

TO: Distribution

FROM: V. E. Messick

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Inter Office
Communication

SUBJ: Survey of Ethylene Producers Dilution
Steam Generation Units for Benzene Waste
NESHAP - Update to include Union Carbide
Contact

VISTA

Summary

Many ethylene producers have resolved the issue of dilution steam systems being integral to the process for the purposes of the Benzene Waste NESHAP. Everyone that I talked to consider this system integral to the process. Many of these people were involved with the discussions during the development of the regulation and are very knowledgeable about the issue. Texas Eastman has had a face to face meeting with EPA about this issue and EPA agreed that their dilution steam system is part of the process. CMA discussions with EPA has also resolved the issue in a like manner. There is no support among industry representatives that have been involved in the development of regulations to believe that the dilution steam system is anything but an integral part of the process.

I have initiated contacts with 3 other ethylene producers and more contacts could be made. However, given the data in this memo, the value of contacting more producers is limited. If I am able to get additional information from those contacts already set in motion, I will update this memo. However, no new industry contacts will be made on this issue.

Dilution Steam Survey

John Ogle - Dow Freeport (409) 238-2819

John was very familiar with the question. In fact at one of several regional work sessions given by EPA Dow asked K.C. Husdvedt about their dilution steam system. K.C. had prime responsibility for writing the rule. Dow described the system as adding steam into the feed with the ethylene. The resulting water is then condensed and separated. This stream is then run through a stripper then into a steam generator which produces steam for the furnace feed. K.C. agreed that this recycle stream would be integral to the process.

Based upon this, Dow is considering their stripper and dilution steam system to be an integral part of the system and not subject to the Benzene Waste Operation. The rule places the responsibility of making the integral determination upon the owner. John said that to be integral to the process that it has to be there to run the process. One could make the argument that the once-through steam could be used. But he said that the cost of running a system today make it not economical. Economics is a consideration when determining if a system is integral to the process. Dow does have some once through steam systems which they say are subject to the rule. John pointed out that the blowdown from the dilution steam system is subject to the rule.

John admitted that there is some risk involved, but this is the position that Dow is taking.

Norm Morrow - Exxon (713) 870-6112

Norm chaired the CMA Benzene Waste NESHAP work group and was involved with EPA in the development of the regulation. I described our system in detail to him and asked if it were similar to Exxon plants. Norm replied that the concept was the same. He said that where the treated water was reused for steam generation that EPA had gone along with this as being integral to the process. He said it should be based on a total mass and if the bulk were reused, then it would be integral to the process. Norm indicated that this was the position that Exxon and CMA had taken, but that EPA enforcement may take another position. Ultimately this will probably be decided in the court system. I asked Norm if there was any guidelines as to what the bulk being reused meant. He replied that it is a subjective matter, but as long as it was a significant portion of the water, it would pass the integral test.

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I checked with David Mullenix on blowdown vs dilution stream rate. David said that roughly 70,000 pounds per hour of steam is recycled to the furnaces. This would be about 140 GPM. He said that the blowdown is 60-80 GPM with 60 being more typical. This also includes about 6,000 pounds per hour of steam that is added to the stripping system. After this adjustment, about 50-70 GPM from the quench system is blown down compared to 140 GPM dilution steam generated. This would be about 70% recycled and 30% blowdown. He said that the problem with the high blowdown is that there are several streams that have been sent to the quench system to recycle the benzene.

The blowdown from the system was entirely from the generator until about 2 months ago. In an attempt to reduce fouling in the generator, blowdown was begun on the stripper as well. I checked with the control room today. About 50 GPM was being blown down from the stripper with about 8 GPM from the generator.

Patty Palmer - Oxy Lake Charles (318) 437-8277

Patty said that they looked at the dilution steam system very hard and have taken the position that this is integral to the system. This position is key since it is the position that allows them not to be subject to the rule. She said that it is integral with the process since it saturates the feed with steam prior to cracking. She said this position is consistent with other Oxy plants. She referred me to Jim Anderson who is more familiar with the regulatory arguments. Their TAB is 9-10,000 pounds per year.

Jim Anderson - Oxy Lake Charles - (318) 437-8196

Jim indicated that the plant had a dilution generator or saturator, but the system kept fouling. They recently installed the stripper to remove materials that caused the fouling. He said that most of the blow down was from the saturator.

**Steve Jackson/Joe Uptegrove - Oxy Chocolate Bayou- (713)
393-5404/ (713) 393-5493**

Steve was not as familiar with the details of the plant. He confirmed the position of the Lake Charles Plant relative to the system being an integral part of the system. He referred me to Joe Uptegrove who, after discussions about the process, confirmed that they consider their dilution steam system to be part of the process. Their system is somewhat different, but the basis elements are the same.

**Joe Woolbert/Steve Zuiss - Texas Eastman 903-237-
5475/(903) 237-5422**

Texas Eastman has several older ethane/propane Kellogg plants that did not have dilution steam systems. The water from the quench system was discharged directly to the waste treatment system. Their original approach to comply with the Benzene Waste NESHAP was to add dilution steam systems so that this water would not be subject to the rule. When EPA changed the definition of point of generation and eliminated the "first open to air" concept, Eastman was upset because it appeared as if they had spent money to comply and now the money would not help compliance with the rule. They had a face to face meeting with the writers of the regulation, including K.C. Husdvedt, Bob Lucas, Eric Crump, EPA's contractor and others. They discussed in detail the system and EPA agreed that this system was integral to the process.

I described our the details of our system to Steve and he said that the systems appeared to be the same.

Steve stated that the producers on the CMA Ethylene Panel had enough discussions with EPA to feel comfortable with this stance and that they were all in agreement with this position. Steve also said that Texas Eastman had presented this to the State of Texas and they had also agreed. The blowdown from this system is the point of generation and is subject to the rule. The process equipment is not subject to the rule.

Ken Gros, Union Carbide

I described our system to Ken. He admitted that he was in the environmental side of the organization and did not know all the process details. He did however say that they had a meeting with EPA in August of 1991 with EPA RTP on this subject. He indicated that they addressed the issue generically with EPA and did not give details of their process. He said that EPA agreed with the concept that waters recycled within the process are process fluids and not wastes and thus would not be included in the TAB or subject to control. He indicated that this was an important issue at one of their plants since including this stream in the TAB would have made the unit subject to the regulation. I asked Ken if there was any mention of amount of blowdown that would change the regulatory status of the stream. Ken indicated that they had talked to EPA on a generic basis and did not give details like this in the meeting.



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