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Leo,

I appreciate the time you took out of your schedule to discuss the proposed biomass project future installation and fire system related issues. I hope the copies of our preliminary design layout drawings I left with you will help you on any discussion you may have with any of your other staff members. If you have any questions please give me a call.

Here is a recap of the brief Proposed Project Description:

The purpose:

The purpose of the project is to demonstrate that a renewable energy source supply and feed system (more specifically Switch grass feed) can be added to an existing coal boiler plant, show that it could be commercially operated, and reduce the coal usage by 5 percent. The Department of Energy along with Chariton Valley have combined efforts towards funding this switch grass project. The proposed system will be designed for 25 tph and will have an initial installation (for testing) at 12.5 tph for 2000 hours, later the remaining equipment will be added and further tested at the final 25 tph capacity. The purpose for the tests is to test the equipment, the farmer resources, and test outcomes of the mixed fuels (but knowing this is commonly done in Europe). There will also be other minor test items as well. This proposed project could become the first commercially run switch grass fuel feed installation installed in America. It's my understanding there is another similar project currently being developed in Alabama that will be following closely behind.

The Engineering Team:

Our company, Tom Miles of T.R. Miles (who was instrumental in the last years manual testing will combined resources) along with the lead engineering firm in Denmark (Tech-wise A/S) have been assigned to complete the design package for the proposed plant. Our firm has been selected to be the "engineer-of-record" for the project, and are

assisting Niels Kirkegaard (Tech-wise) with the design based on Iowa and other governing codes. Other members evolved in the development and review of the project are the National Renewable Energy Laboratory, (NREL) who represent the US Department of Energy, (DOE), Alliant Energy who owns the power plant and property that the switch grass system is to be placed. Alliant is also contracted to oversee the engineering contacts, and oversee compliance or focus on the goals of Chariton Valley RC&D. Chariton Valley RC&D are the founders of the project and also plan to have an active role in the future operation and success. Antares is another engineering firm contracted to work on air and other environmental systems compliance, work on truck delivery schedules and routes, and other miscellaneous engineering tasks.

The switch grass process:

The system will be designed and engineered for 25 tph, but initially tested at 12.5 tph for 2000 hours, then we plan to finish the equipment installation and test at the system at a combined rate of 25 tph. The process starts at supply where baled switch grass is harvested and delivered (from Prairielands Bioproducts Co-op) to the system from the South end of the existing coal plant and leaving to the North. When the tractor-trailers arrive the (1) crane operator receives the baled switch grass from Chariton Valley Co-op, offload from their tractor-trailers during the daylight hours (8-10 hours), store in a switch grass in the barn (enough for at least three day supply) all the while feeding into the process building. The bales will be manually unloaded one layer (up to 14 bales at once) at a time off the tractor-trailers by an overhead bridge crane. Once the operator locates the bridge crane over the truck and locates the arms to match the bale spacing, the load is then clamped and lifted vertically off the truck, then the programmed automation takes it from there. The manually clamping of the load with the bridge crane is done mainly for safety issues, but also for clean up and security issues. The expected minimum number of people in the barn is (1) during the daylight hours and up to (4) if four trucks are in the building. At night the bale feed system from the stored bales is totally automatic. As shown on the preliminary drawings and discussed the storage piles have been initially laid out at a maximum 45,000 cf. with 5 feet separation due to bale size differences.

The existing boiler operators will have monitoring cameras, access to the biomass feed controls, and monitor all smoke, fire, and temperature sensing alarms and gages. Again, the bales are unloaded in whole layers (12 or 14 at a time) off the tractor-trailers and loaded onto the bale transport conveyors or put in storage. This is done during daylight hours, during the night hours the crane runs automatically to load onto the transfer from the storage piles. This operation runs 24-7, but if required to be stopped for maintenance or other reasons the coal usage goes up to make up the difference. Once transported onto the transfer chains the bales travel through the gallery to the process building, where they are de-twined, debaled, de-stoned, shredded and blown into the existing coal boiler.

We also discussed that our office sees the construction type II-N, and the classification of the storage barn as H-3. We plan to limit the storage barn size to 45,000 sf. The switch grass storage barn is planned to be placed 60 feet clear of the processing building will have dry system down spouts with hose reels (6 locations). The hose reels will be at each corner of the building and one at each truck entrance. Fire extinguishers will be at the truck doors as well. Our intention is to use the existing fire hydrant system

for outside fire protection, sprinkle the process building along with other fire protection as in fire extinguishers, and the debaler will have fire water spray system. This type of fire protection system is similar to that of England and Denmark. It's similar to that of an Oregon storage facility where the state Fire Marshal required a 60-foot separation between the sprinkled process building and non-sprinkled storage barn.

As shown on the drawings we are proposing to have the transfer equipment from the storage barn to the process building in an enclosed gallery. This gallery will have a two-hour fire rated wall between, one load of 14-bales, and the other fire rated wall. As I mentioned we will modify the preliminary drawings to show these doors in the gallery section rather than the storage barn. The process or transferring the bales through the gallery is planned to always have one of the two fire doors in the fire rated walls to always be closed, while the other allows the transfer. Besides the process fire doors there will be fire rated man doors in these walls.

It's our understanding, based on the conversations with operators at five plants the team members visited in Denmark and England, and with the Denmark engineering firm, there has never been a fire in a storage barn. However in the event of the beginnings of a fire or noticed/detected smoke, the extinguishers and fire hoses inside the barn and available fire hydrants outside will be employed. The client and team members understand that the most likely source of ignition in the storage barn is due to trucks (which deliver in daylight hours). When smoke is noticed the truck driver and/or crane operator will first contact the plant control room, then will attempt to separate the source from other hazardous areas. If needed, operators will extinguish the source with the fire extinguishers, if further need arises they will employ the fire hoses. If unable to control even with the available plant fire personnel and fire department, they will leave the barn and protect the adjacent buildings. During non-delivery hours there will be cameras and fire sensing and alarm devices to give indication to the status of the barn and process building to the coal plant's control room (manned 24 hours a day).

Our current plan for the future fire system development will include fire hydrant testing (planned for this year), and further development of the fire system and specifications, when the final size and placement of the buildings are established. I had planned to talk to an insurance carrier the same day as our meeting, but apparently he wasn't able to make the meeting. I wanted to discuss his recommended sprinkler rate for the process building for a reasonable insurance coverage rate, then I planned to compare this with other facilities and decide based on the final processing building size and best (safe) sprinkler rate. The expected range is between 0.15 gpm/sf to 0.30 gpm/sf. When this discussion and decision occurs, we plan to present along with our proposed plans for examination and review.

Other discussion items:

We discussed the special inspections we require for the project, which include inspecting reinforcement placement, concrete placement, cast in place anchor bolts and weld pad placement, structural steel welding, and high strength bolting.

Other items are that we understand that the preferred method of contact is by email, and we plan to send in the final “issue for construction” drawings when available to your office. We also are aware of the fee for the plans examine starting at $200 and is based on square footage, and agree that this may need to be negotiated due the large size of building, yet used for storage and retrieval of switch grass.

I hope this captures our conversation as well as fills in some more background to our plans. Please let me know if I inadvertently left anything out.

In appreciation of your time,

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