BEFORE THE ENVIRONMENTAL APPEALS BOARD

FOR THE STATE OF DELAWARE

MOTIVA ENTERPRISES, Appellant, v. SECRETARY OF THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL, CONTROL OF THE STATE OF DELAWARE, Agency-Below, Appellee.	))))))))))))	Appeal No. 99-01

FINAL ORDER AND DECISION

Pursuant to due notice of time and place of hearing served on all parties in interest, the above stated cause came before the Environmental Appeals Board on March 28, 2000, in the Auditorium, Richardson & Robbins Building, 89 Kings Highway, Dover, Kent County, Delaware.

PRESENT:

Joan H. Donoho, Chairman

Donald Dean, Member

Robert S. Ehrlich, Member

Ray K. Woodward, Member

Kevin R. Slattery, Attorney for the Board.

APPEARANCES:

R. Judson Scaggs, Jr., Esquire, for the Appellant

Jeanne L. Langdon, Deputy Attorney General, for the Agency

A hearing was held before the Environmental Appeals Board ("Board") on March 28, 2000, pursuant to the appellant's appeal of a permit to operate a crude unit atmospheric heater ("heater") issued by the agency on February 5, 1999.

The appellant asserts that in 1996 it sought to replace an out-dated heater unit at its Delaware City refinery. The replacement was voluntary. The new unit would result in significant reductions in emissions when compared to the previous unit. This heater will not produce PM_{10} greater than the natural ambient air quality standards ("NAAQS"). It produces less than 3/10ths of 1% of all particulate matter for the entire facility.

The appellant contends initially that there are several fundamental errors in the permit. First, the permit was issued to the wrong permittee–Star Enterprises– instead of Motiva Enterprises. Second, the agency issued a temporary operating permit–not a permanent operating permit. Third, the odor condition contained in permit condition #3 is illegal. This is a condition the Board struck down in 1998 in the General Motors case.

With regard to condition #4, appellant contends that compliance is not possible. Appellant argues that until there has been a release, and testing to determine whether any violation has occurred, it cannot report a violation. Similar to the odor condition–the condition must be reasonable. The permit did not allow for a reasonable time frame for the appellant to discover the excess emission and report it. (see Exhibit 12).

The primary points of contention involve conditions #1 and #8. As to the former, the appellant contends that there is no operational flexibility with conditions 1b,d and e, which require instantaneous monitoring limits for PM, CO and VOC limits. There is no averaging time--e.g., over the period of a month. The appellant disagrees with the agency's

contention that it will violate the ambient air quality standards if production of these pollutants is pumped up for short periods of time. Furthermore, there are no instantaneous testing methods for PM_{10} and certain VOC's. The agency also did not look at cost to the appellant and reasonableness of these requirements.

Appellant contends that the parties made a mutual mistake of fact in setting the PM_{10} limit. Appellant received a burner guarantee from the manufacturer regarding condition #1(d) of .02 ppm. This guarantee, however, was for PM and not PM_{10}. PM_{10} contains filterable materials and "back-end" materials (condensables) that turn into particulates once released from the stack. These can be a huge portion of the total emissions. Here they were 85 to 90% of the emissions. Appellant argues that the permit must go back to the agency for it to set a limit on PM_{10} emissions based upon the correct data for the burner.

Appellant's final contention regards condition #8–which it contends is a surrogate to the PM_{10} limit. Appellant asserts that if it controls the temperature on the overhead stripper unit, this results in a control on the PM_{10} limit. Overhead line temperature is affected by the cooling water temperature--and there are fluctuations in the tidal cooling water from the river. There is not enough operational flexibility built in to deal with these fluctuations based up a three-hour averaging time. There is no rational basis for this particular time period imposed. The appellant seeks to have the Board strike conditions 1 and 8 and send the matter back for reconsideration of the limits. Should the Board find the limits to be appropriate, then it must consider whether the three hour averaging time for the overhead temperature limit is reasonable.

It is the agency's contention that the first three issues can be eliminated. The permit can now be issued to Motiva since the appellant completed the background application. The permit can be re-issued with the term "temporary" dropped. The permit will be reissued with the odor condition amended to include the term "unnecessary". The primary issue is the PM_{10} emissions limits.

The agency asserts that the appellant used the burner vendor's guarantee to come up with an annual limit of 27.7 tons/year. The 27.7 tons/year is an unverifiable number without a periodic testing method to determine the emissions. Testing would need to determine emissions over a period of hours, and then averaging would be utilized. The agency disagrees with appellant's contention that this is instantaneous testing. The test must be conducted for at least an hour. The testing method utilized is test method 5 that has a two to four hour averaging time built into the testing protocol. It measures all particulate matter--over 10 microns and under 10 microns. The burner manufacturer used this in coming up with the 27.7 tons/year. It was a mistake, however, to test using method 5. The correct test was 201 and 202 to test the PM's and PM_{10}'s. But the appellant did not even pass the testing using method 5. This appeal would not have happened if the appellant had passed the emissions testing once the burner was operational.

The agency contends that this burner is being used by the appellant to burn an ammonia waste–something never intended by the manufacturer to be burned in this unit. Appellant determined that if the waste gas is cooled down, it will pass the test. In order for the emissions averaging to be reliable, however, the agency must have confidence that the waste gas is being constantly cooled to 107 degrees. Otherwise, there is no

confidence in the compliance. Therefore, a three hour rolling average limit was used to measure the waste gas stream temperature. The three hour rolling average limit was utilized as this was the time period used by the appellant in doing its testing. If they want to change the three hour rolling average, then they can do more testing.

With regard to the reporting condition, the agency contends that the appellant has complied with this condition in the past. A reasonable interpretation of the provision is that the appellant would give notice immediately when there is a problem, and not wait until the permit condition has been exceeded. The latter could take one year if there is a yearly limit. "Immediately" means when the condition exists and not when the limit has been exceeded.

SUMMARY OF THE EVIDENCE

The Board considered the testimony of Betty Piovoso, who is a technologist in the safety, health and technology department for the appellant. She prepares permit applications and reports to federal and state governments. She has held this position since 1990 and was the contact person for the permit application process in this case. The appellant is contesting conditions 1b,d, and e of the permit. There is no instantaneous testing available for VOC's that is reliable. The same applies with PM. With regard to condition #4, the witness testified that a violation cannot be reported until it is known that the condition exists.

The witness testified that the burner in question was a replacement heater that became operational in June of 1996. Refinery fuel gas is used in the combustion. This also includes an air stream from another area of the plant and an ammonia, pre-combusted

fuel from another part of the plant. Both sections of the heater have an individual stack. The heater emits, NO's, SO's, CO's and various VOC's.

The witness testified that the information used for the permit came primarily from the company responsible for the design of the heater. The computer generated model for the unit predicted a decrease in emission in two areas--NO's and SO's. It predicted an overall reduction in PM's. PM_{10}'s are different, however, and they are not typically measured as part of the overall PM's. The appellant received a guarantee from the vendor of .020 ppm for PM's. They did not request a guarantee for PM_{10}'s. The PM_{10} limit in the permit was .020 ppm, and it likely incorporated the PM guarantee.

Post-installation stack testing was done for CO, VOC and PM's utilizing test method 5. Motiva passed the tests for CO and VOC's but not PM. The various test results ranged between .01 and .06 ppms. One stack was as high as .2, but it needed to be combined with the other stack which resulted in a .01 result. A lot of time went into determining what was causing the problem. The process occurred over two periods where the agency issued temporary permits. The initial stack test used a method 5. This aimed at PM and not PM_{10}'s. Thereafter, the agency suggested method 202 to test for PM_{10}'s. The first test had problems with initial protocols. The heater has a low emission rate for PM's which resulted in a lot of error in a one-hour test. Therefore, they extended the testing period to four hours. They did three, four-hour tests. The tests showed that the bulk of the material was in the condensable portion of the particulates (PM_{10}). They had a number of people come in and look at the water stripping process. One consultant indicated the temperature was a factor in the sour water stripping process.

The witness further testified that this heater is not a major source of PM_{10} emissions for the plant. This heater would not result in a violation of the NAAQS. This heater is responsible for 3/10ths of 1% of the total PM_{10} emissions at the plant. It also would not be responsible for a violation of the NAAQS for CO. The emissions in this heater are less for SO, NO and PM's than the heater it replaced. They are slightly higher for CO and VOC's

As to condition #8, the witness testified that the agency has set a temperature limit of 107 degrees on a three hour rolling average basis. The appellant did not request this, but rather, it requested a 30 day rolling average basis due to operating problems in the unit caused by the tide flop. Appellant has never passed the tests for the three-hour rolling hour basis. The problem with compliance during the summer is due to the tide flops.

On cross examination, Ms. Piovoso testified that she was not aware of what the river water temperature was during the testing dates indicated in Table 1 (Exhibit 6). She was not aware of violations in the winter months. There are other options for cooling besides river water. With regard to Exhibit 1--Table S-1, the witness testified that this represents the emissions from the old heater, and Table S-2 represents the emission from the new heater. She does not know where the figures came from in Table S-2 for the off gas emissions. She assumes this includes the emissions from the burning of the ammonia gas as well.

On examination by the Board, the witness testified that the estimates were based upon the use of refinery fuel gas. The ammonia gas is a significant source of the particulates. There were no tests done based upon this waste stream until the actual tests were done.

Dr. Colin James Deller was sworn and testified that he is employed as a field consultant for Callidus Technology, in Oklahoma City. They manufactured the burners in question in this case. He understands the differences between PM and PM_{10}. The burners are low emission, natural draft units. Callidus provided the appellant with a guarantee for PM of .020--solely based upon test method 5. Exhibit 9 contains the results of testing done to get their own reference for these burners. It is the basis for the guarantee. The guarantee is for the burner only and not for the entire heater. They cannot guarantee what goes through the heater. The guarantee was not appropriate for a PM limit for PM_{10}.

On cross-examination, the witness testified that it did not include emissions from the ammonia waste stream. The guarantee for the gas burners is difficult to measure. The testing done here was done on an industry standard. They have not done extensive testing on their own burners.

Mary Wisniewski was sworn and testified that she is employed by the appellant on the crude unit. She has worked on the crude unit since 1997 as the unit supervisor. In her capacity, she makes sure the operating personnel are aware of the environmental limits and are in compliance. She investigates the exceedances and she passes the information on to environmental safety. They use from between 250 and 400 million gallons of river water a day. Tide flops are not predictable. If the cooling water gets too hot, they cannot condense the gasses. The cooling water temperature can vary between 10 and 15 degrees in a period of 24 hours. Sometimes they do not get out of a tide flop until the next one occurs. When they see the cooling water influant temperatures increase, they try to cut the feed rate and re-boiler steam temperature in order to compensate. They monitor

the temperature via computers. There are limits to the rate, since too low a feed could damage the pumps. The three hour rolling average results in continuous adjustments during the summer. As regards other cooling methods, they have not fully investigated them due to cost. They cannot meet condition #8 as it exists. They could if there were higher rolling averages to deal with the tide flops.

On questioning by the Board, the witness testified that there is no way to tell how much water is used in this particular unit. In tide flops they try to utilize other sources of water. Even the additional sources are river water, and have the same temperature. Well water would require modifications. To meet the requirements, she is not sure how much of an extension of the rolling average would be required to meet it. During the summer months, they have seen the water temperature come in as high as 95 degrees.

On cross-examination, the witness testified that "too hot" river water is 95 degrees, but she is not sure of the exact fall off point. There are tide flops all the time, but it is usually the summer months that are affected. She is not aware of any winter months where they have not met the limits using the three hour rolling average. There also have been operational problems that have resulted in exceeding the limits. Typically this occurs at the start-up of the sour water cooling unit or if there is a pump failure.

On re-direct examination, the witness testified that the majority of the occurrences of exceeding condition #8 occur due to tide flops.

Gary D. McCutchen was sworn and testified that he is employed by RTP Environmental Resources, Inc. It is an environmental consultant firm. He did some of the early research on the methodology that resulted in stack testing for compliance purposes.

He retired in 1992 from the EPA and has done consulting work since then. In his opinion, he did not find conditions 1b,d and e and condition 4 to be reasonable and logical. Condition #4 is not possible. Compliance is not possible without an alarm system which would result from continuous sampling. VOC's and PM's would need laboratory testing before the results could be known. Furthermore, pursuant to the agency's Regulation #2.1--condition #4 does not indicate "immediately upon discovery". The latter provision is reasonable. Other agencies, including the EPA, require reporting upon discovery.

Regarding condition #1d, the witness testified that the .020 ppm limit for PM_{10}'s is based upon heat input. As it is written it is an instantaneous limit because there is no time averaging included. The 27.7 tons per year is not instantaneous. It is a simple mass limit--a threshold type limit. An instantaneous limit is very restrictive--like a speed limit. The witness testified that the agency's Regulation 2, section 11.8 (Exhibit 11) does not provide the agency with the ability to impose instantaneous limits. Based upon the modeling done for this unit, it could not cause or contribute to a violation of an ambient air quality standard.

The witness further testified that he saw nothing in the record to indicate why the agency set the instantaneous limits or the annual tonnage limits. The only thing he saw was the .020 limit in the Callidus guarantee for PM. This should not have been used for PM_{10}. The 27.7 limit was provided by the appellant as the estimate for the total annual PM emissions. He saw no environmental benefits due to the imposition of these limits. He saw nothing to indicate the agency addressed the cost to the appellant of these limits. There is no method to instantaneously monitor PM and PM_{10} limits. It requires laboratory analysis. The annual rolling average limit would be more appropriate for a minor

modification such as this. A major modification is significant, and those sources should have very good control.

The witness further testified that PM is tested using method 5. This method utilizes a filter monitoring process where the material is actually weighed. PM_{10} is a different animal--matter of 10 microns or less. The testing methodology is different. PM_{10} testing collects filterable and condensable materials. It utilizes a method 5 or 201 to collect the filterables and method 202 to collect the condensables. By utilizing a method 202 in the analysis, there is going to be a substantial increase in the amount of matter included in the data. (Reference Exhibit 5, page 6). The total PM_{10} will include the PM as well. It will be approximately 10 times that of the PM alone. The Callidus vendor guarantee was intended to cover only the PM emissions. In his opinion it was not appropriate to impose the PM guarantee as the PM_{10} limit. The agency should not utilize the limit based on one testing methodology as the limit when using a different testing methodology. In his opinion, the limit imposed should have utilized a monthly tonnage limit.

With regard to the three hour rolling average, and its effect on operational flexibility, (reference Exhibit 13) the witness testified that the 24 hour averages result in fewer violations: one compared to several for the month of June, 1999. There is greater variation in the three hour rolling average testing method. The effect of a shorter averaging time is to tighten up the limit. Using the same data, one would have to have a temperature limit of 97 degrees in order to satisfy the emissions limits with the three hour rolling average testing method. In his opinion, when setting appropriate limits on a minor source of emissions, an annual method is appropriate.

With regard to Exhibit 10, the witness testified that the heater's emissions are only .3% of the total emissions for this plant. It is a very small impact level. Even with spikes up to its maximum capacity this unit's emissions would not result in any significant effect on air quality.

On examination by the Board, the witness testified that the finer particles of PM_{10} are considered more damaging to human health. Had the agency established standards for its effect on human health, then its performance standard would be more reasonable if based thereon. There must be a rational approach to the averaging time. It must be affects based--to prevent any adverse effect. It can take up to 20 days to get laboratory results or as few as a couple days depending on cost.

On cross-examination, the witness testified (re: Exhibit 9) that he has not reviewed any other test data from Callidus other than that in Exhibit 9. He cannot tell from this document that the data complied with method 5 protocol. This data does not contain any data from testing on ammonia waste gas. He assumes the testing represented in Exhibit 5 was done with the ammonia waste gas. He is not aware of modeling being done prior to the unit's installation as to the effect of the ammonia waste gas on emissions. The modeling was done regarding the major fuel to be used. In his past work, he did not set the standards. Appropriate averaging times were not contained in the older standards. In the current standards, the standard is in pounds per BTU as well. The averaging times are included within the testing methods (e.g. method 5). Regarding Exhibit 10, the witness testified that his assumption (that the unit will not significantly contribute to a violation of the ambient air quality standards) is based upon utilizing method 5 and taking into

consideration the burner guarantee and that the unit is operating properly. The appellant's total daily impact for PM is very close to the "welfare" standard limit. If the "off" gases were not included, there might be a reversal of the 90% condensables. Regarding Exhibit 13, the witness testified that he does not know what effect the temperature has on the PM's. He knows there is some relationship when you are putting the off gases in the mix, but he does not know what that relationship is. A spike of 200 degrees would probably really affect his data. Normally in a permit one would include the calculation methodology for determining compliance with the standard. He would likely use a factor from method five for determining compliance. The 27.7 comes from multiplying the lbs/mmBTU by the actual BTU input for the 12month period and they use the .0137 factor in Table 3-1 (page 5 of Exhibit 5). For PM, he would likely use the .020 factor of the design guarantees. The .0137 is based upon temperatures below 107 degrees. The production level on an annual basis is an acceptable level to monitor compliance. If the temperature is at 107 or below, then there is approximately a 40% reduction. This would provide a certain safety factor above the 107 degrees. He would use the .020 factor for PM absent evidence to the contrary, and there is none to the contrary in this case.

With regard to the ambient air quality standards, the witness testified that if there was a 12th month shut-down, there would be a change in the ambient air quality standard for the prior eleven months. He did not see the .020 factor as a health-based standard.

On re-direct examination, the witness testified that the delays in testing do not necessarily cause health risks. Health risks are usually dealt with by risk management measures in large release situations. The averaging time in method 5 is the duration of

the stack test. Even if there was a doubling or tripling of emissions, this unit would not have an effect on the ambient air quality limits.

On further questioning by the Board, the witness testified that the Callidus testing is close to the error level. He would want a good size safety factor given the use of refinery fuel gas which is substantially less clean than gases used by Callidus in its testing. He has no idea what happened to run #2 of the test results in Exhibit 5, table 3-1.

Mark Lutrzykowski, was sworn and testified that he is employed by the agency in air quality testing. He is familiar with the testing methods regarding particulates and described them. He is familiar with test method 5 which includes all particulate matter. Method 201 measures non-particulate matter PM_{10} or below. Pre-permit, the agency and the permitee determine the testing method to be utilized based upon the type of operation. They would expect condensables to be present in refinery fuel gases and the ammonia waste stream. It was probably an oversight that only a method 5 was designated to be used in this case. They should have gone with a method 5 and 202. The burners are supposed to be used with propane, refinery fuel gas or natural gas. The test run by Callidus utilized method 5. If he burners were run on refinery fuel gas alone, they would meet the standards under method five. He would not have drawn any conclusions from the Callidus data as there was only one data point for each condition. Furthermore, the runs were all less than one hour. From memory, the witness testified that using AP-42 as a reference, the Callidus burners would also have met the standards using method 202 if it were burning only refinery fuel gas.

On cross-examination, the witness testified that he views PM as non-condensable

and condensable PM. This is a difference of opinion as to what that term means between the agency and the Callidus representative. If only refinery fuel gas was put through the burners, then the appellant could meet the Callidus standard. There were assumptions that the ammonia off gases were the cause of the larger condensables. He agreed that if the ammonia off gases were included, there should have been more investigation into whether the vendor's guarantee would be appropriate as a standard in this case.

Chakaravarthi Ravi Rangan, testified that he works for the Engineering and Compliance section. His primary job is for the permitting and compliance for the Motiva Refinery. He is familiar with the application in this case. Motiva indicated they were replacing an old out-dated heater. The application was not approvable as initially submitted. This unit was to take an emission from the sour water stripper--the ammonia off gas. This would not have satisfied the NOx standard. There were changes to the application. The proposal addressed the NOx emission from the sour water stripper unit. The agency also established limits for other gases. Particulates are considered a priority pollutant. Anything from .05 to .5 microns can cause serious health effects. PM_{10} is an aerodynamic definition--the rate of settling of the particle compared to a water droplet settling at the same speed. AP-42 indicated you must treat all particulate matter as PM_{10}. AP-42 does not deal with ammonia waste streams. They were looking only at the refinery fuel gas. The ammonia waste gas was negligible, and was not really considered. Motiva did not object to this. The construction permit was based upon PM_{10}. The unit was not put into operation immediately after construction on June 24, l999. It had until December 24, l999, to perform the compliance testing. Thirteen to fourteen attempts were done--four

were failures. They then made troubleshooting attempts to correct the problem, and were eventually able to show compliance.

The witness testified that in late September, 1997, the company indicated that the particulate loading was coming from the ammonia waste stream. The initial proposal was to maintain the overhead accumulator water temperature at or below 115 degrees Fahrenheit. The testing resulted in compliance. The water cooling data shows that there were seven occasions where the cooling water exceeded 90 degrees. His examination of the data does not show the effect was due to the tidal flops. There were only five hours where there was a correlation between the waste gas temperature exceeding 107 degrees and the river water temperature exceeded 90 degrees. They were random and throughout the year. Conceivably this could be due to hydrogen sulfide combining with the ammonia gas from the sour water stripper. They came to this conclusion due to testing that showed the majority of the particulate matter being a sulfide species. The higher the temperature, the greater the hydrogen sulfide coming out of the aqueous phase. This impurity causes the high particulate emissions. They do not know how much of an increase there will be over 107 degrees. The highest temperature he saw was 295 degrees.

The witness further testified that this unit is not considered a minor source—it is a major source. Most of the testing showed that 80 to 90% of the total particulates were condensables. Test method five would show 27.7 tons per year. Total emissions could show 277 tons per year. Comparisons to ambient air quality standards would have to be assessed. This heater was supposed to be put in to reduce their total emissions. If, instead, it substantially increased the emissions, then different regulations would apply.

Motiva eventually met the standards.

Regarding lengthening the averaging time, the company could conceivably put out greater emissions in a shorter periods of time and still be in compliance. There has not been significant enough testing to show what would happen with occasional increases in temperature.

On cross-examination the witness testified that the intent was to establish a PM_{10} limit due to the AP-42 factors indicating that all the particulate emissions would be PM_{10}. He did not notice that the Callidus guarantee was based upon PM. He says that the limit was based in part upon the guarantee of the Callidus representative who told them at the plant that the PM guarantee included PM_{10}. He also based it on the AP-42 emissions factors. It might be necessary to establish a new emissions factor based upon all PM emissions if the vendor guarantee was not accurate enough. When they issued the permit, they were aware of the additional ammonia waste stream. They never adjusted the permit limit thereafter. Up until the time the permit was issued (February, 1999), hourly testing was done. Thereafter, the data was on the three hour rolling averages. The hourly data for the water temperature was random across the year. He agrees that there should be operational flexibility, but that is taken into consideration with the ability to vary the heat input to the particular unit.

On questioning by the Board, the witness testified that this is a major source as it emits more than 25 tons of NOx.

On re-direct examination, the witness testified that he looked at the AP-42 standard figures. This is put out by EPA to show what to expect from this equipment using a

particular type of fuel. The emission factor for natural gas is 7.6 lbs total particulants–including condensables–per million cubic feet (or .0076lbs/billion BTU). The Callidus guarantee of .020 is generous by comparison.

On re-cross examination, the witness testified that natural gas is cleaner burning than refinery fuel gas. This factor would not include the burning of the ammonia waste stream. However, the application showed the ammonia stream to be negligible. This assumption was erroneous as they discovered in the investigation process.

Ali Mirzakhalili was sworn and testified that he is employed by the agency as the program manager in the engineering and compliance branch of the Air Quality Management section. He supervised the issuance of the permit in this case. The lbs/billion permit limit was put in place to ensure compliance. This has been used extensively in other cases. It is a standard. It would be irresponsible on their part to issue a permit on an annual basis as there would be no means to enforce compliance. This builds in an enforcement mechanism. There is no other particulate emission rate in the application. The appellant requested the.020 as the basis for 27.2 tons per year limit, and the company has not come back to ask for a different emission limit. They have not shown the agency that the emission rate is any different than the .020. They just want to "magically" meet the annual limit. The actual potential to emit is within the 27 tons provided the temperature is kept below the 107 degrees. They have demonstrated the ability to comply. He does not know whether the contribution of the ammonia waste stream is insignificant at that temperature. There is the potential to reach the 270 tons per year if the controls are not in place. The initial problem was the excessive NOX emissions, and

they had to deal with that problem. Had the appellant initially come to them with the excessive PM_{10} emissions, then they would have required them to look at the technology to deal with that problem, and they would have looked at the cost consideration factors. The application did not address this up front.

As to the excessive emissions notification provision, the witness testified that the provision of "upon discovery" causes problems in determining who discovers it, when it is discovered, and what constitutes discovery. Common sense must apply. The permit requirement clarifies this provision. This is contained in all of Motiva's permits--70 or 80--and all the other approximately 8,000 permits in use. The three hour rolling average allows the operators to react in a timely manner and notify the agency.

On cross-examination, the witness testified that the appellant was given the agency's expectations on how to monitor compliance during the initial compliance testing. It is fair to put in permits the methodology to establish compliance. This permit does not have repeated compliance limits testing. This will be corrected. Compliance is determined by a particular test method. The initial expectation was that the initial testing and proper maintenance of the equipment would guarantee compliance. History has proven this to be an erroneous expectation. The witness testified that the PM_{10} limit is not an "instantaneous" testing limit--it is a rate-based testing. A yearly tonnage without a rate-based limit is neither fair to the appellant and not responsible. If the unit produced 270 tons per year in emissions, there would be a significant problem with the ambient air quality standard. The permit conditions are in there so that the agency can determine what the emissions are.

[CORRECTED PAGE]

On further cross-examination, the witness testified that the agency doesn't expect a permitee to report something of which it is not aware. On the other hand, they don't want someone to ignore a problem and then say they were not aware. It takes away his ability to respond to the public. The agency wants this ambiguity cut out of the equation. There is an expectation that someone must look for the excessive emission and not ignore it. If you think it's going to emit, then it should be reported.

Mary Wisniewski was recalled as a rebuttal witness and testified that there might not be a one-to-one relationship between the cooling water temperature and the temperature in the overhead condenser since they are constantly adjusting the process to maintain the 107 degree temperature. If the temperature reached 295 degrees that would be catastrophic. Therefore, that reading could be due to a steam cleaning of the column. There was also a computer glitch at one point in time.

On cross-examination, the witness testified that there have been no occurrences where they lost the cooling water feed. Last spring they pulled the feed to clean the overhead condensers. This cleaning happens approximately ten times a year.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

As to the first three issues raised by the appellant, the Board finds that they are conceded by the agency. The permit will be re-issued under the appellant's name, and it will be issued as a permanent permit, subject to the further findings and conclusions of the Board in the decision below. Condition number three will be modified to contain the term "unreasonably".

As to condition #4, the Board finds that it must be modified to be in accordance with the agency's regulation 2.1 and re-written to include the phrase "upon discovery". In so finding, the Board notes that it agrees with the agency's contention that the permitee must use common sense and due diligence in reporting any violations. The Board expects that the term "upon discovery" will not be misinterpreted by the appellant to ignore common sense observations that could result in potential dangers to the public. The Board further notes that it is not within it's purview to define the term "upon discovery" for the agency. This must be done through a clarification of its own regulations.

The primary dispute between the parties involves the monitoring and compliance limits for the PM, CO and VOC emissions. We agree with the agency that they are utilizing "rate based" limits. The term "instantaneous" is not defined in the statute or regulations, and it was not the intention of the agency to require "continuous" testing for these emissions. What is missing is the compliance methodology. It is reasonable for the appellant to expect that the compliance methodology be spelled out in the permit. The Board would expect that either EPA or State-approved methodology could be utilized to determine compliance and referenced in the permit.

As to the reasonableness of the PM_{10} limit enumerated in condition #1d, the Board finds that the only data available on this particular burner references an identical rate of emissions. No other testing was conducted by the manufacturer regarding the specific fuel and other waste to be burned in this unit. One fact is evident: the burner is not being used as intended by the manufacturer due to the combustion of the ammonia waste stream. Even the appellant's own expert, was not aware of the effect of temperature on PM when

off gases were included in the mix. It was the erroneous assumption that the emissions resulting from this waste stream would be negligible that resulted in the failed compliance, and not whether the PM_{10} limit was appropriate. The Board does not find it particularly relevant whether the testing performed by the manufacturer was for PM (without PM_{10}), total PM (including PM_{10}), or PM_{10} (as defined by the agency's witness). The test results (without the modifications to cool the ammonia waste stream) indicated that even using only test method 5, the appellant was unable to comply with the permit limits. Given the potential serious health effects of PM_{10} emissions, and the potential for this burner becoming a huge source of such emissions, the agency acted appropriately in requiring a limit on these emissions and compliance.

The Board found it significant that with the modifications to cool the ammonia waste stream, the appellant was able to achieve the permit conditions for both PM and PM_{10} emissions. By making this modification, the appellant was able keep most of the hydrogen sulfide in aqueous form and prevent the increased emissions from the combustion of the ammonia waste stream. The appellant thus realized its initial assumption of negligible emissions from this waste stream. But for its occasional inability to achieve the requisite cooling temperatures for the ammonia waste stream, this appeal would likely not have come before the Board. The issue boils down to whether the compliance monitoring period–the three hour rolling average–is a reasonable condition.

The evidence of record indicates that there are periods where the overhead condenser unit temperature has risen above the permit condition temperature limit of 107 degrees using the three hour rolling average monitoring. The evidence is in dispute as to

the cause of the excessive temperatures. The appellant contends they are primarily due to "tidal flop" during the summer months which results in higher than normal river water temperatures. One of the appellant's witnesses, however, testified that there is not necessarily a one-to-one relationship between the river water temperature and the temperature in the overhead condenser unit due to the process adjustments being made. There also can be operational problems that contribute to the excessive temperatures. One of the agency's witnesses could find no correlation between the tidal flop and the overhead condenser unit temperature. He testified that the excessive temperatures were recorded randomly throughout the year–even during the winter months. Accordingly, it is not clear if there is any one particular or primary cause of the excessive temperatures in the overhead condenser unit.

The record also is not clear as to the basis for the agency utilizing the three hour rolling average as opposed to another monitoring period. While the agency contends that the three hour rolling average is based upon the compliance testing period conducted by the appellant, the record does not support this contention. Based upon the testimony of one of the appellant's witnesses and the exhibits submitted by the appellant, the testing comprised of three, four-hour tests. One would tend to surmise that a four hour rolling average would have been appropriate if the compliance testing period was the basis for the monitoring period. The only other explanation for the three hour rolling average is that it gives the appellant sufficient time to react and contact the agency. The Board does not find the evidence of record to be sufficient to explain the basis for the three hour rolling average.

On the other hand, the Board is not in a position to dictate to the agency what would be an appropriate time frame. The appellant has suggested that a 30 day rolling average would be more appropriate. The appellant, however, has not done testing to determine the short term effects on emissions of occasional excessive temperatures in the overhead condenser unit. Conceivably, the appellant could be in compliance with the temperature condition for the overhead condenser unit for a day, week or month long period, but the short term emissions due to the occasional excessive temperatures in the overhead condenser unit could be out of proportion with the limits set by the agency for emissions. Further testing needs to be conducted by the appellant to establish the relationship between emissions levels and temperatures in excess of the 107 degree limit. Only then can the agency set an appropriate monitoring period to ensure compliance with emissions limits.

In addition, it appears to the Board that the agency would also need to know the ability of the appellant to safely vary the heat input or feed rate in order to compensate for increases in cooling water temperatures. These factors supply the appellant with a certain degree of operational flexibility that can be factored into what would constitute an appropriate monitoring period for the overhead condenser unit temperature.

Given all these factors, the Board concludes that this matter must be remanded back to the agency for further consideration of, and justification for, the three hour rolling average condition. This conclusion takes into consideration that the appellant will likely have to conduct further testing as indicated above at the request of the agency in order to

provide the agency with the data necessary to establish an appropriate monitoring period. The Board also concludes that further study needs to be conducted to determine whether there is a correlation between the excessive temperatures in the overhead condenser unit and either the appellant's operational problems or river water temperature. The agency should consider whether the appellant has more fully explored alternatives for additional cooling of the overhead condenser unit, and the economic feasibility of those alternatives.

STATEMENT OF DETERMINATION

The Board concluded that the matter should be remanded to the agency for consideration of the specific items addressed in the opinion above.

SO ORDERED this 28th day of March, 2000.

ENVIRONMENTAL APPEALS BOARD

Joan H. Donoho
Chairman

Donald Dean

Robert S. Ehrlich

Ray K. Woodward