Danish Flats Environmental Services, Inc.
616 West Monument Street
Colorado Springs, Colorado 80905
719-314-3187, Fax 719-260-7720

January 21, 2011

Mr. Timothy R. Andrus
Environmental Program Manager
Utah Division of Air Quality
Minor New Source Review Section
PO Box 144820
Salt Lake City, Utah 84114-4820

RE: Information Request – February 8, 2011

Dear Mr. Andrus:

In response to your request for support documentation related to the NOI that Danish Flats Environmental Services, Inc submitted to the Division, we address each issue below. I am somewhat surprised that you think Danish Flats has not been cooperative in your efforts to gain information. I have repeatedly given information to the Division and have responded to every request you have given. In regard to the calculations in the NOI, we hired an engineering firm to perform those calculations and prepare the required information for the Division at a cost of $26,000 to begin. I do not think your comments are substantiated. We have spent $200,000.00 as of today on a new receiving system to capture and destroy VOC's and HAP's. We will spend another $200,000.00 on the receiving system by the end of the second quarter. Our mission is clear, we are absolutely doing everything available to us to reduce and ultimately eliminate emissions.

Response:

1. The total throughput of wastewater for year 2010 of operation was 2,432,595.363 bbls. The amount of condensate removed from the water and shipped off-site was 12,654.13 bbls.
2. We have sampled the water coming out of the Generation IV tanks and are running VOC' and HAPS. Once this analysis is complete we will have our engineering firm revise the calculations and will provide you that data as soon as it is available.
3. The test sample was taken from the Generation IV tank system effluent.
4. The total annual potential for emissions will have to be determined based on the recent sample. We will have an engineering review of analysis and will report back to UDAQ as soon as the analysis/calculation(s) has been completed.

5. There are currently four (4) receiving tanks in place (see Attachment One – photo of Generation IV receiving tanks). Four (4) more are planned by Q2 2011. The receiving tanks are intended to be routed to the thermal oxidizer for destruction.
6. The receiving vaults are covered and emissions are routed to the thermal oxidizer for destruction.
7. The Purestream unit is still operational. We are currently looking at redesigning the unit to use an alternate fuel source rather than natural gas.
8. The Purestream unit is still operational. The Turbine is a 281KVA-277/380 Volt @338 three (3) phase.
9. The equipment list found in section 2.3 of the NOI should be amended as follows: Currently bullet item number three (3) states, "Four (4) 500-bbl Condensate Storage Tanks" there are in fact "Five (5) 400-bbl Condensate Storage Tanks". The remainder of the information is correct.
10. We do not believe the emission calculations are correct. Based on our quarterly monitoring (air and water) we believe the emissions reported in section 3 of the NOI are not representative of our true emission(s). Again, we are in the process of running analysis on the water which exits the Generation IV tank system. This water is representative of the water that will exit to the evaporation ponds and is relatively clean water.
11. The information requested by Mr. DeJulis on January 24, 2011 is attached as Attachment Two.

In addition to the closed loop receiving system that has been installed, we continue with our efforts to clean the settling pond. In January we completed a test of the HQ compost Tea research pilot. The goal of the research is to investigate the feasibility of using a biological treatment to reduce the VOC and HAP emissions from that area of the facility. The results of that study are attached as Attachment Three.

I will forward the water analysis and the new calculations as soon as this work is complete. If you have any questions please feel free to contact me at your convenience. You can reach me at 719-494-9711 or celliott@danishflats.net.

Cordially,

Cindy L. Elliott, CHMM
Compliance Officer
Danish Flats Environmental Services, Inc.

cc: James Bradish – CEO, Danish Flats
Curt Rorabaugh – Operations Manager, Danish Flats
Tim DeJulis- Engineer III, Utah Department of Air Quality

Attachment
One
Generation IV Receiving System
Photo

Attachment
Two
Weaver Boos Response

To: Jim Bradish, Cindy Elliott
Danish Flats Environmental Services

From: Timothy DeJulis
Utah Division of Air Quality

January 24, 2011

RE: Notice of Intent for the Produced Water Evaporation Pond Farm located near Cisco, Utah

Danish Flats Environmental Services (DFES), owner and operator of the evaporation pond farm located near the town of Cisco in Grand County, requested classification as a deminimis source of air emissions in 2008. Deminimis status was approved at that time. Based on information made available to the DAQ in March 2010, this source no longer qualifies for the deminimis exemption. The Notice of Intent for the evaporation pond farm as required by R307-401 was received September 27, 2010. Upon receipt of the NOI, the project was placed on-hold by DFES in order to allow for the completion of pending engineering design work. The NOI remains on-hold pending the completion of the design work and the submittal of the information requested below.

The following list identifies the deficiencies in the NOI.

- Incomplete emission estimates
- Incomplete process equipment specifications
- Incomplete BACT analysis

Emission Estimates

The emissions estimates do not correctly represent the potential to emit (PTE) of PM10, PM2.5, VOC, and assorted HAPs.

Appendix B

Three water throughput values appear in appendix B; one based on the results of the capacity of the eight [8] receiving vaults, a second based on the throughput at the settlement pond, and the third based on the evaporative capacity of the various impoundments. What is the throughput capacity that you would like to use as the basis of the emission estimates?

WBC Response: The facility throughput of 2,675,500 bbl produced water was used in calculating all site emissions. The throughput of the EPA Tanks 4.0.9d models varies depending on the volume of condensate remaining at that stage of the process, and the tank configuration. EPA Tanks model condensate throughput volumes are explained in Section 3.1, 3.2 & 3.3 of the text.

The approach to estimating potential emissions of VOC/HAPs from received water is to simulate an annual throughput of a volume of condensates equal to the average concentration of the same condensates present in delivered waters throughout the year. The EPA Tanks 4.0 simulation uses a vertical fixed roof tank model, 500 barrel or 21,000 gallon capacity with an assumed, average annual condensate throughput of 836.25 barrels or 35,123 gallons per each of eight receiving tanks. The basis for this throughput is an assumed volume fraction of condensate present in delivered water multiplied by the annual throughput of delivered water through the receiving vaults. This assumed volume fraction used in the calculations is unsupported by any quantitative evidence presented in the NOI.

WBC Response: *The condensate fraction is not assumed. In 2009 the facility recovered 0.19% of the total throughput as condensate which was sold off-site. For permitting purposes, a condensate fraction of 0.25% was used to ensure conservative emissions estimates. This is explained in Section 3.0 of the text.*

The NOI identifies six [6] possible sources of fugitive VOC/HAP emissions from the process: the receiving tanks, phase separation vaults, the settlement pond (aka sludge pond), the evaporation impoundments, the condensate storage tanks, and the combustion/scrubbing device. Some of these areas were tested while others were not. For example:

- Chemical analyses of water samples collected from evaporation impoundment #3 and the sludge/settlement pond areas were performed by Key Laboratories for benzene, ethylbenzene, toluene, isomers of xylene, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, and naphthalene.

  WBC Response: Additional pond sampling is not required since the pond #3 sampling represents the settlement pond outflow concentrations (i.e. the settlement pond discharges into pond 3).

- Chemical analysis of condensate samples collected from the condensate storage tanks were performed by Technology Laboratory, Inc. for C9 hydrocarbons and below, benzene, ethylbenzene, toluene, isomers of xylene, normal hexane, and 2,2,4 trimethylpentane, with any remainder in the material balance being assigned as C10 hydrocarbons and above. It appears as though 22 out of 23 pages of this analytical report were not included in the NOI.

  WBC Response: All pages of the detailed hydrocarbon report were included in the NOI. Specifically, the report page numbers are 1 of 2 and 2 of 2, both pages being included in the report.

- Summary tables of analytical results for methanol (MeOH), hexane, oil, or grease from samples taken from receiving vault #2 and #6, the

sludge/settlement pond, and evaporation impoundment #2, #3, and #9 are offered without any supporting analytical reports included in the NOI. (See below discussion of this subject.)

WBC Response: WBC has since contacted Key Laboratories and was provided with the analytical data that was not included in the draft report. The original data was not included because Key Labs failed to provide the data to Danish Flats.

There is no uniformity or consistency in the sampling locations or the compounds analyzed. The approach to the collection of samples and analyses is expected to provide the basis for a complete material balance for each distinct area within operations, as well as the operation as a whole.

WBC Response: WBC can revise the text of the NOI to better indicate the reasoning behind the sampling locations and analyzed compounds.

The NOI specifies in one portion, (page 6) that the condensate storage tanks are heated to maintain an average [liquid] temperature of 120 °F. The EPA Tanks 4.0 simulation for these tanks lists the maximum temperature as 80.91 °F. Further, this simulation includes concentrations of various VOC/HAP that are consistent with the chemical analysis of condensate tank contents. The simulation results offered in the NOI as the potential emissions from the condensate tanks do not include the operating conditions specified elsewhere in the NOI for those tanks.

WBC Response: WBC can revise the tank model temperature to reflect the operating conditions of the tank

Several unexplained assumptions were employed in estimating the emissions from vehicle traffic on unpaved haul roads. The number of individual truck trips that is the basis of the vehicle-miles-traveled (vmt) value is not stated, nor any other information that would confirm the vmt values used (26,124 vehicle trips of 1.36 miles (roundtrip?) for a total of 35,633 miles per year). The calculated average weight for trucks and small vehicles are presented without the inputs to those averages.

WBC Response: WBC can revise the particulate matter calculations to better explain the basis for number of vehicle trips and average vehicle weights.

The control of fugitive dust from the use of the unpaved haul roads does not consider DAQ guidance on the matter. According to this guidance the maximum control for an unpaved haul road employing bi-weekly application of magnesium chloride or similar surfactant is 80%.

WBC Response: WBC can revise the control efficiency of the application of magnesium chloride to 80%.

Methanol (and other materials) Present in Received Waters
After a request for the analytical information used in support of calculating the MeOH emission estimates, by email from the DAQ, results for MeOH and hexane were offered by DFES. These results raised further questions about the estimated emissions of MEOH and hexane, and in subsequent attempts to address these concerns, Ms. Elliott explained that the analytical laboratory that performed the analyses, Key Laboratories, no longer has the confidence of DFES. This then calls into question all the analytical results prepared by Key Laboratories used in the NOI. In short, absent any confidence in the analytical results, there is no basis for estimating emissions from many of the areas at the evaporation pond farm, at this point in time.

In the emissions estimates for MeOH, several broad assumptions are employed in attempting to account for seasonal variations in the MeOH received as part of the delivered wastewater stream. The first of these is that the results of analytical testing, that were not supplied, are used as the values in the seasonal calculations. Next, is the implication that the one sampling event in May 2010 represents the worst case scenario as far as potential MeOH emissions are concerned. Finally, the case is proposed that MeOH is inherently part of the water solution, tending to stay in solution as opposed to volatizing, but sampling was not done to establish this conclusion. Any effort to explain potential emissions must be based on quantified information, or an indisputable logical construction.

WBC Response: WBC can conduct a February/March methanol sampling for comparison to the May sampling to better understand the worst case concentration. WBC can also provide additional scientific evidence as to high degree of solubility of methanol and the tendency of the compound to undergo bacterial attenuation rather than volatize to the atmosphere.

As a result of the above issues, the emission estimates are incomplete.

Equipment Specifications
The dimensions and volumes of each of the wastewater evaporation impoundments are described in detail in the emission calculations. The tank heaters used on 14 of the tanks (all of the tanks) are listed as 500,000 Btu/hr – each, natural gas fueled. The condensate tanks are specified in the EPA Tanks