From:	Kekeisen, Kyle
To:	Read, David
Cc:	Harrington, Jeff; Russ.Perry@bp.com; Santiago.Arcila@bp.com
Subject:	Highlands Ethanol Response to Inquiry Re: Updated BMPs
Date:	Friday, October 05, 2012 4:55:34 PM

David—Per your request we are attaching comments to the BMP conditions of the existing permit for your consideration. The following is additional information regarding the biomass boiler feed system that we think will be helpful in your consideration of the attached BMPs.

The boiler feedstock will consist of stillage cake and biosolids that will be transferred from dewatering centrifuges to a sandwich conveyor. The sandwich conveyor incorporates two belts: one that carries the feedstock much like a traditional belt conveyor, and another that covers the feedstock. The advantage of sandwich conveyors is that they can convey materials up steep inclines. From an air emissions perspective, sandwich conveyors provide an added benefit of minimizing fugitive VOC emissions from the stillage cake. While the top belt does not always provide for total enclosure of the stillage cake, we expect near total enclosure at most times. Note that the feedstock will be wet, so we expect no fugitive dust from the conveyor. Note also that the biosolids come from the anaerobic digester which efficiently removes hydrocarbons from process wastewaters; we expect no fugitive VOC emissions from the biosolids. Per the air permit application, we do expect that the moisture fraction of the stillage cake will contain some VOC, and the sandwich conveyor will serve to minimize these emissions during the transit from the centrifuges to the boiler feed bins.

The sandwich conveyor will transfer stillage cake from the centrifuges to the boiler in less than four minutes. Because the distillation process is performed at elevated temperatures, we do not expect the stillage cake on the conveyor to be at ambient temperature, but rather in the vicinity of 100°F. No additional heat is applied to the stillage cake. The VOC emissions calculations used by AMEC are based on stillage cake sitting on open storage pads for extended duration, so we believe the calculation to be conservative due to the short transit time from centrifuge to boiler and the encapsulation of the stillage cake by the sandwich conveyor.

Under boiler shutdown situations, boiler feedstock will be emptied from the sandwich conveyor and the screw conveyors that transfer stillage cake from the centrifuges to the sandwich conveyor. The boiler feedstock will be transferred to the boiler feed bin(s). The feedstock will either be fed to the boiler, transferred to an enclosed storage silo, or kept in the boiler feed bin(s) which will be closed during boiler shutdown conditions. The selected location will depend on the boiler conditions and the expected duration of the boiler shutdown.

The above information was used to prepare our suggested BMPs for boiler feedstock material in the attached documents (I have included both “tracked-changes” and “clean” versions of the same document). These markups more accurately reflect the ethanol plant’s updated configuration as it relates to feedstock handling. Please let me know if you have questions.

Regards,

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