

## Bratcher, Mike, EMNRD

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**From:** Griswold, Jim, EMNRD  
**Sent:** Friday, September 7, 2012 11:19 AM  
**To:** Bratcher, Mike, EMNRD; Hansen, Edward J., EMNRD; VonGonten, Glenn, EMNRD  
**Subject:** FW: Goodnight Remediation  
**Attachments:** Letter.pdf; Goodnight; Goodnight Project

**Jim Griswold**  
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505.476.3465  
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**From:** Kuhnert, Nathan [<mailto:Nathan.Kuhnert@dvn.com>]  
**Sent:** Thursday, September 06, 2012 11:27 AM  
**To:** Griswold, Jim, EMNRD  
**Subject:** Goodnight Remediation

Hi Jim,

I hope you have had a good summer!

We finally were able to spud our test water well in June right at the site of the heaviest chloride contamination (S-15 bore just southwest of the pad). The results of the temporary water well that was completed to a TD of 260' indicate that there is a naturally occurring salt bed starting at about 140' bgs (14,000 ppm chlorides). At TD, the chloride concentration was 512,000 ppm. The driller did not encounter any water up to the TD.

I attached our original alternate proposal in a PDF. I also attached the lab analysis of the soil samples that were collected every 20 feet in addition to the lithology report to correlate with the lab results.

I realize it's been a long time since we last spoke so please don't hesitate to call me if you have additional questions. But in summary, D.K. is very much on board with going forward with the alternate proposal. We first though would like to respectfully request if you can incorporate our new data into the groundwater model.

Devon wants very much to finish the remediation effort this fall.

Thank you and once again please contact me if you need anything!

Nathan Kuhnert

405.228.7594 (O)  
405.496.2077 (C)

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**From:** Kuhnert, Nathan  
**Sent:** Thursday, September 06, 2012 8:37 AM  
**To:** [boydoil@aol.com](mailto:boydoil@aol.com)

**Cc:** Bell, Robert

**Subject:** Goodnight Remediation

Good Morning D.K.

I hope you have had a good summer!

Robert and I want very much to get closure on our Goodnight remediation project and I know you do too. I have attached our original alternate proposal to the OCD in the form of a letter. It lays out an action plan that I copied below:

- 1.) Repack the excavated areas with the existing two impacted soil piles
- 2.) Excavate, pile and blend the remaining impacted soils
- 3.) Excavate soil from nearby proposed stock tank locations
- 4.) Carefully transport the soil to the remediation areas to keep the caliche and top soil separate for re-application
- 5.) Maintain a minimum 18" lift of clean soils
- 6.) Contour the lift to match the surrounding terrain and seed using landowner's recommended seed mixture.

After first receiving a modeling proposal from AECOM that was close to \$100K, you had another great idea which involved drilling a test water well very close to the highest contaminated area at the surface. The intent would be to obtain lithology, delineate the vertical extent of the chlorides and verify the groundwater depth in relation to the existing soil profiles. This information would then be submitted to the OCD so they could enter it in to their groundwater model.

After several delays, we finally were able to drill the well in June and receive the analytical results (attached) and detailed lithology (attached) in August. The results are very supportive of our alternative proposal. A natural salt section was encountered starting at around 140' bgs (14,400 ppm chlorides) and going to at least 260' bgs (512,000 ppm chlorides). No water was encountered throughout the entire bore where TD was 260'. The lithology correlated nicely with the analyticals per natural salt bed.

It is obvious that the shallow layer of impacted soils could never have an effect on groundwater below the natural salt beds if there even is groundwater at this location. I propose that we soon send this supplemental information on to the OCD so they can update their model. We can also let them know that we are prepared to execute our alternate remediation plan this fall and put this project to bed.

Thank you and please let me know if you have any questions!

Nathan Kuhnert

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