

**From:** [Bratcher, Mike, EMNRD](#)  
**To:** [Patterson, Heather, EMNRD](#)  
**Subject:** FW: Turner B #47 Field Test  
**Date:** Thursday, September 18, 2014 1:57:24 PM

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**From:** tgregsto@blm.gov [mailto:tgregsto@blm.gov]  
**Sent:** Tuesday, May 24, 2011 4:51 PM  
**To:** Vernon Black  
**Cc:** 'Allan Rambur'; 'Daniel Frick'; dpotter@linenergy.com; Bratcher, Mike, EMNRD;  
Terry\_gregston@nm.blm.gov  
**Subject:** Re: Turner B #47 Field Test

Mr. Black,

I have reviewed the circumstances of this spill cleanup with my boss, Jim Amos, as well as our soil/erosion specialist, Steve Daily.

For a number of reasons, we are not particularly enthusiastic about widening the ravine. On the other hand, alternate closure plans involving plastic liners would be difficult to implement or to permanently stabilize in the bottom of the ravine.

We discussed the possibility of a mineral material capping closure. Basically, to compact what is currently in the bottom of the ravine now, using fresh water in a sufficient quantity to do so without 'flooding' or water jetting the sidewalls. Then, to install a 1 foot clay layer, compacting the clay into place on top of the compacted bottom. Then, a good solid caliche fill on top of that, using water (to 'wet', not to 'flood') as an aid to compaction. Then on top of this a red bed clay mixture...with the thought that the red bed clay may erode less easily than just sand or just caliche. Finally, low sandbag rows (approx. 18" high) about every 15 feet to slow down water run off and to prevent soil scouring over the reclamation area until it stabilizes. These will also add additional silt fill on top of the reclamation and tend to aid in vegetation of the ravine bottom. They will also create small ponds behind the sandbags, which will help settle and compact the reclamation in the short term. A big gully washer might blow the sandbags out, but they can be easily replaced without the use of heavy equipment down in the ravine.

There is some concern that the upper clay layer would last for a while, then get 'peeled back' and expose the caliche underneath. Another alternative is to backfill the entire excavation with clay (preferably similar clay to the red clays in the area). According to our range folks, clay tends to resist erosion better than any other soil. If kept moist, as it would probably remain so in the bottom of the ravine, it also forms an effective seal.

So, that's what we discussed, but we'd also like to hear OCD's input as well.

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"Vernon Black" <[vernon@hungry-horse.com](mailto:vernon@hungry-horse.com)>

05/20/2011 04:44 PM

To <[dpotter@linenergy.com](mailto:dpotter@linenergy.com)>, "Daniel Frick" <[DFrick@linenergy.com](mailto:DFrick@linenergy.com)>, "Allan Rambur" <[ARambur@linenergy.com](mailto:ARambur@linenergy.com)>, <[Terry\\_gregston@nm.blm.gov](mailto:Terry_gregston@nm.blm.gov)>, <[mike.bratcher@state.nm.us](mailto:mike.bratcher@state.nm.us)>

cc

Subject: Turner B #47 Field Test

Guys, we have excavated the draw and the arroyo down to 6'-8' BGS. Field test were conducted today to try and determine the progress of the project. Please see the attached sketch with the marked sample points and the corresponding chloride field test results.

The contour and depth of the arroyo is presenting a challenge. We are at a point where we are about to have to do much more extensive excavating of the walls of the arroyo in order to access the bottom. To be able to access the bottom of the arroyo to effectively and efficiently excavate the contaminants that are left, much more work "outside the contaminated area" will be required.

Having said this, I am asking for feedback as to the next course of action. Is the level of contaminants left high enough to warrant the extra damage that will be caused to the surface and the arroyo in order to get the chlorides down to closure levels? Is this area a possible candidate for a risk based closure knowing the depth to ground water is >300', the distance to the playa, and the amount of contaminants already removed?

Thanks,  
vernon

[attachment "Turner B #47 Drawing.docx" deleted by Terry G  
Gregston/CFO/NM/BLM/DOI]