

Ardrey, Brenda

From: Nagel, Chris
Sent: Wednesday, September 17, 2014 6:39 PM
To: Ardrey, Brenda
Subject: FW: BSLF- flowable fill concept

Chris Nagel
Director
Solid Waste Management Program
Missouri Department of Natural Resources
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From: Power, Brian [mailto:BPower@republicservices.com]
Sent: Friday, April 18, 2014 10:01 AM
To: Fitch, Charlene; Nagel, Chris; mbeaudoin@cecinc.com
Subject: RE: BSLF- flowable fill concept

Charlene,

I will address your questions in a response and get it to you ASAP.

Thanks,

Brian J. Power
Environmental Manager
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13570 Saint Charles Rock Road
Bridgeton, MO 63044

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Email: bpower@republicservices.com

From: Fitch, Charlene [mailto:charlene.fitch@dnr.mo.gov]
Sent: Friday, April 18, 2014 9:46 AM
To: Power, Brian; Nagel, Chris
Subject: RE: BSLF- flowable fill concept

Brian, below is a general list of requirements/questions that must be addressed for flowable fill use on the landfill; of course, the SWMP reserves the right to request additional information/clarification after receiving the submittal.

The submittal must include at a minimum:

- Identify the materials that will be used i.e. concrete, aggregate, fly ash, water.
- What is the proposed ingredient combination? What proportions/ratio or will you use a mix design? If a mix design which one, or will the mix design vary depending on the application?
- Identify the standards to be used. (ASTMs)
- Are you using a manufactured product or will staff mix on site? If a manufactured product, list suppliers. Will fill be delivered by ready mix company or someone else? Will it be made on site? If mixed on site, identify the parameters for mixing on site.
- Is the flowable fill going to be excavatable or harden?
List the permeability.
List the desired strength and density.
Will it be air entrained and/or use foamers?
What is set up time?
- Identify where the fill will be used on the landfill and the estimated quantities, if know. If filling around a well is there a maximum quantity you will place before stopping and reevaluating the situation?
- List what you use the fill for, i.e., filling around wells, low areas to promote drainage or just fill?
- With flowable fill being self-leveling, how will you use it on slopes?
- Will a seal be put down around the wells so the fill will not flow down into the well and cause a blockage?
- Identify measures taken to ensure the undercap drainage is not impacted or occluded.
- How will settlement be measured if you are placing flowable fill in areas to promote drainage?
- If using around a well, will it adhere to well and be hanging in the air after settlement happens or will it drag the well down, or will it have low enough strength to break apart?
- Will the cap be sliced open for fill or filled through a smaller hole in cap?
- How will it be placed? Will you use a pumper truck? Drive on the landfill with trucks and use chutes? How will the cap handle these heavy loads? The cap design we reviewed identified it as only being suitable for light duty trucks.
- What amount of liquid separation will the flowable fill have, it takes a large amount of liquid to make flowable fill and some will decant out. How many gallons per cubic yard do you anticipate decanting out?
Where will excess liquids go as the flowable fill cures; into the landfill waste mass, run under cap to under drains, or both? Will additional liquid flowing through soil cap cause additional settlement or slope stability issues?
- What will you do if flows to toe of the cap and builds up?
- Identify how large blocks of fill, if used, will impact the slope stability of that area.
- Will anything be installed over the fill to prevent abrasion to the cap from underneath?
- Most flowable fills do not resist freeze thaw, will this cause excessive grit to get into collection system as the fill is subjected to freeze thaw conditions?
- What effect will this have on other systems in place; will it clog under drains and drain lines, build up in grit chambers and sumps? If grit gets into sumps, what effect will this have on the pumps?

Depending on where/how you plan to use flowable fill some of these may not be applicable. We tried to cover as many scenarios as possible. Please call if you have any questions or we can discuss next week when we are on site.

Thanks

Charlene S. Fitch P.E.
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From: Power, Brian [<mailto:BPower@republicservices.com>]
Sent: Friday, April 18, 2014 9:31 AM
To: Nagel, Chris
Cc: Fitch, Charlene
Subject: RE: BSLF- flowable fill concept

Thanks Chris,

We appreciate your assistance in moving this forward.

Brian J. Power
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From: Nagel, Chris [<mailto:Christopher.Nagel@dnr.mo.gov>]
Sent: Thursday, April 17, 2014 12:09 PM
To: Power, Brian
Cc: Fitch, Charlene
Subject: BSLF- flowable fill concept

Brian,

I discussed your flowable fill concept briefly with Charlene and JP. They are going to put together a list of questions/items that need to be addressed in your proposal. They will have that list to you by tomorrow morning. Addressing these items and questions upfront in your submittal will help us to then expedite the review.

Let us know if you have any questions.

Thanks

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