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BEFORE THE
ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

IN THE MATTER OF:	)	
MEDICINE BOW FUEL & POWER, LLC	)	DOCKET NO. 09-2801
AIR PERMIT CT-5873	)	

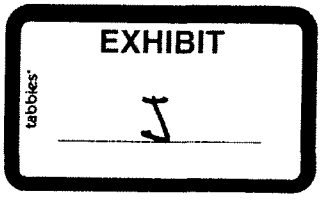
AFFIDAVIT OF JAMES KNOX IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT

STATE OF TEXAS)
) ss.
COUNTY OF HARRIS)

I, James Knox, being first duly sworn, do depose and state as follows:

1. I am over the age of twenty-one (21) and am competent to make this affidavit.

2. The facts and matters stated herein are within my personal knowledge and are true and correct.



3. I have a Bachelor of Science degree in mechanical engineering which I received from Duke University in 1992. I also have a Master of Business Administration which I received from the Citadel in 1997.

4. Since about July 2007, I have been employed with DKRW Advanced Fuels LLC as Vice President of Engineering. I have seventeen years of experience in engineering, operations and management. Prior to joining DKRW, I was the FMC Technologies project director for the critical path development and delivery of subsea drilling and production risers and tensioners for the $1.4 billion Murphy Kikeh Spar project and $0.5 billion Amerada Hess TLP. I worked for 6 years for FMC Technologies in its subsea oil and gas division in various engineering, business, and project management roles. Prior to this, I served as an engineer and engineering manager at Praxair and served as an officer in the U.S. Navy submarine service, graduating from the Nuclear Power School.

5. My duties at DKRW include, serving as engineering interface and coordinator for the execution and completion of Process Design Packages (PDPs) for methanol synthesis, Selexol, and methanol-to-gasoline, evaluating and reporting on various economic scenarios, hardware or operating changes, and investment opportunities, including heat and material balances, process flow diagrams, capital and expense estimates, estimated return, and breakeven analysis.

6. As part of my duties at DKRW, I have also provided engineering support for Medicine Bow Fuel and Power, LLC's application for Air Permit CT-5873. My specific tasks related to this matter have included reviewing engineering and design information to assist in the calculation of emissions of sulfur dioxide from the flares and other facility equipment, the

development of the Startup, Shutdown and Minimization Plan and reviewing design packages to assist in the estimation of the emissions of hazardous air pollutants (HAPs). In particular, I provided the detailed component count estimates used to calculate the potential emissions of volatile organic compounds (VOCs) and HAPs, including methanol.

7. I compiled the estimates of sulfur dioxide emissions for the original application and subsequent communications with the Wyoming Department of Environmental Quality (WDEQ). In the original Application, we included estimates for sulfur dioxide emissions from "cold starts" during the initial start up or commissioning year. It is anticipated that a cold start may be required approximately every four years to allow a complete shutdown of the facility for major maintenance. During a cold start, more syngas must be routed to the flares, resulting in excess emissions of sulfur dioxide, until equipment downstream is powered up and able to accommodate the syngas. As explained in the October 14 correspondence with WDEQ, the initial cold start year is expected to have the highest emissions with any subsequent cold start year emissions declining.

8. The routine emissions of sulfur dioxide in the Application were found to be 32.65 tons per year, coming primarily from the turbines. Following the public comment period, WDEQ requested additional information on the emissions of sulfur dioxide from routine operations. In particular, WDEQ requested whether startup/shutdown emissions from planned maintenance activities were included in the 32.65 tpy number. I reviewed the information in the application and concluded that the emissions from startup/shutdowns for planned maintenance of the gasifiers were included in the estimate of malfunction emissions. The facility will have five

gasifiers, with four operating at any one time, and the fifth in standby. To minimize malfunctions and based on the experience from other gasifiers, replacement of the gasifier burner may be required as often as every 60 days. When this occurs the standby gasifier will startup resulting in flaring of the syngas that is expected to be 15 minutes in duration for each event. I calculated that the routine gasifier maintenance would result in an additional 3.64 tpy of sulfur dioxide in analysis found in Attachment 1 to the November 11, 2008 letter from Jude Rolfes, Sr. Vice President of DKRW, to Chad Schlichtemeier, NSR Program Manager. This brought the total of sulfur dioxide emissions for routine operations to 36.3 tpy.

9. Prior to the WDEQ's issuance of the draft permit, WDEQ required that MBFP provide a startup/shutdown minimization plan, now included as Appendix A to Air Permit CT-5873. In response, I developed as detailed of SSM plan possible at this stage of the project by reviewing information from our licensors. The SSM contains specific requirements for minimizing loads, including the requirement to startup at 50% capacity. Basic engineering tells us that this will help reduce emissions by reducing the flow to the flares. As more detailed operating procedures for the equipment are developed, following completion of engineering, they will be included in the plan, subject to WDEQ approval.

10. The flares selected for the facility will meet the 98% control efficiencies committed to in the application. The permit requires MBFP to comply with WAQSR, Chapter 5, Section 2, which is consistent with EPA requirements found at 40 C.F.R. Sec. 60.18. The permit condition imposes design and operating parameters for the flares that will insure maximum destruction efficiency by the flares, including meeting the objective of 98% control efficiency.

MBFP is bound to purchase flares that can comply with the Wyoming standard and other permit requirements.

11. I assisted in the preparation of the calculations for HAPs and VOCs detailed in Appendix B of the Application. I provided the component counts used to develop Appendix B. MBFP contracted with professional engineers to estimate the stream data and component counts to develop this information. The component counts cannot be finalized until later design stages of the project. The types of components needed and the expected number for each process line described in Appendix B are based on the preliminary designs available and prior experience. A vendor for the components will not be selected until a much later stage of the project. MBFP is bound by this estimate and will be required to verify the count prior to start-up of the facility.

12. The selection of the SOCMI factors described in Section 3.2.6.3 of the application was the only realistic choice available to us to estimate the VOC and HAP emissions from equipment leaks. The average factor estimate only requires an equipment count and service condition, both of which we provided in the permit. Determining screening values specific to this facility was not an option as there are no recent (state of the art) coal to chemical plants or methanol plants of this size in operation.

13. At the draft permit stage, the estimated emissions for methanol were 10.2 tpy. Following public comment, WDEQ requested that we review our emissions estimate and consider the applicability of 112(g) and 112(j) requirements under the CAA. In correspondence, dated September 30, 2008, we provided information recalculating the emissions, based on reducing the sampling connections for methanol and replacing them with a closed-loop system.

The theory of the closed-loop sampling is simple. Instead of purging the line and venting pollutants to the atmosphere, the closed loop sampling allows sampling without allowing the escape of any contaminants. Upon review of the design documents, we concluded that we could eliminate 8 sampling points. Although the letter itself only mentions the reduction of 6 sampling points, the revised page B-42 that accompanies the September 30, correspondence shows a reduction of 8 sampling points, resulting in methanol emissions of 9.2 tpy.

DATED this16th day of November 2009.

James Knox

Subscribed and sworn to before me on this 16th day of November 2009 by James Knox.

Notary Public
My commission expires: 8/20/13

MARIA JIMENEZ CORREDOR
Notary Public, State of Texas
My Commission Expires
August 20, 2013