



U.S. NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

NOTE TO FILE: Document Date

DATE: October 13, 2009

Name : Yolande Norman, Project Manager /RA/

Department: Materials Decommissions Branch

Division: DWMEP

Summary: Following Emails should be added to ADAMS with a date of October 13, 2009.

License No.: SUA01475

Docket No.:040-8907

Norman, Yolande

From: Blickwedel, Roy (GE, Corporate) [Roy.Blickwedel@ge.com]
Sent: Monday, June 29, 2009 4:09 PM
To: Norman, Yolande; Purcell.Mark@epamail.epa.gov; earle.dixon@state.nm.us
Cc: Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com
Subject: Church Rock Zone 3 injectability testing

Folks,

We wanted to run an idea by you that Larry had. You may recall that we experienced poor injection rates during the insitu alkalinity stabilization pilot, and that we did some X-ray and SEM work to verify the cause. It was confirmed that feldspars were altering to clays in the presence of acidic tailings seepage water.

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Please let me know your thoughts. We would be happy to convene a call to discuss. I'd like to avoid spending the time and money to put together a formal plan if at all possible.

Roy Blickwedel

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King of Prussia, PA 19406
Corporate Environmental Programs

Norman, Yolande

From: Dixon, Earle, NMENV [Earle.Dixon@state.nm.us]
Sent: Monday, June 29, 2009 7:21 PM
To: Blickwedel, Roy (GE, Corporate); Norman, Yolande; Purcell.Mark@epamail.epa.gov
Cc: Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com; Schoeppner, Jerry, NMENV; Bahar, Dana, NMENV
Subject: RE: Church Rock Zone 3 injectability testing

Roy,

Conceptually, the informal idea you propose in this brief email seems to be feasible and useful, but please do not take this correspondence as approval from NMED because I do not have a complete understanding of the proposed injection testing and well locations yet. I'm not asking for a formal plan.

The installation of the new Zone 3 wells NW-1 through NW-5 installed in September 2008, but not yet pumping as described in the January 2009 Annual Review Report for 2008: Are those wells pumping yet and what were the results? Are the 5 new wells the locations for the injection testing of unaltered arkosic sandstone? I read over Section 3 of the Annual Review Report (pages 23-40), but because the new wells installed in Zone 3 were not yet operational, there was not much discussion of their effectiveness. And during the site tour this spring with the agencies and Navajo Nation I can't recall much discussion on the new wells. It is entirely possible you discussed the new wells on the tour, but I may have been out of voice range and focused on some other aspect of the site. Or I should have been paying better attention and asking more questions regarding Zone 3 on the site tour.

Please give me a brief update on the new Zone 3 wells and the location for the injection testing at your convenience. I'm in this week and out in Chicago next week, but I can participate in a call by phone if that is your preference.

Thanks, Earle Dixon

From: Blickwedel, Roy (GE, Corporate) [mailto:Roy.Blickwedel@ge.com]
Sent: Monday, June 29, 2009 2:09 PM
To: Norman, Yolande; Purcell.Mark@epamail.epa.gov; Dixon, Earle, NMENV
Cc: Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com
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Norman, Yolande

From: Norman, Yolande
Sent: Tuesday, June 30, 2009 10:22 AM
To: e.esplain@yahoo.com; Norman, Yolande
Subject: FW: Church Rock Zone 3 injectability testing

From: Norman, Yolande
Sent: Tuesday, June 30, 2009 10:21 AM
To: 'Purcell.Mark@epamail.epa.gov'; earle.dixon@state.nm.us; e.esplain@yahoo.com; e.esplain@gmail.com
Cc: Guo, Lifeng; Tadesse, Rebecca
Subject: RE: Church Rock Zone 3 injectability testing

Mark,

NRC's hydrogeologist would like an opportunity to draft a few comments concerning this proposal for injectability in Zone 3. Preliminarily we agree with some of the State's comments but we also have additional questions/comments. NRC anticipates finalizing our comments no later than July 10, 2009 (via e-mail). Thereafter we could have a teleconference call with UNC/GE.

Also NNEPA'S technical input would be valuable.

From: Purcell.Mark@epamail.epa.gov [mailto:Purcell.Mark@epamail.epa.gov]
Sent: Tuesday, June 30, 2009 7:58 AM
To: Norman, Yolande; earle.dixon@state.nm.us; e.esplain@yahoo.com; e.esplain@gmail.com
Subject: Fw: Church Rock Zone 3 injectability testing

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I think they should do this. Collecting any information to help us with stopping zone 3 contamination is good. If they use the mill well water, the quality should be acceptable.

We may want to review the chemistry of the ground water from the mill well. We looked at it 2-3 years ago, and found it to be acceptable.

The scale of the injection test is pretty small, so I agree that we don't need a formal plan. But UNC/GE should document everything about the test (for our records) and have a sample of the injection water analyzed for baseline water chemistry.

I will not be able to participate on a call with UNC/GE, but I recommend that you do if you have any questions.

Let me know what you think today. If acceptable to all of you, I could give EPA approval by end of day.

Mark

Mark D. Purcell
Superfund Division (6SF-RL)
USEPA - Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

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F 214.665.6660

purcell.mark@epa.gov

----- Forwarded by Mark Purcell/R6/USEPA/US on 06/30/2009 06:47 AM -----

From: "Blickwedel, Roy (GE, Corporate)" <Roy.Blickwedel@ge.com>

To: "Norman, Yolande" <Yolande.Norman@nrc.gov>, Mark Purcell/R6/USEPA/US@EPA, <earle.dixon@state.nm.us>

Cc: "Bush, Larry (GE Infra, Aviation, US)" <larry1.bush@ge.com>, <mjancin@chesterengineers.com>

Date: 06/29/2009 03:05 PM

Subject: Church Rock Zone 3 injectability testing

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Cc: e.esplain@yahoo.com; earle.dixon@state.nm.us; Guo, Lifeng; Tadesse, Rebecca
Subject: RE: Church Rock Zone 3 injectability testing

Good.

Please let R. Blickwedel know your timeframe for getting back to him.

I will let him know I am out of the office for the next 3 weeks, but will discuss with you and state on how to proceed.

Mark

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Cc: Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com
Subject: RE: Church Rock Zone 3 injectability testing

Roy,

NRC plan on having some

Yolande J.C. Norman,
Project Manager
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
Mail Stop T-8F5
11545 Rockville Pike
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Phone: (301) 415-7741
Fax: (301) 415-5369
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Subject: RE: Church Rock Zone 3 injectability testing

Mark and All,

I talked with Larry Bush today about the new wells that were drilled in Zone 3 last fall and the gravity injection test proposed-described by Roy in his latest email. I look at the proposed test as similar to a falling head or constant head test to get a rough value for the saturated hydraulic conductivity at the Zone 3 well location(s) of choice. I think this test is more experimental at this initial stage just to see if there is a significant difference between the altered and unaltered material. Maybe it will show the two media to be at least an order of magnitude or more different in their respective hydraulic conductivities. Since this proposed work is not to be a highly sophisticated operation and it would provide a general idea about the potential difference in recharge between the two types of material, I'm of the opinion that our comments and concurrence do not need to be overly rigorous. I don't think a formal plan is necessary.

I support the proposed injection test. Please let me know if I need to inform-explain to NMED management and get their support-approval.

Thanks, Earle Dixon

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Norman, Yolande

From: Blickwedel, Roy (GE, Corporate) [Roy.Blickwedel@ge.com]
Sent: Wednesday, July 01, 2009 9:50 AM
To: Dixon, Earle, NMENV
Cc: Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com; e.esplain@yahoo.com; Bahar, Dana, NMENV; Jetter, Steve, NMENV; Purcell.Mark@epamail.epa.gov; Norman, Yolande
Subject: RE: Church Rock Zone 3 injectability testing

Earle,

You have expressed very well the purpose and goals for the test. We believe that the only real issue is the injection of the mill well water into Zone 3, and we are of the opinion that NMED will concur because it is identical in approach to the alkalinity stabilization test; but much simpler, shorter in duration, and with less water to be injected.

We would like NMED's concurrence that the test will comply with the State's UIC program requirements. Let us know if you need any particular information to review; though ideally, we believe that it can be considered an extension of the work that was previously approved. Same water chemistry, same formation, etc.

We will plan to go ahead with the test once we get your concurrence unless EPA or NRC request that it not be done. Once again, we are talking about conducting a falling head test, probably in well NBL-2, using 800 gallons of mill well water that was previously approved for injection during the alkalinity stabilization pilot test.

Roy

From: Dixon, Earle, NMENV [mailto:Earle.Dixon@state.nm.us]
Sent: Tuesday, June 30, 2009 7:25 PM
To: Purcell.Mark@epamail.epa.gov; Blickwedel, Roy (GE, Corporate)
Cc: Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com; Norman, Yolande; e.esplain@yahoo.com; Bahar, Dana, NMENV; Jetter, Steve, NMENV
Subject: RE: Church Rock Zone 3 injectability testing

Mark and All,

I talked with Larry Bush today about the new wells that were drilled in Zone 3 last fall and the gravity injection test proposed-described by Roy in his latest email. I look at the proposed test as similar to a falling head or constant head test to get a rough value for the saturated hydraulic conductivity at the Zone 3 well location(s) of choice. I think this test is more experimental at this initial stage just to see if there is a significant difference between the altered and unaltered material. Maybe it will show the two media to be at least an order of magnitude or more different in their respective hydraulic conductivities. Since this proposed work is not to be a highly sophisticated operation and it would provide a general idea about the potential difference in recharge between the two types of material, I'm of the opinion that our comments and concurrence do not need to be overly rigorous. I don't think a formal plan is necessary.

I support the proposed injection test. Please let me know if I need to inform-explain to NMED management and get their support-approval.

Thanks, Earle Dixon

From: Purcell.Mark@epamail.epa.gov [mailto:Purcell.Mark@epamail.epa.gov]
Sent: Tuesday, June 30, 2009 12:19 PM
To: Blickwedel, Roy (GE, Corporate)
Cc: Dixon, Earle, NMENV; Bush, Larry (GE Infra, Aviation, US); mjancin@chesterengineers.com; Norman, Yolande;

e.esplain@yahoo.com

Subject: Re: Church Rock Zone 3 injectability testing

Hi Roy,

I am going to be out of the office for the next 3 weeks, returning on July 22nd. I will be checking e-mails.

I saw the comments from Earle and Yolande informed me that they are looking at it also.

I'll continue to follow the discussions and provide any other comments I might have via e-mail.

Mark

Mark D. Purcell
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From: "Blickwedel, Roy (GE, Corporate)" <Roy.Blickwedel@ge.com>
To: "Norman, Yolande" <Yolande.Norman@nrc.gov>, Mark Purcell/R6/USEPA/US@EPA, <earle.dixon@state.nm.us>
Cc: "Bush, Larry (GE Infra, Aviation, US)" <larry1.bush@ge.com>, <mjancin@chesterengineers.com>
Date: 06/29/2009 03:05 PM
Subject: Church Rock Zone 3 injectability testing

Folks,

We wanted to run an idea by you that Larry had. You may recall that we experienced poor injection rates during the insitu alkalinity stabilization pilot, and that we did some X-ray and SEM work to verify the cause. It was confirmed that feldspars were altering to clays in the presence of acidic tailings seepage water.

It was also determined that the arkose was essentially unaltered when not exposed to the tailings fluids. Therefore, UNC proposes to conduct a mini-injectability test in Zone 3 out in front of the seepage impacts to gain information on potential injection rates in the unaltered arkosic sandstones of Zone 3 in the Gallup Fm. This information will be of use to the SWSFS.

We would like your input and approval to conduct the test. We would plan to inject about 800 gallons of the same water that was used for the alkalinity stabilization pilot (minus the added alkalinity), and we would allow it to flow by gravity into one of the northernmost, unimpacted Zone 3 wells. This is intentionally not very fancy, but the information may be of much value in evaluating potential future remedies for Zone 3. We will monitor groundwater levels nearby as well as the injection rates. We want to know if the recharge rates for the altered and unaltered arkosic Gallup Fm. are different and to get an idea by about how much. We plan to do this via a truck-mounted water tank. You may recall that water for the Zone 3 alkalinity stabilization pilot test was pumped via a temporary pipeline from the mill well. We are planning to keep this much simpler so that we might get a general idea about the efficacy of injection technologies in the unimpacted part of the formation.

Please let me know your thoughts. We would be happy to convene a call to discuss. I'd like to avoid spending the time and money to put together a formal plan if at all possible.

Roy Blickwedel

GE

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Corporate Environmental Programs

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