From: Dorsey, Nancy
Sent: Monday, September 22, 2014 10:23 AM
To: Dellinger, Philip
Subject: FW: Monitoring Subgroup - NEWS
Attachments: Summary Pack from group v2.pptx

Who is one first comes to mind. ☺

From: Tyrrell, Timothy [mailto:Timothy_Tyrrell@xtoenergy.com]
Sent: Monday, September 22, 2014 9:56 AM
To: Craig Pearson; Ben Grunewald
Cc: Scott Ausbrooks; austin.holland@ou.edu; Gertson, Rod; Bauer, Robert A; Linda McDonald; Dorsey, Nancy; Bates, William; Justin Rubinstein; ROVELLI, BRIAN (GE Global Research); smunews@smu.edu; ccabarcas@hilcorp.com; furnace@hilcorp.com; rex@kgs.ku.edu; Rick.Simmers@dnr.state.oh.us
Subject: RE: Monitoring Subgroup - NEWS

All,
Per Craig's note below, I'm reaching out to you for your help. Craig would like us to take a run at summarizing what we discussed on our telecom last month as well a slide or two describing the current status of monitoring capability vs a minimum needed capability and descriptions of how to get from here (status quo) to there (desired future state) financially, political and operationally?

I have built a few brief pages to get the ball rolling. There is lots of opportunity for improvement especially in filling out future state information! Please feel free to edit/change/build upon the attached pack. I'll compile the feedback and recirculate to the group.

Please let me know if you have any questions.

Thanks,

Tim Tyrrell
XTO Geoscience Technical Manager
817-885-3742 Office
713-702-3267 Cell

-----Original Message-----
From: Craig Pearson [mailto:Craig.Pearson@rrc.state.tx.us]
Sent: Wednesday, September 17, 2014 2:14 PM
To: Ben Grunewald
Cc: Scott Ausbrooks; austin.holland@ou.edu; Gertson, Rod; Bauer, Robert A; Tyrrell, Timothy; Linda McDonald; Dorsey.Nancy@epa.gov; Bates, William; Justin Rubinstein; ROVELLI, BRIAN (GE Global Research); smunews@smu.edu; ccabarcas@hilcorp.com; furnace@hilcorp.com; rex@kgs.ku.edu; Rick.Simmers@dnr.state.oh.us
Subject: Re: Monitoring Subgroup - NEWS

GWPC Seismic Monitoring sub-group,

Tim Tyrell will be reaching out to you soon for assistance in preparation for our meeting in Seattle. Please support him as best you can.

Thanks in advance,

Craig Pearson

Sent from my iPhone

> On Sep 17, 2014, at 8:28 AM, "Ben Grunewald" <ben@gwpc.org> wrote:
>
> Monitoring subgroup.
>
> I hope everyone is able to participate in the upcoming GWPC Annual Forum...
>
> Attached is latest agenda.
>
> Induced Seismicity will be Sat. afternoon and Sunday morning...
>
> THANKS!
> Ben Grunewald
> 405 516 4972
>
> From: Ben Grunewald
> Sent: Monday, August 25, 2014 9:30 AM
> To: Ben Grunewald; 'Scott Ausbrooks'; 'austin.holland@ou.edu'; 'Gertson, Rod'; 'Bauer, Robert A'; 'Timothy_Tyrrell@xtoenergy.com'; 'Linda McDonald'; 'Dorsey.Nancy@epa.gov'; 'Bates, William'; 'Justin Rubinstein'; 'ROVELLI, BRIAN (GE Global Research)'; 'smunews@smu.edu'; 'ccabarcas@hilcorp.com'; 'furnace@hilcorp.com'; 'Craig.Pearson@rrc.state.tx.us'
> Cc: 'rex@kgs.ku.edu'; 'Rick.Simmers@dnr.state.oh.us'
> Subject: Monitoring Subgroup - NEWS
>
> See 2 items below...
>
> Have you seen this from USGS???
>
> http://earthquake.usgs.gov/regional/ceus/products/OKeqanimation.php
>
>
>
> Study: Less shake from fake quakes
> Fuel Fix, Fort Worth Star-Telegram, Longview News-Journal
> August 18, 2014
> By: Seth Borenstein, AP
>
> WASHINGTON (AP) — Man-made earthquakes, a side effect of some high-tech energy drilling, cause less shaking and in general are about 16 times weaker than natural earthquakes with the same magnitude, a new federal study found.
>
> People feeling the ground move from induced quakes — those that are not natural, but triggered by injections of wastewater deep underground— report significantly less shaking than those who experience more normal earthquakes of the same magnitude, according to a study by U.S. Geological Survey geophysicist Susan Hough.
>
> Distance matters in this shaking gap, however. For people within 6 miles of the fault, artificial and natural quakes feel pretty much the same, she said.
>

> Hough studied similar-sized man-made and natural quakes in the central and eastern United States from 2011 to 2013, comparing the reported magnitude to what people said they felt in the USGS electronic "Did You Feel It" survey. She found that while two different types of temblors may have had the same magnitude as measured by seismographs, they had distinct differences in what people said they felt.
>
> The way artificial quakes felt was equivalent on average to a natural quake that had a magnitude 0.8 smaller. So a 4.8 induced quake felt like a 4.0 quake, Hough said. The magnitude scale used by USGS and others is mathematically complex, but a drop in 0.8 magnitude translates to about 16 times less strength or energy released.
>
> Sometimes the difference is even bigger. Hough said a 5.3 August 2011 man-made quake in Trinidad, Colorado, actually felt like a 4.0 quake, which is about 90 times weaker, based on the thousands of responses in the "Did You Feel It" survey system. The study, published Monday in the Bulletin of the Seismological Society of America, looked at quakes in Oklahoma, Colorado, Arkansas, Texas and Ohio. It included a 5.7 quake in Prague, Oklahoma, in November 2011 that injured two people and damaged 14 houses, which Hough said felt like 5.1 magnitude natural quake.
>
> "The hazard of these earthquakes is lower than what you'd expect," Hough said. "It's not that there's no hazard, it's just that it's a little better than you might think."
>
> Man-made earthquakes have become a big concern recently as hydraulic fracturing, or fracking, and other drilling injects wastewater deep underground. Scientists say that sometimes triggers shifts along existing and previously unknown faults. Oklahoma has had more than 300 earthquakes of magnitude 3 or more — strong enough to feel locally but too weak to cause damage — since Jan. 1. Before 2007, Oklahoma averaged only one quake a year of that size.
>
> The artificial quakes may have less energy because the fault is lubricated by the injected wastewater, making it easier to slip, Hough theorized.
>
>
> THANKS –Ben
> 405 516 4972
>
> <2014GWPC_Preliminary0916.pdf>
> <sub-groups rosters09172014.docx>
> <ISWGlist0917.docx>