Brandon <Maples.Brandon@epa.gov>
Cc: Johnson, Ken-E <Johnson.Ken-E@epa.gov>
Subject: FW: Area permit question

From: Jason.Dupres@shell.com <Jason.Dupres@shell.com>
Sent: Monday, June 6, 2022 9:55 PM
To: Yun, Samuel <Yun.Samuel@epa.gov>
Subject: RE: Area permit question

Sam, one small clarification, on the pressure – assume this is surface pressure? or bottom hole? If you know…

Jason Dupres
US Environmental/Regulatory Lead | CCS
SHELL

From: Yun, Samuel <Yun.Samuel@epa.gov>
Sent: Thursday, June 2, 2022 3:09 PM
To: Dupres, Jason B SERC-IGS/C <Jason.Dupres@shell.com>
Cc: Maples, Brandon <Maples.Brandon@epa.gov>; Ussery, Ian <Ussery.Ian@epa.gov>; Friesenhahn, Brody <friesenhahn.brody@epa.gov>
Subject: RE: Area permit question

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No area permits are allowed at this point. Each well requires its own permit, but a single application can and should incorporate all known injection activities to better model the project's total output as a whole.

For the second question, according to injection well operating requirements under 40 CFR 146.88(c), "The owner or operator must fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the Director. **The owner or operator must maintain on the annulus a pressure that exceeds the operating injection pressure, unless the Director determines that such requirement might harm the integrity of the well or endanger USDWs.**"

FYI, I'm no longer with Region 6, but I've cc'd the Region 6 Class VI Leadership Team (Ian Ussery, Brody Friesenhahn, Brandon Maples) for communication going forward.

Hope that helps!

Sam Yun
Geologist
GW, UIC & GIS Section
U.S. EPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303-8960
O: 404-562-8909

From: Jason.Dupres@shell.com <Jason.Dupres@shell.com>
Sent: Thursday, June 2, 2022 1:59 PM
To: Yun, Samuel <Yun.Samuel@epa.gov>
Subject: Area permit question

Hi Sam, 2 short questions for you for potential project in LA.

Is region 6 allowing "area" permits for Class VI? i.e. one class VI permit with multiple wells (say 2-3) included under the one permit, that are in very close proximity?

And also, is there a requirement for A annulus pressure to be higher than the injection pressure on Class VI wells?

Thanks!
Jason

Jason Dupres
US Environmental/Regulatory Lead | CCS
SHELL

From: Yun, Samuel <Yun.Samuel@epa.gov>
Sent: Monday, January 24, 2022 1:05 PM
To: Dupres, Jason B SERC-IGW/S <Jason.Dupres@shell.com>
Cc: Ussery, Ian <Ussery.Ian@epa.gov>; Friesenhahn, Brody <friesenhahn.brody@epa.gov>; Bierschenk, Arnold <bierschenk.arnold@epa.gov>; Johnson, Ken-E <Johnson.Ken-E@epa.gov>
Subject: RE: Geostock Sandia question - Region 6

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Ken is currently out of office. I can talk to him about this when he gets back, but based on what we've told other applicants and interested parties, we cannot make recommendations one way or the other on consultants, software, etc.

Sam Yun
Geologist
Ground Water/UIC Section
U.S. EPA, Region 6 (WDDG)
1201 Elm Street, Suite 500
Dallas, TX 75270-2102
(214) 665-7371

From: Jason.Dupres@shell.com <Jason.Dupres@shell.com>
Sent: Monday, January 24, 2022 1:48 PM
To: Johnson, Ken-E <Johnson.Ken-E@epa.gov>
Cc: Yun, Samuel <Yun.Samuel@epa.gov>
Subject: FW: Geostock Sandia question - Region 6

Ken, seems I had your email wrong – resending.

Jason Dupres
E&R Lead /CCUS
Shell

From: Dupres, Jason B SERC-IGW/S
Sent: Monday, January 24, 2022 12:54 PM
To: johnson.ken@epa.gov
Subject: Geostock Sandia question - Region 6

Good afternoon Ken,

Quickly introducing myself as Shell's Env/Reg lead for our US CCS projects. Prior to coming into this role last November, I know that several on our Gulf Coast CCS team met with you about a potential Class VI permit application in Louisiana. Our original project didn't pan out, but we are soon proposing a new one in LA. The main reason for my note is that we are exploring the potential of retaining **Geostock Sandia** to support our Class VI application. We understand that they have worked directly with Region 6 on LA CCS projects in the recent past, and they are in the middle of submitting another Class VI application to Region 6. Do you happen to know (or is there anyone you can point me to) whether the Class VI application submittal experience (i.e. working relationship) with Geostock Sandia has been a generally positive one, or not?

I am simply trying to do some due diligence, so any guidance would be appreciated. Look forward to meeting and working with you in the near future.

Thanks!
Jason

Jason Dupres

E&R Lead /CCUS
Shell