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**From:** Randy Wilcox [mailto:randyw@gowatersolve.com]  
**Sent:** Thursday, September 16, 2010 11:42 AM  
**To:** Marrelli, Dana  
**Cc:** Gregg Lebster  
**Subject:** Re: FW: Polymer Test Procedure

I am back in the office and can talk any time. Here are the answers:

- a) I would anticipate that the qualitative test would be done on-site and the quantitative test would be done in our lab. If you have a local analytical lab that would run the quantitative test, that may also be an option. However, we have found that it is a test that most labs would not be familiar with and would have significant set up time.
  - b) Emulsion polymers would be used for this application.
  - c) If this is a concern, the test samples can be made using water from the downstream water body if necessary. However, I wouldn't think it would have a huge effect.
- 3) I'm not sure what Kevin means by this. The residual polymer will be tested in the filtrate released. Polymer will attach to solids suspended in the water, but would not be residual. A turbidity limitation on the filtrate would possibly address the concern.
- 4) I would think that the results would be provided to the appropriate agencies as prescribed. I have attached an example of the reporting.

On Thu, Sep 16, 2010 at 11:57 AM, Marrelli, Dana <[dmarrelli@coalsource.com](mailto:dmarrelli@coalsource.com)> wrote:

Hello Randy,  
Could you please look over the information below? I will be giving you a call to go over some of this information... When would be a good time to talk?  
Dana

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**From:** Kevin Lundmark [mailto:[kevinlundmark@utah.gov](mailto:kevinlundmark@utah.gov)]  
**Sent:** Thursday, September 16, 2010 9:35 AM  
**To:** Marrelli, Dana; Shaver, Dave  
**Cc:** Hibbs, David; Wood, Farley; Dale Harber; Pamela D Jewkes; [radavidson@fs.fed.us](mailto:radavidson@fs.fed.us); Thomas W Lloyd; Ingrid Campbell; Jim Smith; Jeffrey Studenka; Steve Christensen  
**Subject:** Re: Polymer Test Procedure

Dana.

Thanks for distributing this information to the group. It is indeed encouraging that a method may be available to quantify the polymer concentration in treated water. Having looked through the information, the Division has a few concerns / questions that we'd like to raise for consideration by you and your vendor(s):

- 1) Has NALCO provided you a written method for the test they will be setting up with you at Crandall, or will you be using the WaterSolve method?
- 2) If the WaterSolve procedure will be followed, please clarify the following:
  - a) Will qualitative (Section 3.1) or quantitative (3,2) testing be performed at the mine site, and will samples be sent off-site to the WaterSolve laboratory for quantitative testing?
  - b) For the quantitative test procedures in Appendix A, will the procedure be followed for "Dry Products and Solution Products" (page 4 of 9), or for "Liquid Dispersion or Emulsion Grade Products" (page 6 of 9)? The Nalco 7763 MSDS describes the product as an emulsion.

c) The procedure requires solutions to be prepared using "water which is similar in quality to the water present in the sample to be tested". This is a concern especially considering that residual flocculant or coagulant in the treated water may complicate or prevent accurate determinations by this flocculation test. The test method employed should account for residual treatment chemicals.

3) The Division also has concerns on how temperature and the presence of suspended solids (including iron sludge) may affect the robustness of this method.

4) How will accuracy (detection limit), precision, and bias be evaluated?

Hopefully your vendor has already considered these. Please keep us posted on your schedule for setting up and running the flocculation tests at the site.

Thank you,  
Kevin

Kevin Lundmark  
Environmental Scientist II  
Division of Oil, Gas & Mining  
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>>> "Marrelli, Dana" <[dmarrelli@coalsource.com](mailto:dmarrelli@coalsource.com)> 9/15/2010 1:01 PM >>>

Hello everyone,

I have attached some information on polymer testing that we are currently looking into for use with our flocculent.

Any other information you have about this testing would be appreciated.

Thank you,

*Dana Marrelli*

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