From: Priscilla Burton
To: Dana Dean; Daron Haddock; Kent Fawcett
CC: James Owen; OGMCOAL
Date: 7/27/2011 12:11 PM
Subject: RE: cement 0070001 White Oak

I will write up the change order.

>>> Dana Dean Wednesday, July 27, 2011 12:05 PM >>>
As long as it's not my actual seal. :) Yes this seems to be the best option.

>>> Priscilla Burton 7/27/2011 11:37 AM >>>
Kent and Daron,
Okay. That puts it in perspective for me. 9 CY would fill the 10 ft diameter hole three feet.
Dana, do we have your engineering stamp of approval?
Priscilla.

>>> Kent Fawcett Wednesday, July 27, 2011 10:31 AM >>>
A mixer can haul 9 to 10 CY. The cost of the concrete delivered to the site
is about $150 per CY. (2500psi).
We,(IE)would have some cost associated with work on the road to make it
suitable for the concrete truck.

There isn't anything that we can do onsite to duplicate the strength and
integrity of a load of concrete delivered from a batch plant.
According to the Sakrete website, it takes about 40 bags of 80# concrete mix
to equal a cubic yard of mixed concrete, at a cost of approx $4.00 ea.
That's $160 per CY before shipping, labor to mix, haul in water, etc. etc.
etc.

Kent

>>> Daron Haddock Wednesday, July 27, 2011 11:31 AM >>>
I think we would be better off laying bags of Sakrete into the hole rather than bags of cement. Cement is intended to be mixed with other materials and it's hydration with other materials is what gives it the chrystaline structure. I must have missed the 1:1 ration discussion. A 5 : 1 or 10 : 1 mix ratio would be better than a 1 to 1 mix from both a strength and cost standpoint. While a bag of cement would harden up after it got wet, it would not have that much compressive strength and it would be fairly costly per cubic foot. An 80 lb. bag of Sakrete would take up about the same space as a 94 lb. bag of cement and cost a whole lot less and give you much better compressive strength.

>>> Priscilla Burton 7/27/2011 10:03 AM >>>
What volume is in a mixer load? And could we get the same effect (with less cost) by laying bags of cement into the hole on top of the boulders without any dilution?

>>> "Kent Fawcett" <kent@innovative-companies.com> Wednesday, July 27, 2011 9:47 AM >>>
Priscilla, Daron,

Can I propose a mixer load of lean concrete, 2500psi?

Kent.

-----Original Message-----
From: Priscilla Burton [mailto:priscillaburton@utah.gov]
Sent: Wednesday, July 27, 2011 9:17 AM

To: Daron Haddock
Cc: kent@innovative-companies.com; Dana Dean; James Owen
Subject: Re: cement 0070001 White Oak

If you use less cement, then you will be adding more dirt. What I understood from our discussion was no more than a 1:1 mix.

>>> Daron Haddock Wednesday, July 27, 2011 7:59 AM >>>
You're right. That is a lot of cement. 235 cu ft equals 8.7 cubic yards. Typically when mixing ready mix concrete, you will get a choice of using 5 bag or 6 bag mix depending on what you are building. Usually when you want good compressive strength such as on a driveway, you will choose 6 bag. What this means is that you will get 6 bags of portland (neat) cement per yard of concrete. So you end up with about 6 cubic feet of cement mixed with 21 cubic feet of sand and gravel and water to make 1 cubic yard of concrete. (This is driveway grade concrete).
For this project, 4 or 5 bag concrete would be plenty (we could probably get by with 3 bag concrete). If you used 4 bag of cement per yard: 4 bags X 8.7 yards would amount to about 35 bags. To me that is still plenty. Granted, we are not mixing it with good clean sand and gravel, but we aren't needing much compressive strength, we just want a big plug of consolidated material in the hole. You could probably do the job with Sackrete as well. With Sackrete the sand and gravel is already mixed in so we would be adding more inert material to the hole and maybe not using as much soil.
Thanks.

Daron R. Haddock
Coal Program Manager
Utah Division of Oil, Gas & Mining
(801) 538-5325
>>> Priscilla Burton 7/27/2011 1:39 AM >>>
I realized my error. In my rush, I used the diameter rather than the radius. That makes a huge difference!3 ft x 3.14 (5 ft squared) = 235 cu ft So there would be 235 cubic feet required for a three foot depth of fill in a 10 ft diameter circle, half of which would be cement. About 117 bags of cement would be required.
That still sounds like a lot, but much more reasonable.