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EPA edited the original draft transcript for clarification and readability. Also, this transcript does not contain a record of two sessions - RCRA Overview and General BIF Overview - as those sessions were not recorded and transcribed.

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P R O C E E D I N G S

Sampling & Analysis of Feed Streams

Mr. Dombrowski: My name is John Dombrowski. I'm with the Office of Waste Programs Enforcement, RCRA Enforcement Division and I currently work for Susan Bromm and I'll be working for Susan in the new organization. The next discussion is on sampling and analysis. To develop this presentation, we took questions that CMA members had presented to EPA and developed a generalized discussion.

Examples of some general requirements for sampling and analysis, which Ken touched on a couple of these earlier, are: general facilities standards; BIF requirements, such as demonstration of qualification for exemption and waivers, chlorides, metals and ash feed rate limits for BIF; LDR treatment standards.

Some general questions submitted by the CMA members centered around what should be contained in a waste analysis plan. Today we will not discuss the detailed requirements of a waste analysis plan. However I would like to bring your attention to some new guidance developed by EPA. It's titled Waste Analysis At Facilities That Generate, Treat And Dispose Of Hazardous Waste. It's currently in a draft form but should be finalized soon and a Notice of Availability will be published in the Federal Register. This is a revision to the 1984 guidance. [At the time of the release of this transcript, this document is available through NTIS. Please refer to OSWER No. 9938.4-03 and Publication No. PB94-963-603 when ordering.]

Some other general items that should be contained in a waste analysis plan and are of interest to BIF owners and operators include: sampling analysis frequencies; analytical procedures; and quality assurance and quality control measures. As we discuss these items, please keep in mind that these are things that you want to keep in the waste analysis plan among other things.

The first item I would like to discuss is frequency. When should a facility sample and analyze its waste? First of all, this discussion can apply to all feed streams required by the BIF rules. Some factors one needs to consider are: sources of the feed stream, variability, batch sizes, and stability of the operation. Let's take a look at various frequency options for sampling and analysis. Different options are going to be applicable for different facilities. The frequency options that we will discuss here today are phase sampling using statistical analysis, batch sampling and case-by-case sampling. We will discuss each of these options in detail. Please note that this discussion is applicable to BIFs with interim status as well. As you select an option, you should consult your Regional or state enforcement personnel for assistance. Also, the option that you select during interim status may change when it comes time to obtain a permit, at which time you should consult with Regional or State permitting personnel.

Let's talk about frequency of sampling for batch operations. This option is applicable to feed streams that changes through time or that are transported to a facility in batches. For example off-site wastes, or feed streams that are generated at varying quantities and concentrations and being fed at different times. An important point in batch sampling is that the sample should be representative. Two additional important points about batch sampling are: first, the analytical results you receive for that batch is what you should use to calculate the feed rates; and secondly, no new material is being added to the batch after the sample has been taken or while you're feeding that batch to the BIF unit. That was pretty simple. A more extensive option that is available to BIFs in waste analysis is phase sampling in conjunction with statistical analysis. This option is appropriate for on-site waste (as-generated not as blended). For this option, a facility would develop an extensive data base on the waste or the feed stream that it is being considered for feeding into the BIF unit. Based on this data base, the facility can then establish the frequency at which it will sample and analyze. For example, after taking samples for thirty days, the facility develops a statistical data base. Based on this database, the facility may decide to reduce the sampling and analysis frequency to weekly or even monthly, or whatever may be applicable for that site. As for determining feed rates for this option, the facility should use the upper confidence limit generated from this data base for each constituent of concern. One issue regarding this approach may come up is that a facility may have developed its statistical data base and established a frequency. However, when it took a sample and received the analytical results, the analytical results were below the established upper confidence limit. For this situation, EPA recommends that the facility use the established upper confidence limit for that analytical data in determining feed rates. Now, for analytical data above the upper confidence limit (meaning you have your established frequency, and you get your results back and you see a couple of constituents that are now above this upper limit you had established), what should the facility do? In this situation, EPA recommends a facility considers a couple of options. First, the facility should evaluate the analytical data that are above that limit to determine why they are above the limit. Outliers, incomplete data and QA/QC will be discussed following the frequency discussion. The facility could resample, which is part of the QA/QC procedures, use the higher value of the feed rate until resampling shows that you're back within that confidence limit, and then go back to using the upper confidence limit. Another option may be increasing sampling frequency, meaning the facility may have not correctly selected the appropriate frequency for that facility, or for that operation. This may be indicating that you should sample more often. I'd like to bring to your attention, if you do use the upper confidence limit instead of the higher analytical value for the constituent, the Regions may come in and evaluate that higher analytical data point to see if the waste analysis is really adequate enough as far as frequency is concerned. May be this higher limit should be the limit used for feed rate calculations because the statistical analysis is weak, or this data point may or may not be an outlier. But it's going to be something that the Regions will want to look at and probably will.

If you're using statistical analysis, the initial data base that was discussed earlier should be continuously updated. A facility should continue to add data to this data base and thereby recalculate an upper confidence limit that will be used for feed rate calculations for

constituents. In summary, every time a facility receives an analysis, add it to the data base. There's one point I'd like to bring out here. Facilities should be cautioned that the data base may become too large. For example,
the facility has been sampling once a week for ten years. The data base with all of this analytical data is extremely large. The facility may want to consider, when looking at that upper confidence limit, a more recent time frame of the data, maybe the most recent two years or one year. This gives a more accurate snap shot of the facility's current operations, where as the total of ten years of data may not reflect current operations. So, the data base should be continuously updated but also maintained.

Let me explain the intent of this next slide. The intent is not to have process knowledge alone for determining feed rates. Process knowledge in combination with analytical data, or just analytical data is what we are looking for when calculating feed rates. We're not confident that process knowledge alone could give you that feed rate number or calculation. For example, we have case where facilities have said, I'm not measuring that constituent because I know it's not there and we took a sample and the analysis showed that the constituent was there. Another example would be chrome coming off piping. The piping part of the process. It's a simple example but there are others. Process knowledge can be used to determine when a statistical analysis and the data base is no longer applicable. This is similar to maintenance of that data base discussed earlier. And, finally, a good starting point for statistical analysis working into phase sampling is SW-846 Chapter 9.

Case-by-case sampling. This is for an operation that doesn't fit into any of the two schemes just discussed. For example, it may be plausible that a facility can work something out with the state or Region on a worst case scenario. However, I would suggest for whatever option selected, especially like a case-by-case option, the facility should consult with State or Region to obtain some guidance or direction. Different options may be applicable and they may not be. But just keep in mind, whatever option you select, it's going to be evaluated during an inspection and when it comes time to permitting. So, it is best to try to work things out with the Regions or states, if you can, in developing an option.

Now I'd like to move on to another aspect or another area where the questions presented by CMA centered around. Keep in mind this is something a facility would want to keep as part of the waste analysis plan. First, detailed information on sampling and analytical procedures. The following are just some items why this is important. First, it is necessary for compliance with BIF requirements. For example, feed rates, constituents, confirming the properties of materials. Meaning all materials in question that is being fed into the BIF. Some examples of detailed characterization for analytical parameters are right here. I guess the ones that are of real concern are the BIF metals, chlorides, ash, in some cases dioxin and furans. Others that are listed here are dependent upon the facility, maybe for their requirements, fuel spec requirements or other regulations. When SW-846 is not specified in the regulations, any reliable analytical procedure is acceptable. However, SW-846 is a good starting point because it can be used as a guidance document when it's not specified in the regulations. So Chapter 2 of SW-846 is where I would recommend you start looking. When using other methods that are not specified in SW-846, or not specified in the regulations, you want to use good, general RCRA QAQC type of procedures with any method selected. When SW-846 is specified in the regulations, that method must be used. In some cases, facilities don't like to use methods specified in SW-846. There is an option available if there is a SW-846 method specified in the regulations and the facility really care does not want to use it. This option is in 40 CFR 260.21 which is "petitions for equivalent testing or analytical methods." In summary, this petition allows a facility to petition the Administrator to add to the regulatory requirements a testing or analytical method. Basically, you are petitioning to add to the regulatory requirements another method because that's what the facility wants to use. A key with this petition is that the proposed method must be superior or equivalent to the existing method. However, it is my understanding that this is not a very quick or expeditious route to take. Might be quicker just trying to implement the other method required by the regulations.

Maximum holding times. There was a question related to maximum holding times and turn around times. A good reference is SW-846 Table-2.2I, or if it's a method not specified in SW-846, I would recommend looking into the QA procedures recommended for the method selected. Now questions started centering in around incomplete data and outliers. This is something that should be contained in the waste analysis plan on how to deal with incomplete data and outliers. The important thing to stress here is that for incomplete data and outliers documentation is very important. Some references for incomplete data and outliers are listed here, Chapter 1 of SW-846, Guidance on Setting Permit Conditions and the Handbook for QAQC Procedures for Hazardous Waste Incineration. These should all be available at NTIS. I don't have the EPA document number on the last two document at this moment but I can get that for you later.

Now we're going to discuss outliers. Think back to the statistical analysis discussion. We were discussing that one analytical point that may be out of range. The most important point we're going to try to make here for outliers are quality assurance procedures. Again, documentation, determining why and corrective action to be taken to prevent this from occurring in the future are the most important elements that should be considered for outliers. Just because you get a data point that doesn't seem like it fits within the rest of data, don't just ignore it or discount it. We'd like you to follow some structured steps on how to approach that data point and how to address it. Documenting this is going to help when it comes times to make a compliance determination. Without this type of documentation or this structured procedure, determining compliance becomes a little bit more difficult. And again, if you go through all of the QA procedures, an outlier may not be an outlier. It may be valid data point and that's what needs to be determined. And the facility will have to include this data point or take corrective action. Now we'll discuss incomplete data. Basically a good corrective action in dealing with this problem is resampling and reanalyzing. An important point here is documentation and I can't stress that enough. We would like to have this documentation available upon

[illegible]tion. This documentation may become valuable during the permitting process in determining frequency of sampling and analytical procedures. What I'd like to get at with this slide is, yes we do understand that problems do occur and sometimes they're beyond the facility's control. However, in some cases, you should not give up hope, it's still may be possible to demonstrate compliance. For example, where a facility is missing only one parameter (i.e., incomplete data), but they're doing their frequency and their analysis based on statistical analysis, it might be possible to demonstrate that waste stream is still within the previous waste streams as shown by the statistical analysis. It's important to have documentation to back this up to show what's happening at the facility and to show compliance that this waste stream hasn't changed.

These situations about incomplete data and outliers presented here try to give you a feel for how you should handle them. But really it's going to be a site specific issue. I could always give you an idea on how to address this problem. I definitely recommend that you consult with your state or Regional office on how they would like to see you approach this problem. And this is also applicable for frequency determinations. As discussed earlier with incomplete data, all quality assurance and documentation and corrective measures should be taken with outliers as well. You don't want to have these outliers and incomplete data problems frequently at the facility. Make sure that this problem is addressed, corrected and is not reoccurring. I have provided a couple of examples, which are not in your manual. In the first example of hazardous waste and statistical analysis. A facility generates waste on-site, and has this waste piped directly to a storage tank and subsequently burned in the on-site boiler. The waste is produced in a stable chemical process that is well characterized by laboratory analysis. Meaning there is good data base of analytical data. The waste is initially well characterized for the BIF parameters using statistical evaluations as just discussed. The waste is also characterized to see if it meets the facility's fuel specifications. The facility knows they can burn this waste in their unit. Based on statistical analysis a frequency for complete characterization, meaning all BIF requirements, is determined e.g., monthly, quarterly, annually, whatever is applicable to that site. Also complete characterization analysis is conducted whenever the process change has occurred or whenever the waste deviates from their fuel specs. The facility getting indications that something is different in your waste. Better recharacterize it.

Example 2. Hazardous waste fuel batch analysis. The facility receives hazardous waste from numerous off-site sources and blends these wastes on-site. An initial characterization now is performed on each waste stream before acceptance and discharge into the storage tank system. Once the tank is filled, a complete characterization for the BIF parameters is conducted. The analytical results from that characterization is used for the feed rates. And then the facility feeds this waste as a batch into the boiler. No further fuel or material is added to this batch being burned. Example 3. Normal fuel statistical analysis. The facility feeds pulverized coal as a primary fuel. Coal is received from off-site sources, stockpiled on-site, ground and milled before feeding. From statistical analysis based on historical data, the facility has established specification, maximum concentration for metals and chloride. A representative sample of each shipment of coal are collected and analyzed to verify that the coal confirms to our statistical analysis specifications.

MR. DOMBROWSKI : Question, how can the Agency cite facilities for inadequate waste analysis when it was never specified in the regulations or any guidance documents on proper methods such as statistical analysis, outliers, etc.? First, I would like to introduce the panel members; Ken Gigliello, Oliver Fordham from the Office of Solid Waste, Bob Holloway and Sonya Sasseville. Want me to repeat the question?

How can the Agency cite facilities for inadequate waste analysis when it was never specified in the regulations for any guidance documents on proper methods such as statistical analysis or outliers, etc.?

MR. HOLLOWAY: The regulation clearly says you have to sample and analyze as often as necessary to insure compliance with the regulations. You've got to sample and analyze as often as your situation dictates in order to know what you're feeding before you feed it. With respect to guidance on statistical approaches for establishing a sampling program, some of that are in SW-846 already. The Agency has established guidance. Plus, if you weren't sure how to deal with these issues, as far as outliers, or whatever, the Regions and the states have been there to provide guidance.

MS. SASSEVILLE: And one of the concerns was, I think, with some facilities that really hadn't made an effort to figure out what was necessary and we certainly did see some examples of that.

MR. FORDHAM: As John has discussed, SW-846 Chapter 9 is OSW's guidance on sampling and statistics for proper sample collection. It talks about the number of samples necessary and how to calculate upper confidence levels. This is the basic source for figuring out what you need to do as far as your sampling and analysis plan and frequency of sampling is concerned.

QUESTION FROM AUDIENCE: (inaudible)

MR. FORDHAM: This is true and it gets back to the discussion you had this morning. Do you want us to prescribe every step that you have to do, or do you want us to give you some flexibility to be able to most cost effectively apply these to your own analysis. We could prescribe a very rigid set of statistical procedures but I think it's better to allow flexibility because we can't account for all different type of analyses that are going to be required for the world of hazardous waste testing. We need to have this flexibility.

MR. GIGLIELLO: It sounds like the question is of two parts. One is saying that there are no methods in place; the other is centering on the frequency issue. And the methods that John has talked about are laid out in SW-846. How to analyze, how to sample. The frequency, I think, is the issue that a lot of us have a more difficult time dealing with and as Ollie has said, we could choose to say, for instance, and this is not the way it exists now, that if you are a commercial facility that

accepts waste from ten off-site sources, you will do it this way, as opposed to if you are a facility that has on-site waste and you only burn one waste stream, you will do it this way. The point of the matter is, we have not done it that way. We have not mandated to that level of detail, in a great number of instances because your industry, in particular, has refused to want to do it that inflexibly. And there is this balance of what you want. To be honest, from an enforcement standpoint, we'd like to have in the regulations, you will sample five times a day or whatever the number is because then we could go out and verify whether or not you've done it. But that has not been traditionally the way the RCRA program is set up and if you really feel that is the approach that we should take, then that's something that you should convey to the people that are writing the rules. To be honest, the frequency issue is going to be on a site specific basis and right now there's just no way around that. There is absolutely no way around site specific basis for frequency of sampling. The method, however though, is something you should be able to get from SW-846 or if you have a different method which you feel is better, you may choose to use it based on the provision in 40 CFR 266.102(b).

MR. DOMBROWSKI: This next question brings up an interesting point. Actually it's something I had on the slides and I failed to mention. What is the Agency's guidance when constituents of concern are not detectable. Using an SW-846 methodology in repeat sampling produces different detection limits. I will defer the SW-846 question to Oliver, as far as the second part, the point about when detection limits are varying. First with the statistical analysis, it may not be appropriate when the detection limits aren't varying or you're not getting any variation, therefore you really couldn't have a statistical analysis but what happens when you do have variation. That's a good question and there are some different thoughts out there. One is, maybe statistical analysis might be applicable to that variation, or maybe methodology which you're getting the detection limits from is not the correct one, or selecting a different method might be more appropriate. That would be something you'd have to work out with your Region or state.

MR. FORDHAM: Instrumental detection limits are so sensitive these days, that generally they're well below any EPA regulatory limits except for a few nasty oily wastes and samples of that nature, but generally detection limits are much lower than any regulatory limit so whether you use the detection limit, or zero, really won't make too much difference in your statistics. It only presents a problem if the detection limit happens to be very close to the regulatory limit.

MR. DOMBROWSKI: I would like to familiarize you with Oliver's background. He is our SW-846 person here today and is very familiar with that aspect of regulatory requirements and guidance.

(comments from audience inaudible)

MR. FORDHAM: Even though you have the non-detect numbers that are well below the regulatory limit, based on the sample matrix there can be a lot of differences in the detection limits that are achievable sample-to-sample and that variability and detection limit can throw you into a high upper confidence limit. May be that is what people are talking about here. It's not that you may have all your values well below the regulatory limit. They may all be non-detect. But if you apply these statistics to them and look at the variability just in detection limits sometimes you get into problems, if the detection limit is near the regulatory limit.

MR. FORDHAM: We've come up against this with commercial laboratories where it's impossible to get acceptable detection limits in an organic matrix for metals.

MR. FORDHAM: Good detection limits for the metals in oily matrices should be achievable by the new microwave methods. You ought to be able to destroy the sample matrix and thus get good detection limits from metals. The other issue on the detection limits is the variability. Increasing the variability can make that upper confidence level higher. I think this is probably been a debate that's gone on for years and years when you've got a non-detect, do you call it zero, do you call it the method detection limit, what do you call it. I don't know that there's ever been any resolution. I think there may be some problems but I don't know of any and I don't think SW-846 has any particular guidance on that.

(question from audience inaudible)

MR. FORDHAM: The microwave methods are not always as vigorous as some of the hot plate methods and so the amount that's digested may not be as high but they are more precise. All of our studies show that the reproduceability of the microwave methods is much better so if you use those consistently, you'll probably get much more precise analysis.

MR. DOMBROWSKI: Let's go on to the next question. Is analytical data required for fuel for flue gas and process vent gas fed to boilers? If so, does EPA have a protocol method or recommended methods to sample and analyze these gas streams? If not, what is EPA's recommendation? Yes. It is required of you to analyze your vent gases going into your units. BIF regulations state all feed streams. The flue gases and process vent gases are feed streams. I'll let Oliver talk about analytical methods available for gas sampling.

MR. FORDHAM: There aren't any methods in SW-846 on how to sample gases. There are some new methods that have just gone through technical workgroup review last year for analyzing certain BIF metals and certain things in gas streams, but I don't believe that talks about sampling, that's just an analysis.

MR. GIGLIELLO: Again, let me try to answer it from an enforcement standpoint. In most cases that I have seen, where we have a problem is if you fail to do something. We haven't seen people come in and ask us "we don't really have a method to measure the gas going to our BIF". If you did that, then we might be able to work something out. Where we go out, we go out and basically say, the BIF rule says you have to analyze and know everything going into your BIF and we don't see it being done. So, those are the cases that I've been involved with where we just haven't seen people taking the initiative to do it. If there is

a methods problem, or if there is a problem that you don't know how to do it, you know. Come in and talk to us. But if you don't do it at all, don't put it into writing as to what's going on, then we have no alternative then basically say, look, the regulations say, do this, you're not doing it, what's the alternative that we have?

(inaudible)

MR. DOMBROWSKI: If a facility mixes all waste before feeding into the boiler will it demonstrate compliance (inaudible) the mixture of the streams. I'm going to refer back to the three areas we just talked about. Batch, statistical and case by case. In this example here it seems like you would be a batch. We're talking about mixing all your streams and then you would sample the mixture prior to feeding into the BIF unit.

(conversations inaudible)

MS. CHOW: I'm going to ask John to pick out the questions that he can answer easily and answer them in the next 15 minutes. When we transcribe the tapes, we'll try to address as many of the remaining questions as possible in the transcript. For site specific questions, we will have to refer to the Regions or the States to gather more information and address them individually. So another 15 more minutes on this before we move on to the next topic.

MR. DOMBROWSKI: How often is a confidence limit established? Is it recalculated with each new data point? If so, a high value even when the lower confidence limit can drastically raise it especially if the data base is small. That's true. But as we talked about in statistical analysis, every time you receive analytical data, you should add it to that data base. If there is a data point that you feel is potentially an outlier or can mess up your data, you should go through QAQC procedures to evaluate that data point and maybe resample and analyze.

MR. GIGLIELLO: I've got one here that I could take a crack at. Do you plan to allow some period of time to utilize "new guidance" for those who have used the 1984 guidance in designing their waste analysis plans? And the second part of that, is new guidance being applied now? The main difference in this new guidance is that the prior 1984 guidance did not have any mention of the land disposal restrictions program. And the document itself was not very user friendly. Therefore, we are revising it for the new guidance, we have sent this document through two rounds of review. We also sent it to a number of people in the regulated community. There were 30 people that we sent it to directly that have commented on it. As John said, it's in printing right now and will be available through NTIS. I would say the answer to the first question is, yes. I would think we're going to have to make some accommodations for looking at having some time to implement the new guidance. But the thing you have to remember about the waste analysis plan guidance, it's not a document that you create once and then ten years later you're still using it the same exact way you did ten years ago. I mean it's a kind of document you have to look at on some kind of routine basis and see what's going on with the material that you are burning. What's going on with the waste streams. Am I getting different waste streams? So it has to be somewhat of a living document. This document updates a lot of the old information. There are new examples in there of what a waste analysis plan should look like for generators, for instance, because that information wasn't there before. So, the answer to the question is, it's being used now to the extent that the permit writers have it in their hands and they're going to be using it probably during your permit decision making. So it would really be good to get your hands on this document. And I said, it should be coming out very soon to NTIS. I don't think anybody's imminent from the BIF standpoint of getting a permit right now, so I don't think it's crucial right now that you get it but I think it will be available within the next couple of months. [As of April 1994, this document has become available through the NTIS with OSWER # 9938.4-03.]

MS. SASSEVILLE: Another question was should the same sampling frequency plan be used for non-hazardous waste or fuels, such as coal as is used for hazardous waste. Whoever talked to John about this, he may have some thoughts too, but I think the answer is if you're using the statistical analysis procedures, it's likely, actually, that you would come up with a different sampling frequency just because different streams have different amounts of variability. That doesn't mean that the procedure should be any less conservative or any less stringent. You should use the same confidence level to come up with the frequency but, like I said, based on the variability, it's likely that the different streams would have a different frequency.

MR. FORDHAM: To follow-up on that, the sampling frequency is based on three things; the mean of your data set; the variance in your data; and the regulatory limit. These are all cranked into a formula in Chapter 9 of SW-846 and hopefully for those materials like natural fuels, they are not pushing elements that are near the regulatory limit. As you get further from the regulatory limit, the number of samples that you need falls way off. Most of the cost is generated in waste analysis, when you're close to the regulatory limit and then the number of samples goes up quite drastically. So, hopefully, for fuels and other materials, there's nothing in there near the regulatory limit and your frequency of analysis would be much less. But that's something that you would determine through your initial analyses to give you a history on what is happening.

I have one other question here that we hear fairly often in our office. There are several arguments on the use of SW-846 and how the use of different waste analysis routines can become circular between states, Regions and EPA Headquarters. Can EPA designate one point of contact on analytical routines particularly those that provide lower detection limits so that different analytical routines can be used for risk assessment, etc. That's something that the Method Section in the Characterization Assessment Division has been trying to address for a long time particularly myself and Barry Lesnik, our organic expert. We would like to see SW-846 be guidance and not so mandated that everyone says you have to use an SW-846 procedure. We would like to see the most cost-effective procedure used whether it's one of our proposed methods or a method that you may have developed yourself. The thing of utmost importance to us is

that you show from your quality assurance that you're getting performance from your method. That you can prove the performance of your method. Unfortunately when it gets down to the Regional and particularly the state level (the states have primacy of their own programs), they can be more restrictive than EPA if they want to on these issues. And quite often that's what happens. Not having the resources, they often just mandate that an SW-846 method will be used. We are working with our Regions and with states to try to bring this word to them to give more flexibility because we know the cost of analysis is high and we prefer the most cost-effective methods be used.

MR. DOMBROWSKI: I want to clarify and respond to this one point here. We have two issues here with respect to statistical analysis and the phase sampling. In our example we said 95%, or 97.5% confidence limit. SW-846 has 90%. These are not requirements. It's guidance. It's what we'd like to see. You may determine based on our guidance what's appropriate for your facility.

MR. GIGLIELLO: I have a question here. If a facility spells out in its waste analysis plan exactly how sampling and analysis will be conducted, then the WAP is included in the permit, is a facility considered being compliance as long as it is complying with the WAP?

It's basically a straight-forward question. The thing you've got to remember about any waste analysis plan, is that when we go out and look at waste analysis plans, we're looking basically for two things. We're looking for, is it an adequate plan (particularly for plans that have not been approved yet), and if it is, are they following it according to what it says. So, the permit really has nothing to do with it per se because chances are you're going to have to modify your waste analysis plan during the permitting process. Interim status waste analysis plans in other words may be different than your permitted waste analysis plan. There are very few situations I think this particular situation happens. So, when we go out and look, we can potentially get people on violations both for an inadequate plan (particularly if it has not been approved) or failure to follow the plan. And again, I think we've been dancing around all morning on what is really adequate. And that's the thing I think we have some a fair amount of disagreement with the industry and maybe even internally at times on what is adequate. And so, the answer to this question is, if you are in compliance and it's adequate, yes. If you are following your plan and it's in concurrence to the permit, the answer is yes. But it's more involved than that because we have to determine if it's adequate. You know, that's probably the bigger hurdle for us. It's a little easier to determine whether or not you're actually complying with your plan. Are you doing it twice a day or whatever the frequency is. That's easy for us to determine. the bigger hurdle for both you and us is, is it an adequate plan? And that's not that an easy a thing to do up front.

MR. (Audience ?): Since the WAP, this scenario was included in the permit, is it fair to assume that EPA then believes the waste analysis plan is adequate?

MR. GIGLIELLO: In most cases you would presume that to be the case. Let me just tell you a real practical problem. Most permit writers do not go to the facilities. It's a reality. I've seen it happen a number of times and what we have found in a number of cases is what's in the permit is not what's in the field. In that situation I cannot tell you exactly if that's incorporated verbatim into the permit and its never been seen, that you will be in compliance. If there's something out there going on that is not reflected in the waste analysis plan, it should be reflected in the waste analysis plan, then, you know, all bets are off. But technically, you're right. If we approve it, and it's as it exists in the field and you're complying with it, then you're right, you'd be in compliance.

MR. DOMBROWSKI: Keeping with the schedule, I'm going to go ahead and introduce Mark Mercer from the Office of Solid Waste. He's an environmental engineer in PSPD, Permits and States Programs Division. He'll be talking about monitoring requirements.

Monitoring Requirements & Automatic Waste Feed Cut-Off

MR. MERCER: In this section we will be discussing the monitoring requirements in the BIF rule. BIF rules set forth numerous monitoring requirements to describe what needs to be monitored and how the equipment should be calibrated. The monitoring standards are discussed in 266.102 and 266.103. The subject we will be talking about is monitoring feed rate and production rate. The feed rate is required to insure that materials fed to the device during routine use is less than during the COC or the trial burn and the production rate is required to insure that the devise is not being operated outside the envelope established during the Compliance test and trial burn. So if the normal actual operation is ten times that of what is set in the trial burn, then it is clear that the trail burn wouldn't be valid. These monitors assure EPA that the device is operated within the envelope, they need to be accurate and that's why we have these provisions. To show the accuracy, EPA has validation requirements that vary from device to device. This section discusses some of those validation requirements and directs facilities to the resource documents that provide specific details. Another issue is temperature of the gas going into the air pollution control device. This is done in the existing rule to insure that the mix between gaseous and particulate metals is the same during the Compliance test and trial burn as it is during actual operation. In the new strategy, we'll be getting into temperature in terms of dioxin but that's another issue. The idea here is you don't want to have more metals going out and not being caught by the particulate control device. This section discusses the need for one or two ranges. A number of these requirements are discussed in various points in the reg. I won't read the individual citations here. As you can see there's a number of citations that are included in your handout for future reference.

The first question is, can surrogates be used in monitoring feed rates. The particular example provided was a facility has a device that is fed coal by a system that feeds multiple boilers. Each one is not

measured, only the total feed to all of the boilers. Does he need to add the capability to monitor the feed rate to each boiler? He currently has the capability to monitor to the steam production in each boiler separately. Can he use the steam production rate as a surrogate for coal feed rate? The answer is no. We are requiring that he must know how much coal is going in and in particular the feed rate is more critical than production rate and the rule does not allow surrogates for this important parameter. Feed rate is done to support the knowledge of metal feed going into the facility.

In the case of production rate, the question is, can surrogates be used for monitoring production rate? In particular, can a facility use monitoring of feed rate in lieu of monitoring production rate? The example is, a facility wants to use input of fuel (mass, knowing BtU content of fuel) in lieu of steam production rate. Kind of the same idea as the feed rate but the answer is different. The regulations allow you to do it. The regulation allows the use of surrogate for production rate. The section 4.2.3 of the federal implementation document for the Boiler Industrial Furnace Regulations states, depending on the facility on their measurement capabilities, the appropriate units for measuring production rate may be represented as the raw materials feed rate, thermal input or production rate. Here we've provided a little more latitude. We just want to make sure that the machine's not running at a much greater capacity than it was during the Compliance test or trial burn and this is considered sufficient and accurate whereas for the metals feed rate, we wanted to make sure that not too much metal was coming out.

The next question is on validation of monitors. What procedures are acceptable to EPA to validate the waste feed flow meter, the temperature monitoring device, the production rate monitor, strip current recorder output, computerized recording systems to demonstrate compliance with BIF limits. The answer is, facilities should use the guidance provided for incinerators in the document handbook, quality assurance, quality control procedure for hazardous waste incinerators. Although this document is written for incinerators, it is applicable to BIF also in this situation. This document provides guidance on arriving at requirements between the permit writer and the facility. And that's the way your permit's supposed to work. Now, on an interim status, we have a question. In some cases the language is not specific enough so on an interim status to use without ambiguity. In these cases, the facility should use a good faith effort to interpret the language. The facility should proceed according to their interpretation. If a facility is uncertain as to what to do, they should consult their State or Regional enforcement personnel. They should also document the rationale for their determinations with subsequent review by inspectors.

Another issue was single range or dual range CO monitors. The question was can a facility calibrate a single range rather than a dual range. The answer is yes. A dual range is not actually required by the rule. Technically. 266 Appendix 9 2.1.4, performance and equipment specification states, the dual range specifications can be met by using one analyzer for each range; a dual range unit or a single measurement range unit are capable of meeting both specifications within a single unit. The Catch 22 is; it has to be as accurate. As long as the 3,000 parts per million range unit can show a calibration of less then 10 parts per million .3%, the single range unit can be use. Most people will find the dual range unit to be more practical.

The fourth question was on applicability of the maximum temperature limit on air pollution control inlet gas. Now these questions will respond to the current rule and in the new strategy, the answers are a little bit different. The question is why does 266.103(c)(1)(A) require max temperature limit entering an ESP? The ESP power and inlet flow rate are specified as key parameters of ESP performance. EPA seems to be concerned that the temperature entered in the ESP not exceed 450 degrees Fahrenheit, to avoid dioxin formation. Why not just set the cut off limit at 450? Well, the temperature limit was meant to control metal removal efficiencies. ESP's remove particulate but not gaseous metals and the same is true for baghouses. The relative proportion of particulate metals to gaseous metals was present during the task should also be maintained during routine operations. The questioner was perhaps thinking about the new strategy where we're concerned about dioxin formation and worried about dioxin formation in the air pollution control devices.

Hot vs. Cold Hydrocarbon Monitoring

If facility can demonstrate a consistent correlation between hot and cold readings, can adjusted cold readings be used? No, hot hydrocarbon units must be used only after recertification.

We were told early on by vendors that hot hydrocarbon units are not very reliable in the field. We definitely heard early on that there were troubles with these units and it turns out most of the people were able to get their devices up and running. The few facilities that were having trouble getting devices up and running had like 340 parts of million hydrocarbons and those hydrocarbons even with the heated line were gunking out in the line and plugging the flow and this has given them trouble.

What is the purpose in keeping the one minute averages for O_2 after the corrected CO has been calculated?

MS. Chow: Actually, we're going to address that later on when we talk about record keeping. I don't have my paperwork here in front of me, but there is a citation ... the regulation requires that the facility to monitor the CO and O_2 and the hourly rolling average and then further down in the regulation it refers back to Appendix 9. And if you go Appendix 9, in Section 2.1.2.1, I finally remember it correctly, it does refer again back to the continuous monitoring requirements. If you look at the definition for that, you have to monitor every 15 seconds and record and compute the average and record every 60 seconds. OK? So, you should do it. But we're going to clarify that a little later on when we talk about record keeping.

I think the purpose of requiring record keeping for each one minute, what amounts to one minute average, is to allow the inspectors when they come out there to insure compliance with the regulation.

MR. MERCER: Are the BIF regulated metals the only concern for the ash as particulate? If so, why does not RCRA regulate only metals? Not, say sodium chloride.

MS. SASSEVILLE: Well, there's also a concern about organics that might be absorbed onto the particulate matter, so that's the second reason that we're concerned under RCRA with particulate.

MR. MERCER: Metals and the temperature limit but still particulates are important for other reasons.

MR. HOLLOWAY: Is the question ... is part of the question if we're controlling the metals not feed rate limits? Why we're also limiting PM, particular matter. Was that part of the questions? If so, I guess there are two reasons we want to limit PM. One is the answer that Sonya gave about concern about volatilized organics and the other is we, at least currently, and maybe for an extended period in the future, we don't feel we really have an adequate means of controlling metals feed rates into these devices. We all know that the sampling analysis scheme we're using and assuming based on testing, albeit testing, how much of the metals are going to partition and the chlorine for that matter, is a pretty crude method of complying with division standards. So we're using PM also ... a PM limit also as a supplement to control the toxic metals.

MR. MERCER: Next question is what is the reasonable amount of time the agency allows to fine tune the calibration of a CEM unit before the burning of waste fuel must be stopped?

MR. HOLLOWAY: Again, I'm not a CEM expert, but it seems logical that before you can burn hazardous waste, your CEM has to meet our performance specifications, so you need to fine tune it, before you start. That may mean complying with performance specs before you burn the hazardous waste.

(comments inaudible)

MR. HOLLOWAY: What's the question again? I'm not sure of the question? No, excuse me, their question which sounded a little different and may be more interesting.

QUESTION: You've already gotten up and proved that your system worked and then you have to do your daily calibrations and maybe they're asking how long can you be down for daily calibrations when you have to send off a feed sample.

MR. HOLLOWAY: I understand the question, not sure of the answer, maybe somebody else does.

MR. : The question is do you, can you continue burning hazardous waste while you're calibrating your monitor on a daily basis, under the daily calibration requirement. Can you continue burning hazardous waste while you're calibrating. That's the question.

MS. SASSEVILLE: I know that we have had some discussions about this. I don't think that there's anything specific in the regulations. Basically the answer is that you can continue operating during the daily calibration if it's short. If it gets into ... I mean we've heard people talking about an hour or whatever and that's not acceptable. It has to be, you know, on the order of minutes. I think we may have had some discussions that got a little bit more specific.

MR. MERCER: If it's more than several minutes, then you probably ought to check with the state and the Region to see if they think it's appropriate.

MS. SASSEVILLE: I mean is that reasonable. In your daily practice, do you find that your calibration is much longer than a few minutes? How long?

MR. HOLLOWAY: That's a good point. The answer was that it can typically take 20 to 30 minutes to calibrate. What kind of monitors, CO or ... all of them? That's a good point.

MR. MERCER: Will extrapolation of ash operating limits be allowed in certain circumstances (i.e., non-detection levels)?

MR. HOLLOWAY: I guess the question might be if during the compliance test they had non-detect levels of ash and complied with the PM limit, can they then, if they do have the detectible level of ash can they extrapolate it and say by ... if extrapolated, then document by I guess straight line extrapolation that they should not be in compliance with the PM limit. I think our policy on extrapolation of feed rate limits beyond which you demonstrated during a compliance test is generally not recommended. So no.

MR. MERCER: This question is on calibration gases for CEMs. If you protocol one gas as have to be used for daily calibrations, quarterly air testing and annual spec testing?

MR. HOLLOWAY: I'm not sure I understand the question. There's certainly something we can't answer here.

MR. MERCER: Do you need to protocol one gas?

MR. HOLLOWAY: I don't know.

MS. SASSEVILLE: How many more questions do you have, Mark?

MR. MERCER: Five.

MS. SASSEVILLE: OK. Why don't we ... can we go ahead and let Dwight finish his discussion and then if we have time before lunch we'll come back to these questions.

MR. MERCER: Remember the questions that came up on the subject of automatic waste feed cutoffs? Dwight will be covering that in his discussion and I give you Dwight Hlustick.

Automatic Waste Feed Cut-Off

MR HLUSTICK: I think it's unfair to already have six questions before I can get to give the presentation. Mainly what I'm going to cover today is the automatic waste feed cut off issue and other issues associated with it. Of course, the permit standards are in 266.102(E)(7)(ii) and, those standards which are parallelled in the interim status standards. We'll get into that in a second. The combustion temperature must be maintained while waste is in the combustion unit. Exhaust gas must be ducted to the air pollution control device as long as there's hazardous waste in the combustion chamber and specific parameters must be monitored as long as there's waste in the system. And in the case of BIFs, that would be specified in the permit what those parameters are. These are the monitoring requirements under 266.102(e)(8). That's where they're specified in that rule.

The main thing is the testing of the waste feed cut-off system. It must be done every seven days but there is a waiver. You'd have to justify it in the event of an inspection except in the case of a permit. It would be specifically stated in the permit whether you have a thirty-day interval (instead of seven days). That's not the case during interim status. Interim status of course is addressed in 266.103. The first items here are in (b)(3) which addresses the certification of precompliance, but all of you should have past that by now.

Then 266.103(c)(1) addresses certification of compliance. 266.103(g)(8) addresses automatic waste feed cut off and the first item is a minimum combustion temperature. As specified, you must maintain the minimum combustion temperature as specified in the COC (Certification of Compliance) while hazardous waste remains in the combustion chamber after a waste feed cut off. Some of the operating parameters specified include the feed rates of the waste and the specified waste constituents, the flue gas CO and HC concentrations, maximum production rate, maximum combustion chamber temperature, as well as the minimum combustion chamber temperature. Maximum flue gas temperature to the air pollution control device and specific operating parameters specified for the air pollution control device must also be maintained.

An important item here is that the minimum combustion chamber temperature must be maintained as long as there's hazardous waste in the combustion chamber after a cut off, and that's true for all those other parameters that I mentioned. That is you have to meet the requirements, the operating requirements. For liquid injection in boilers we would expect that there would only be a few seconds that the hazardous waste could actually be in the combustion chamber after the waste feed cut off. So, that would not be a problem unless you plan to restart burning hazardous waste within the next hour. This is because you have to measure and maintain the hourly rolling average. For other devices we expect this to be much longer. Especially in the case of cement kiln where it could run into hours. The hazardous waste residence time should be specified in the COC. The method of determination should also be specified and this is especially true for devices that burn solids or have some type of long hold time in the system.

It also requires that you monitor combustion chamber temperature, not only just for routine cut offs but anytime you have an automatic waste feed cut-off. Especially true if you're going to restart within the next hour. In other words, you're not cutting-off the waste feed for a long period of time but you're planning to restart once you come back into compliance with whatever parameter you're controlling or required to control. There may or may not be a violation if there's an automatic waste feed cut off. That depends on whether you violate your operating requirements or not. The monitoring applies to all operating parameters as specified in 266.103(g)(1) and (2). These monitoring requirements will lapse if hazardous waste burning is ceased for an extended period. Therefore, greater than one hour. In other words, if you're not going to restart, you shouldn't have a problem if you stop monitoring.

All parameters must be monitored and be within required limits before hazardous waste can restart and that's specified in 266.103(c)(1). There was a question about waste down stream of the cut off valve. When you cut off and then there's still waste that can trickle into the system by just, you know, gravity or whatever. We felt this could be minimized by heating the line and/or recirculating the waste back to the feed tanks. Variance from operating conditions during automatic feed cut offs are not allowed by existing interim status regulations and we discussed this quite a bit with the Regions and that's the way they would like to keep it. If the device exceeds its operating parameters while wastes are dribbling or leaking into the combustion chamber, this is generally considered a violation. The operating condition of course is defined by the COC.

Here we get into the testing of the automatic waste feed cut off system and that's set forth in 266.103(j)(3). Requirements are generally the same as for a permitted facility. During interim status, EPA will allow the use of mechanical and electronic testing and you're allowed in some permits to demonstrate all the interlocks electronically save one. OK. Now one has to be done mechanically and you have to actually activate the shut off value and that's basically parallel with what's in the permit requirements and it stated pretty much that way in those regulations. The hitch is that each time you do a mechanical test, it has to be done on a different parameter. In other words, you can't do the same parameter each week or month, depending on what the situation in your facility. So you have to shift around from one parameter to another. This demonstration is not required if there was an automatic waste feed cut off since the previous demonstration. And it's important to show the valve closed completely.

Here we're getting into an area which is of concern both in boilers and in any other type of device and that is when the facility stops burning hazardous waste over extended periods. Again I restate that we have to meet the hazardous waste monitoring requirements, as long as there is hazard waste in the combustion chamber. The question here comes with respect to residues. That is how residues should be handled especially if you're going to cease burning over a long extended period of time. Residues are still considered hazardous waste until the device has completed a burn out period of at least twenty-four hours. Now this is not in the regulations, but this is guideline generally followed by the Regions, and assumes that there's no hazardous waste burned during the

burn out period and the residuals have a reasonably short residence time. That is routine residuals that you remove from the air pollution control devices ... the ash or the dust ... residuals with longer residence times require longer burn out periods and therefore, the burn out period must be longer than the residence time of any residual. Burn out period only applies to residuals routinely discharged. This excludes residuals adhering to the inside of the device and the air pollution control system. Residues such as those which are removed during maintenance such as scrapings are still considered hazardous waste. This is just to tell you it's not detailed in the rules other than ... I mean the only thing you could go by is rules for clean closure which we weren't going to require that for a short term ... when I say relatively short term compared to closure. This policy is generally being followed by the Regions right now.

This last item with regards to automatic waste feed cut-off testing we added was a specific item in another presentation. I think we already answered that. But you have to do the test. Now there is a seven day requirement in the regulations that allow us to go into a thirty day, if it creates an undue burden for the facility. If you do go to a thirty day status under interim status, you had better document that very well so that it doesn't create a problem as far as an inspector is concerned. So you have to have a good reason for it. That completes what I have to say. I already have a half a dozen questions although I think I've answered most of them along the way. We'll see if I have.

When the BIF is not burning hazardous waste, can one turn off CEM and automatic cut-off devices? I think we covered that. As long as there is no hazardous waste in the combustion chamber. What about when one BIF unit is only burning non-hazardous waste and another one is burning hazardous waste. Well, obviously, the one is not burning hazardous waste wouldn't have to do the monitoring if it didn't have any hazardous waste in the combustion chamber. It's obvious the other one does, they would have to monitor.

Does a liquid need to be cut off when you have redundant CEM and one is calibrating and the other shows a calibration out of range? That's a good question.

MR. HOLLOWAY: Could you repeat that?

MR. HLUSTICK: Does the liquid need to be cut off when you have redundant CEM and one is calibrating and the other shows a calibration out of range? I think that sort of holds to what you said before. It depends on the time frame we're talking about and I think Bob answered that before as best as we can.

The next one is, how quickly does the feed valve need to be closed if a BIF limit is exceeded? I'd say as quickly as possible.

MS. SASSEVILLE: It's not a staged thing. As soon as the parameter reaches the limit, it has to activate and that's why the automatic waste feed is cut off. It's important. It's not a manual cut off, it's ... you know, you should have a signal that's sent to the cut off trigger to cut off the waste as soon as the equipment detects exceedances. That's the whole idea..

MR. HOLLOWAY: It's automatic and immediate. Fast.

MR. HLUSTICK: What is expected from the seven day waste stream cut off test and the thirty day cut off test? Can a thirty day cut off test be done on a monthly basis? The rule says thirty days.

MS.Sasseville: Well, let's stick with the thirty days. I mean if it's set thirty days ....

MR. HLUSTICK: That's ... but what is expected from a seven day stream cut off as compared to the thirty day? I think they're both expected to be the same. Just one's an alternative to the other.

MR. HLUSTICK: What does instantaneously mean in terms of cut off of hazardous waste flow? Some systems cannot shut off instantaneously without creating safety problems for operations of BIF. Well, that can be a problem, and I would say, you know, that you should try and set up your cut off so you minimize the potential of having a violation of your operating requirements.

MR.HOLLOWAY: And more importantly, if you believe that you cannot cut your waste feed off quickly, then you should have already talked to the state or the Region to apprise them of your situation and gotten approval to do something different. It's kind of late three years after the rule has been promulgated to be asking this question. The regulation requires the wastes be automatically cut-off, and the Agency has always intended this to be done as soon as detection of exceedance is made. Otherwise, this whole waste feed cut-off effort has little meaning.

MR. HLUSTICK: You now say burn out requires at least twenty-four hours. Is that new information? Yes. As far as EPA Headquarters is concerned; not as far as the Regions are concerned. The Regions have been doing this for sometime. If a device like a CO monitor or feed rate monitor fails, hazardous waste feed stops. Does this mean that the boiler must be shut down? If so, how can you finish burn out?

MR. HOLLOWAY: If you're exceeding an operating parameter, then only the hazardous waste must be immediately cut off. The boiler can't continue burning hazardous wastes. Otherwise, it may be a violation of 266.103(c)(1) and 266.103(j). In fact, I guess we'd prefer it to continue to operate under auxiliary fuel. Dwight, we have a question. Dennis?

MR. HOLLOWAY: I think he's trying to address the Catch 22 situation where the automatic waste feed cut off was triggered because a monitor went down. A monitor that has to operate whenever hazardous waste is in the combustion chamber. But there is still hazardous waste in the chamber, so is he able to continue to burn that stuff in the chamber using auxiliary fuel, even though his CM is down or does he have to shut down the whole boiler?

MR. HLUSTICK: Technically, right now, if you continue to burn

without a CO meter, you're basically going to be in violation as long as you have hazardous waste in the combustion device.

MR. HOLLOWAY: I think your response might be that you should continue to operate without feeding hazardous waste but keep burning auxiliary fuel but you're going to be out of compliance with the regulation.

MR. HLUSTICK: OK. Must the cut-off be instantaneous or can waste fuel be rammed out over a definite period of time to prevent boiler upset or shut down? Well, it could be as long as you don't violate your operating requirements. But, you know, in other words you could have an earlier cut off before you get to the limits. That would be the only way you could do it.

MR. HOLLOWAY: If you're speaking of voluntary waste feed shut down, then obviously you can either do that immediately or as slow as you want.

MR. HLUSTICK: The second item is a good one. State inspectors use the terms lag time and length of cut off. Please define and discuss the significance. I think you should ask them what they mean by that. (laughter) Then we have a nice fun one here. What location is preferable to measure the combustion chamber temperature ? I'd say as close to the combustion chamber as you can.

MR. HOLLOWAY: Sounds site-specific to me.

MR. HLUSTICK: Yeah. But I mean we realize there's limitations on temperature. During an automatic waste feed cut off test, how do you show that the valve has closed completely? This assumes that the automatic waste feed cut off valve is tested only when there is no hazardous waste flow. I think that's pretty much site specific and you're going to have to address that in the COC on how you're doing that.

MR. HOLLOWAY: And since they've already submitted their COCs, I guess if you didn't address this issue then you probably ought to submit a supplement to your COC explaining this issue and others that you might hear today.

MR. HLUSTICK: Then we have the $64,000 question. What is an undue burden for the seven to thirty day extension?

MR. HOLLOWAY: Site specific.

MR. HLUSTICK: Bob says site specific. (laughter)

(comments/laughter)

Residues which are removed during maintenance are hazardous waste. Do you mean if the BIF was burning listed waste, characteristic waste would not leave a hazardous derived from waste? Well, if that's the case, if you're that lucky to have that situation. Fine.

MS. SASSEVILLE: Provided that they sampled and the analyses show that the residues no longer have the characteristic.

MR. HLUSTICK: Right. Must the valve be physically closed even if waste stream ... I can't read ... is impossible. Is that what it means? You know who wrote this one? I can't really quite make it out. Excuse me?

(comments inaudible)

MR. : Must valve be physically closed even if the waste stream is bypassed? Regulators have stated that the valve must be closed and show that no waste is leaking through valve yet guidance suggests using bypass so unit won't shut down. How do you show valve was closed completely?

MR. HLUSTICK: That's a good one.

MR. HOLLOWAY: I don't understand the question.

MR. HLUSTICK: Well, I think he is bypassing it around the valve and therefore you can't show the valve is closed completely, is that what you're saying?

MR. : In one of the guidance documents there's a statement that in case of (inaudible) you can put a bypass around the valve so that you can continue your waste stream feed without shutting down the boiler (inaudible) without shutting down your unit completely.

MS. SASSEVILLE: Do we know what document is that we're talking about?

MS. SASSEVILLE: Is this a BIF implementation document?

MR. : Right. It's a guide (inaudible) ...

MS. SASSEVILLE: Are you saying that the way that is recommended in there you really wouldn't be able to show that the valve is closed?

MS. CHOW: As Dwight said earlier, you can simulate for all but one. You should at least test one every seven days and you should test a different parameter every time. When you're testing, you can't have a bypass if your're trying to determine whether it's leaking or not. Otherwise, it just doesn't make sense at all.

MS. SASSEVILLE: Yeah. otherwise it just wouldn't work. And considering that it is only one parameter every time, they just have to shut off the waste feed to do it.

MR. HLUSTICK: OK. Let's try this one here. Where and how do we measure combustion temperature in a boiler? Do we want to see the outlet gas temperature or the flame temperature? I think what you're looking at is a situation where you should be able to correlate the outlet

temperature with the flame temperature and ...

MS. SASSEVILLE: I thought that usually ... was that for the combustion chamber temperature? Because usually, we always talk about in guidance that you should avoid measuring the flame temperature generally for things like DRE. What we want is the gas temperature. What we're talking about in the BIF rule though is for metals and ideally what it would be is the bed temperature because that's what relates to the volatilization of metals. So, that's what you want to shoot for. We know there are problems with it, but it's not the flame temperature or the gas temperature that you're shooting for. It's more the bed temperature because we're concerned with metals and we're talking about the maximum temperature.

MR. HOLLOWAY: And with respect to the minimum temperature, of course, it would be the gas temperature, still not the flame temperature.

MR. HLUSTICK: Yeah. It's a little difficult to measure the flame temperature. I have heard repeatedly from the Regions in the context of Part B, questions on how this will likely work in the development of permit conditions. What mechanism is there to work it out with the Regions during the interim status? Do you just discuss it and document it with the Regions, send the Regions a letter, reach a formal agreement signed by both EPA and operator, or what? Regions are often too busy to give written documentation and interpretations with respect to these issues. I think you've covered all the possibilities and you should try and get the best you can. Obviously, written is the best.

MS. SASSEVILLE: And the key thing is if nothing else, to have documentation at the facility so that when EPA people come on site at least you have a rationale for everything that you did.

MR. HLUSTICK: This one is a misunderstanding but OK, we'll read it off. If a required monitor fails, you stated that you must not operate the unit. Later you state that all controls must be in place for twenty-four hours after the hazard waste feed stops. The monitor fails and you stop hazardous waste feed immediately. Are you allowed some period of time to shut down the boiler in order to do it without equipment damage or is there a non-compliance situation? The twenty-four hour time as I stated before has to do with the residual. It does not have to do with the monitor. The monitoring is strictly a function ... of the residence time of the hazardous waste in the combustion device. Here is another question. Many cases, when CO levels are rising above the standard, the total instantaneous closure of the automatic waste feed cut off will cause a much more catastrophic upset than a control cascading closure, e.g., 15% every ten seconds. This has been discussed with some Regions but will headquarters prefer specific guidance or give specific guidance ... I don't know what that meant.

MS. SASSEVILLE: It sounds like this is the question again whether people can ramp down as opposed to having an immediate cut off. I mean, I guess we already answered that.

MR. HOLLOWAY: And if you're concerned about the interruption to a facility of abruptly cutting off automatic waste feed then you can certainly establish a trigger level that's much lower than the automatic waste feed cut off than your operating limits. So that once you reach that trigger level, then you can ramp down in a way that you think is appropriate for your system.

MS. SASSEVILLE: And a lot of these things are questions that were brought up during the process of developing the BIF rule and we've had a lot of discussions with people on this and discussed it in the preamble so these are things that were considered at the time the rule was being developed.

MS. CHOW: Actually one point I want to make about setting your cut off trigger at the operating limit. I recommend that facilities do not set their operating limit the same as the permit limit. Otherwise, every time when you have a cut off, you would probably exceeded your limit. So, then every cut off now could become a violation. So I recommend that you actually set your cut off trigger conservatively at a level that will cut off the feed before you violate the operating limits

MS. SASSEVILLE: I guess another comment that's worth making is when we do inspections, I think, Ken Gigliello earlier referred to the EPA/OSHA task force from several years ago and one of the things that they found out when they inspected all of the commercial incinerators and all of the interim status incinerators was that there were really high numbers of automatic waste feed cut offs. I don't know what the situation is for BIFs, but something to keep in mind if you do have concerns with, ramming down and all these issues is that most important thing is to just to try to prevent the cut offs in the first place. And it actually may be more practical for a BIF than it would be for an incinerator since you do have other streams going in that tend to even things out. But it's really important to make sure that you're blending things well before they go in. That you're not having spikes in the BTU content of materials going in because all of those things detract from steady state operation and that's when you get cut offs and that's when you have combustion problems. So it really pays to think about these things ahead of time and kind of adopt a preventive mode as opposed to worrying about the cut offs after the fact.

MR. HLUSTICK: Here's one for you, Sonya.

(comment inaudible)

MS. SASSEVILLE: That's right. Another good point is that there is an allowance for variability directly incorporated into the way we set limits because they are on a rolling average basis. So that does tend to damp out things and that was the purpose of setting it up that way.

MR. HLUSTICK: Here's an item for you, Sonya, though. Is the agency planning to limit the number of waste feed cut offs and why?

MS. SASSEVILLE: OK. That is in the BIF rule itself and it says that the waste we cut off is ... well, that you have to be in compliance

all times that there's waste in the unit. So if the waste feed cuts off, and then there's no exceedence while waste remains in the unit, which may happen sometimes, then that's not necessarily a problem. The main problem is if there's a cut off but whatever parameters that reached its limit is still exceeding while there's waste in the unit, then that is considered a violation and that's in the BIF rule. We talked also in the BIF rule and in its preamble about the rolling average limits and things like continuous monitoring after the cut off occurs. Those are all meant to be disincentives to having a lot waste feed cut offs. There is another provision in there that says that the Regional Administrator or State director can set a maximum number of cut offs. That's not necessarily our preferred approach. We prefer for things to be prevented in the first place and that's why we have all the other requirements. However, as a last resort, the minimum number is there, and that can be done.

MR. HLUSTICK: Next one is, is CO greater than a 100 parts per million hourly rolling average a violation by itself even when the automatic waste feed cut off has worked? As long as it goes beyond 100 parts per million and there is hazardous waste in the unit, this is a violation, so that's all I can say on that respect.

MS. SASSEVILLE: If they're not complying with the alternative.

MR. HLUSTICK: We're talking about a standard CO requirement.

(question inaudible)

MS. SASSEVILLE: It says if you exceed 100 while there's waste in the unit, then that's a violation. If your hourly rolling average ... (comment inaudible) ... no, say your waste feed cut off works, but you have a certain residence time of your waste, and if during that residence time, the CO is above a hundred then that would be a violation.

(comments inaudible)

Of course a two second violation is going to be less serious than a one hour or two hour violation and then we certainly take that into account. Depending on the ... it all depends on the duration of the exceedence and the magnitude of the exceedence ... how serious a violation it is.

(comment inaudible)

Well, maybe it's not that serious if it's two seconds.

MR. HLUSTICK: OK. I understand that minimum combustion chamber temperature be monitored after automatic waste feed cut off. But must it be physically recorded on a strip chart or data acquisition system? I can't say specifically what the rules say, but I would say, yes. It's got to be. I mean there's no point in measuring it unless you're not going to record it.

MS. SASSEVILLE: If you cannot demonstrate it, then what is the point of requiring it?

MR. HLUSTICK: What exactly is a waste feed cut off for a unit burning solid waste, i.e, a charge is introduced every five minutes. The unit goes out of compliance, but is back in compliance before the next charge is introduced. Has a waste feed cut off occurred? I would say yes. And I would say it's definitely operating in violation as long as there is ... you know, you're exceeding the operating requirements when there's waste in the unit. Normally, it is hard to apply automatic waste feed cut-off to solid feed since it is not continuous. However, the facility should have an automatic waste feed cut-off (not manual cut-off) for solid waste feed in the event that the unit is not back in compliance when the next batch is charged. Also, there is a higher chance for the facility to be in violation because wastes probably are still in the unit when the parameter is exceeded since residence time for solid wastes is much longer than liquid or gas.

MS. SASSEVILLE: How many more questions do you have, Dwight?

MR. HLUSTICK: I have about half a dozen.

MS. SASSERVILLE: OK. Maybe we'll just take two more questions.

MR. HLUSTICK: Most of the automatic waste feed cut-off parameters have an hourly rolling average value as well as an instantaneous maximum value. CO hourly rolling average of 100 ppm in instantaneous max value of 3,000 ppm. Is it enough that when the automatic feed cut off is checked electronically that the signal for the 3,000 ppm will suffice for both parameters of hourly rolling average as well as instantaneously? I would say ... I mean, if you're out of compliance with one you're out of compliance. OK. It doesn't matter whether it's the instantaneous or hourly rolling average.

MR. HOLLOWAY: I'm a little confused by the question. There is no instantaneous limit in the EPA federal BIF regulations on CO. It's just an hourly rolling average limit of 100. The maximum span can go up ... I guess can exceed ... maximum span value can't be less than I guess 3,000 parts per million but that's not an instantaneous limit.

(question inaudible)

MR. HLUSTICK: Well, you can't read it and technically you could cause ... I mean you could have a violation on the hourly rolling average.

MR. HOLLOWAY: The question ... well, I guess the comment was that apparently ... is it the Region? This is not the State, this is the Region? A Region has established an instantaneous CO limit of 3,000 and they say if you exceed that limit then what happens then? Then you can't burn hazardous waste. I guess your waste feed cut off would trigger?

(comment inaudible)

MR. HLUSTICK: If you can't read the values, you've got to cut off the waste. Because you can't determine your hourly rolling average.

MR. HOLLOWAY: Well, the approach that we contemplated when we wrote the regulation is that when you exceed your maximum span value, then you're still monitoring CO. You're cutting the tip off the spike. The spike may go all the way up to ... the CO spike might go all the way up to, well, who knows? 5,000 to 6,000. But if your span only goes to 3,000, you're still measuring. You're just pegging it at 3,000 so you're not catching all of the spike but at least you're measuring something. That's what we had contemplated. I hadn't heard that any Regions were doing something different.

(question inaudible)

MR. HOLLOWAY: You should really talk to the Region how to deal with that because I'm not aware ... wasn't aware of this situation.

MR. HLUSTICK: Here's a good one. 266.109, 266.110 allows for BIF units operating under certain conditions be considered as satisfying a low risk waste and DRE waiver requirements for units operating in this manner. Does the weekly automatic waste feed cut-off procedure still have to test for minimum combustion temperature?

MR. HOLLOWAY: Is the situation the facility is exempt from a DRE requirement? They're exempt from a DRE requirement so why do they ... so is it necessary for them to establish a minimum temperature during ... that would apply during the waste feed cut off? And the answer would be yes because they're certainly different combustion conditions can occur during after the waste feed cut off, i.e., lousy conditions can occur than the waiver of the DRE contemplated. DRE will be waived when we think there is no toxic organics present or when the operations were such that we were sure DRE would be attained even without a test. So, in the case of a low risk waste, as I was saying, now I thought of another issue. In the case of a low risk waste, I guess the point is that the waste itself would have minimum levels of toxic organic constituents but you can still get PICs produced from ... during a waste feed cut off. You can still have PICs produced from the incomplete combustion of non-hazardous "non-toxic organics". So the bottom line is yes, you still need to monitor and establish a minimum temperature even though you're complying with the ... even though you're eligible for DRE waiver.

MR. HLUSTICK: OK. The next one is does this twenty-four hour burn out apply to liquid feed only BIFs where there is no ash generated? I would say yes, but also, it doesn't matter because the twenty-four burn out only applies to routinely generated residuals. And if you're not generating any, it wouldn't matter.

This is a good one. Somebody wants a list of speakers and their phone numbers. (laughter)

MS. CHOW: I can give Cindy Bryck's number.

MR. HLUSTICK: For tier one or adjusted tier one assuming all (metals) in equals all (metals) out (the stack). Therefore, why would combustion temperature make a difference in compliance? I think we just answered this one, didn't we?

MR. HOLLOWAY: That's a good question, I think. The question was ... I believe the question was, you're complying with tier one or adjusted tier one for metals, Do you have to monitor temperature? You have to establish a temperature limit and comply with it. You would not need to establish a maximum temperature, but you still would need to establish a minimum temperature that applies during the waste feed cut off because the max deal with metals and the min. deals with PICs.

MS. CHOW: OK. I guess that's all the questions. It is time for our lunch break and let's reconvene at 1:45. (AFTERNOON SESSION)

Owner/Operator Inspections

MS. ANDERSON: We're going to start off this afternoon with something that I think is pretty straightforward. From the information you submitted to us, you asked for a basic overview on what owner/operators are required to do in terms of inspections at your facilities. So, I've put together a few slides covering these requirements. One of the areas that we found the most violations in is the written inspection schedule requirement that's in 265.15. Primarily, the violation is that facilities don't have this type of written inspection schedule. In the BIF regulations, you're required to comply with a lot of general facility standards that all TSDFs are required to comply with and this is one of the basic ones. So, it's important that you, as a facility owner/operator, have something written down and actually take some time to look at all your equipment--your safety equipment, any emergency equipment, other equipment that you think is important in preventing or responding to releases of hazardous constituents. That type of equipment has to be inspected on a regular schedule and you have to identify in that schedule what problems you expect to see with that equipment, what type of malfunctions could occur, what you're looking for when you inspect it. And, again, keep the written inspection schedule at the facility and provide it to the inspector when they come on site. Now, this applies to not only the BIF unit, but any units that handle hazardous waste at your facility. So, if you have containers or tanks or surface impoundments in addition to your BIF unit, those types of units have specific inspection requirements under that particular unit's requirements in 265 during interim status and those types of things have to be put in your written inspection schedule.

Again, the regulation's intent is to make sure you're inspecting for any type of problems with the equipment that can lead to threats or releases of hazardous constituents. Generally, when you're determining the frequency of your inspections, you're looking at what the deterioration rate is; you might use manufacturer's specifications to come up with how often you think you have to inspect certain pumps or certain valves. And again, certain areas have to be inspected daily, and it's required in the regulations. Any area that's subject to loading or unloading where you could have spills, you have to inspect those types of areas on a daily basis. And if you have any kind of spill, you need to clean it up right away. Again, these are pretty straight forward

requirements.

Now in the BIF regulations, there are a couple of specific inspection requirements that you need to be aware of and one of them is to conduct visual daily inspections of all of your BIF related equipment. The boiler, all of the feed lines going into it, any pump and valves, all that type of equipment has to be inspected on a daily basis; and you have to keep a record of that. Again, you also have to test your automatic waste feed cut off system, which I think Dwight mentioned earlier. The minimum requirement in the regulations is to test it once every seven days, unless you think that there is good reason why you can do it less frequently than that, in which case you document in your record why you're doing it less frequently than every seven days and that way it's there to present to the inspectors when they come out to see your facility.

Another important area of violations ... again, it may seem just like paperwork violation and pretty inconsequential, but the inspection log is the only record that we have to check to make sure you're doing these inspections, so it's important to us that the record be complete. And that it includes a date and time of your inspection, the observations that are made and the name of the person who actually does the inspections. And if there are any repairs. Just to summarize, the main areas that we find deficiencies in are: lack of any kind of inspection log or if you're not doing your daily inspections, you haven't recorded them in your inspection log. We may go out and see an actual problem and if it's past the time when you normally would have inspected it, if that wasn't in your inspection log, that's another indication that maybe you're not doing inspections on the required schedule. Or if you haven't taken corrective action, and there's a puddle on the ground and it hasn't been cleaned up, that may be another indication that you're not complying with these inspection requirements. So, again, if you have questions, please pass them up and we'll take a look at some of your specific areas of concern.

Q. Are inspections required on days when hazardous waste is not burned? A. For BIF-specific inspection requirements in 40 CFR 266.103 (j), the BIF and associated equipment must be visually inspected when they contain hazardous waste. For the general inspection requirements in 40 CFR 265.15, the owner/operator is responsible for writing into the inspection plan how often certain equipment needs to be inspected. The plan should indicate any changes in the inspection schedule, including when hazardous waste is not being burned.

Q. And how far upstream of the combustion unit do you inspect? That is from the point of generation? A. Again, since the regulations are specific to the kind of units, you would have, for instance, a tank feeding into the boiler. If carrying hazardous waste, the pipes from the tank, the tank itself, the boiler ... all of that is going to be part of your required inspection. The requirements under the tank regulations include inspections of the tank, and ancillary equipment. You should have an inspection schedule for that unit. Technically , the waste is generated when it enters the pipe to be fed to either a tank storage unit or to be directly fed to the BIF.

Q. For records that are maintained by computer, how quickly must the records be retrieved during an inspection? Example, records feed rate. If you're keeping your inspection logs on a computerized disc the inspection log and the written inspection schedule needs to be available to the inspector when they go on site so you should be able to retrieve that information fairly quickly. It's up to the inspector. They may allow you to send it in to them if they don't want to see it on the spot, but it is required that they have access to it when they go to an inspection. I don't think there's any time frame.

MR. GIGLIELLO: I'd be curious, whoever asked this question. Is there a problem retrieving computer records and if so, what is the problem that you see because as Kate said, an inspector can, within his or her own discretion basically say, OK, you don't have the records here, send them to me within X number of days. OK? But if they feel that they need that information in order to do their job that day, basically you are required to produce that record. So, is there anything peculiar about computer records that are difficult to access. I would think computer records would be easier to access. To be perfectly honest. Is there some unique thing about computer records that I'm not aware of that makes it more difficult to access these things. Or are they in a main frame 4,000 miles away that you've got to call up on Saturday afternoon? I mean, what is the problem? I guess that's the question I'm asking.

(comment from audience inaudible)

You're saying it's a data reduction problem?

(comment from audience inaudible)

Can people hear what she said? Could you just repeat it.

MS. ANDERSON: She said in their Region they had archives and data and the inspector allowed them about a week to provide the data to them after the inspection. So, it sounds like a reasonable approach to the problem.

MR. GIGLIELLO: One of the practical things you can do. I know some of you probably think some of the inspectors are wild-eyed and crazy people, but in most cases when the inspector walks in, what they do is have an opening inspection. I always did, and I explained, this is a series of things I want to go through to get from you. And one of the things would be records. If at that point, you know that the inspector is going to ask for certain records, you may say, look, it's going to take us some time to get these records, can we mail them to you. Instead of waiting for that moment when he asks for the records, like five hours later. Tell him upfront that you have a practical problem with getting this data because it's a 150 mg disc. So that's a real practical thing you might want to present with the inspector when they first walk in the door. If he doesn't say what records he's looking for, take the initiative and say, look, what are you going to need from us, so I can go to my main frame or go to my computer people and get the data for you. Instead of just waiting for him to ask the question. I know some of you aren't thrilled with the idea of providing a lot of data, but it could help in the long run.

MS. ANDERSON: OK. One last question here. In the information collection requests (ICR) dated 10/21/94 on page 134, first bullet, it states that daily inspections are performed each working day, 260 times a year. Does that mean only Monday through Friday? A. Again, I think that certain daily inspections are required whenever there's hazardous waste in the unit and it could be on a seven day a week schedule for some facilities. I would think it's every day that the facility's in operation. Again, one thing you have to remember about the ICR is that it's an estimate that takes into account the variability from facility to facility. So you can't really use an ICR estimate as your definite blueprint for the minimum requirements. Those are estimated time requirements for a facility to comply with the regulations, but it may not be the maximum or the minimum. Any other question? OK. Great.

Next, we're going to have a discussion on the air emission requirements, and Ginger Gotliffe, who's an environmental engineer in the Training and Guidance Section of the RCRA Enforcement Division is going to lead that discussion.

Subpart BB Inspections

MS. GOTLIFFE: As owners and operators of BIFs, you are most likely also affected by this new rule (264/5 Subpart BB) that addresses equipment leaks. These requirements are nearly identical for both interim and permitted facilities, the only difference is for reporting requirements. There was a comment about reporting requirements earlier this morning. This is one of the rules that does require a permitted facility that has these requirements incorporated into their permit to provide semi-annual reporting of any exceedances. This rule was promulgated because of Section 3004(n) that was added in the HSWA amendments. This requirement told EPA that we must address air emissions from TSD facilities. The Agency has done this through a two phased approach. The equipment leak regulation is part of Phase 1. The other part of Phase 1 addresses leaks from process vents. There are only six very specific types of process vents that are affected. Phase 2 will address, tanks, containers and surface impoundments. Most likely you will be affected by that phase with the tanks. That is expected to be promulgated later this year. The equipment leak rule affects equipment handling organic wastes. Facilities can have hundreds of these pieces of equipment on site. Basically, the rule requires you to monitor, inspect and to repair the leaks in a timely fashion. Compliance is demonstrated through your record keeping requirements. We will discuss applicability, waste stream determination, our various options for controls, your record keeping requirements and reporting. And after the summary, we'll go over the differences between the rule for permitted facilities versus interim status and how permitted facilities that have interim status BIFs can identify which pieces of equipment must comply with this rule. The rule was promulgated in June of 1990 in Federal Register (June 21,1990) page 25454. Equipment that is in vacuum service is exempt from this regulation and there are other types of exempt units. Production units, waste water treatment, subtitle D municipal units, domestic sewage systems and closed loop reclamation. However, other types of recycling that you might have on your facility are affected by this rule. These are the seven types of equipment that are covered by the rule. Some of these categories have different designations which will alter your monitoring frequency and the values that you are looking for to determine whether your have a leaking piece of equipment. For example, for pumps there are three different categories: general, no detectable emissions and also a pump that is outfitted with a dual mechanical seal and a sensor system. Valves also have different categories including unsafe to monitor and difficult to monitor. If a valve is located six feet overhead and could put the inspector into jeopardy, then the facility may go to a yearly inspection cycle but a written schedule must be written. Also the equipment that is covered by this rule must be clearly identified so that when an inspector, either the facility inspector or a regulatory inspector comes through, can quickly and easily identify equipment as being covered under this program.

There are several different types of determinations that the facility must perform on the waste stream in contact with the equipment. These are the organic concentration determination and your fluid state determination. As mentioned before, the rule only applies to equipment that is in contact with waste over 10% organics. Initially you will need to determine which pieces of equipment will be contacting organic waste of that concentration. Also you need to determine the fluid state because that will make a difference in your monitoring and your inspection frequency.

For the waste determination of the organic value, you have two options. Either you can use one of five different methods specified in the rule for the direct measurement (basically GC/MS) or you can rely on knowledge. Knowledge of the process can include when you know that no organics are used in the process or whether the waste stream is identical to other processes where you've already conducted direct measurement.

For the fluid state, you need to determine if you are working with a gas, light liquid, or a heavy liquid. The determination here is quite important because it significantly alters your inspection strategy.

Facilities do have options of how they want to handle their equipment and the inspections. They can work on the basis of work practice. You can modify the equipment so that you can get a category of no detectible emissions or you can have other equipment modifications and additions such as adding control devices. The work practices are based on a leak detection and repair program. Basically, you do your leak detection monitoring, using method 21. In some cases it is just a physical inspection to see if something is dripping or if you can detect by smell that there's a leak. And then the facility has to initiate repair within five days and complete the repair within fifteen. Also all the leaking equipment must be tagged until that equipment is fixed, unless it is a valve in which case the tag must remain on the valve for two months.

Method 21 is basically the use of a portable organic analyzer to locate the leaks. For most cases, a leak is defined as a level equal to or exceeding 10,000 ppm. The reference compounds are listed in the

method, also the response factor must be calculated for each compound and must be less than 10. Each facility must determine, based on the organic chemicals in your plant, what type of portable organic analyzer is applicable to what you have. MS could work for all compounds. Flame ionization would work for all compounds. Photo ionization is better for aromatic compounds. Electrolytic conductivity is better for halogenated compounds.

Repairs must begin within five calendar days of determination if there's a leak. The equipment must be tagged and repair must be completed within fifteen days. You must document all this to demonstrate compliance. You must identify the date that you determined there was a leak. When repair starts, what the repair operations were, who conducted it, and when it was completed.

Another option that you have for your equipment is to operate equipment that is no detectable emissions. These are certain types of pumps or valves that will not allow any emissions to leave the unit. You again would use Method 21. However, that is only an annual monitoring event and you are only monitoring for 500 ppm above background. That test must be done initially and again annually.

The third option that you have is to add different types of controls to your other equipment. For example, you can add dual seals and sensors for certain types of pumps and compressors. You can add caps, close loop sampling or you can hook up your system to a control device that is specified under the AA requirements for process vents. Again, you have the visual inspection for detectable emissions and you have the same repair scenario.

So, in summary, for the different types of equipment, you can see that in different cases you will be testing for different values and you will be testing different frequencies. If using the work practice method the facility would conduct monthly monitoring for a leak of 10,000 ppm. If operating under no detectable emissions, the facility would perform an annual test for 500 above background. For equipment specifications for say a pump using dual seals and sensors, then you would base a leak on the failure of your sensor. Also, remember the difference between the different fluid states; for heavy liquids what you're relying on is physical inspection. This should be done during the weekly walk-through inspections. If evidence of a leak is found then within five days the facility has to go back with your organic probe (Method 21) to determine if there is a leak. For valves you can earn a reduced monitoring schedule for a well maintained facility that has few leaks. If you complete two successive months of determining that there are no leaks in your valves, then you can go to a quarterly monitoring schedule. There also is another option for 2% leaking which allows no more than 2% of your valves to leak at any time, and then you can move to a quarterly schedule.

This slide shows the different choices that you have for pressure relief devices and flanges. For pressure relief devices, what you have to do after release, you have five days to do a Method 21 testing and repair within five days, that's a slightly different case than all the others. And again, for the other three types, I think that's pretty straight forward.

Record keeping. Again, when an inspector is checking on the facility's compliance they're going to be looking at your records to find out how often you've found leaks and how quickly you have repaired them. This is to insure that all the equipment is operating in a safe manner. Detecting general category leaks is not a violation, but not repairing it in a timely fashion is. However, exceeding the no detectable emissions limit is a violation.

General records required. You must have a list in your operating record of the ID numbers, locations, designation, per-centage of organics that that equipment is handling as well as the method of compliance or the designation. And those are all specified in 264 and 265, section 1064. I apologize that all of these slides only say 264. It is section 265 as well. If you're adding a closed vent system and control devices, your operating records must be kept based on 1064(e). For equipment that's not subject to the monthly leak detection, in other words, for the equipment that is subject to the annual NDE requirements, you must list those pieces of equipment. You must list pressure relief devices. The NDE results, and also list the vacuum service equipment which was exempt from these requirements. There's also a requirement under 1064(h) for the valves that are considered difficult to monitor and unsafe to monitor. The facility must create an inspection plan for those pieces of equipment to allow yourself a schedule to inspect those pieces of equipment at least once a year.

Marking of leaking equipment. Tagging is very important, and will be used by the inspector as he or she is walking through the facility. Also, information must be kept under 1064(d) to show you conducted your monitoring, the monitor that was used, the dates that you did the inspection, the repairs that were made and any repairs that were delayed and the rationale for why that repair was delayed.

Information must be kept on barrier fluid systems and also information for determining exemptions. If you're doing test results and you've determined that a piece of equipment that used to handle hazardous waste of a concentration to bring it in under this rule and now no longer does, you must keep records of all test results for that.

Records retention is for three years for the monitoring of repair and detectable emissions and all other records must be kept for the life of the facility.

Semi annual reports. These are required only for permitted facilities. These reports should cover control device exceedances that were uncorrected for over a day, pumps in light liquid, valves and gas or light liquid service and compressors not repaired within fifteen days. You don't need to file this report if there weren't any exceedances.

In summary, this rule applies to TSDs, handling organic waste greater than 10%. Fluid type is very important as well as designation of the equipment to determine how often you have to conduct your inspections. Record keeping is very important to demonstrate compliance. There are

different applicability standards depending on the type of the facility. For interim status, you must have been in compliance by the effective date of the rule which was December 1990. For permitted facilities that received their permit before that date, you are shielded until your permit is opened by the Agency. However, if the facility itself asks for a modification to the permit, then BB requirements will be applicable to that portion of the facility where the modification is taking place. For a facility or unit newly subject to RCRA because of a new listing or a newly identified waste, BB must be adhered to six months after the effective date of that listing. For newly constructed facility or unit, it would be on the opening day and also for a unit newly subject to air standards, it would also be on the day of start up. I think that there have been some questions about a permitted facility that is shielded which now operates a BIF in interim status. And how to determine whether the equipment that's going from a permitted tank into an interim status BIF should be classified. Basically, the equipment is exempt from those requirements if the permit was issued before the effective date and the conducting system was in place and the conducting system has been covered by the permit. So this is going to be a very site specific determination. You'll have to go back and look into your permit and find out if that equipment is covered or not. If not, then it's an interim status.

Q: With regard to 266.103(h) Fugitive Emissions. Is this where Subpart BB is pertinent to this BIF regs. If so, why doesn't it state that? Can you look that up?

MS. ANDERSON: OK. It sounds like what that question involved was the requirement to maintain a negative pressure or keep the combustion chamber closed so that there are no fugitive emissions. That is part of the BIF rule. That's not part of the rule that Ginger is talking about, so she's talking about separate things that apply to other hazardous waste units at your facility.

MS. Gotliffe: Section 266.103(h) refers to the emissions from the BIF itself like seals,etc. Section 266.103(a)(4)(viii) is what pulls in the equipment leaks standards.

Q: How do you define clearly identified in reference to pumps, valves, compressors. In other words, are tags absolutely required, or are detailed inventory lists adequate?

MS. Gotliffe: There's two separate requirements. The equipment must be marked and included in inventory lists and then there's also the requirement that it must be tagged if it's leaking. The tag has to be a physical tag put on that piece of equipment. First, in your records, you must have an inventory list of those pieces of equipment. You also have to have the equipment marked either physically on the piece of equipment or through a boundary design, or a coloring or other system, so that as someone is walking through the facility, they can clearly identify any piece of equipment as being under the BB program or not.

Q: Are Subpart CC requirements in the upcoming standards for tanks, containers and surface impoundments duplicative of Clean Air Act standards and do we need both?

Ms. Gotliffe: They should complement each other. The requirements that you have a, say, a production facility, should have similar requirements to this under the CAA. These requirements (CC) are only for pieces of equipment used in the TSD type of operations. Do you need both? I believe the answer is yes because they complement each other.

Q: Where does Subpart BB begin? If you are transporting hazardous waste by truck from one process to your BIF unit, is the process unit subject to BB?

Ms. Gotliffe: Production units are not covered, however any piece of equipment handling waste from that unit that contains over 10% by weight organic concentrations and is located at a TSD must be in compliance with BB. BB applies only to those seven pieces of equipment identified in the BB rule, so if you're using a truck that's not covered by BB.

Q: Applicability flow chart did not include waste gas, not hazardous waste, what is the regulatory definition for waste gases? Is the process of vent gas containing fuel value still called waste gas? If not, does the BTU determine gas to be fuel or waste? What is the cut off BTU? Basically, what is the regulatory definition for waste gas?

MS. ANDERSON: ... and see if that answers the question that was asked. We often do get questions about whether process gases being vented are hazardous waste or not, and the answer is that whatever process the gas originated from would have had to be a hazardous waste process for us to regulate an uncontained gas. Now contained gases are something different and those specifically are regulated if they meet the definition of solid waste but for uncontained gases, if they're coming from some other process, they're not regulated. If they're coming from a hazardous waste tank or a hazardous waste process, then they are regulated.

MS. Gotliffe: The waste gases from the 6 process vents covered by AA must be analyzed to see if the facility must put control devices on them. The BTU value may be a factor in picking a control device.

Q: Hazardous waste fuel tanks that supply hazardous waste fuel to the BIF units are operated as ninety day or less hazardous waste tanks under the generator regulations. The BIF units and associated equipment are monitored under Subpart BB and the tank systems are monitored under other fugitive emission monitoring requirements. Is this correct? So this question is, is the equipment that's associated with a ninety day or less tank have to comply with BB?

Ms. Gotliffe: Well, a ninety day or less tank is exempt from the permitting requirements so that would be outside the universe.

MS. ANDERSON: They have to meet the technical standards, though. Right?

MS. GOTLIFFE: That is correct, particularly for the equipment

that is associated with that tank, you know, that is controlling the fluid within that tank, not necessarily all the way down the line to the BIF. You would need to have a case-by-case determination of which equipment is associated with the exempt 90 day tank. However, once the CC standards are promulgated, less than 90 day tanks will likely be subject to CC.

Q: Can samples be taken through an open ended line that meets the requirements of Subpart BB or must a special sampling connection system be installed? The requirements for an open ended line are that it be capped. And there are separate requirements for a sampling connection system. But I don't know that it says that they cannot take the cap off to take any sampling.

MS. GOTLIFFE: Open-ended lines should not be used for sampling. The discussion of this is on page 25460 of the June 21, 1990 Federal Register preamble. Waste should be sampled at points prior to their exposure to the atmosphere.

Q: What is the boundary limit for subpart BB monitoring applicability? Basically what we have is a point of generation, flowing through some equipment to a less than ninety day hazardous waste tank, flowing through some more equipment to a BIF unit. The equipment that is going from the point of generation, as long as it is greater than 10% organics does have to come under BB. If the equipment is part of the ninety day hazardous tank system, in other words, it is the valve that is controlling what is in that tank, then that would be exempt. However, all equipment on down the line to the treatment would still be covered by BB until the treatment reduces the organic level.

MS. GOTLIFFE: If the equipment is associated with a less than 90 day exempt tank, then it is exempt from the BB requirements. However, for other equipment on the piping, location is not important. As long as it is in contact with waste containing 10% organics, it must meet BB.

Question: Is scrubbing medium from a control device installed on a less than ninety day accumulation tank for a listed waste also a listed waste? If so, why? It's not derived from TSD of the waste and it's not a mixture. Scrubbing medium from a control device.

MS. GOTLIFFE: In the preamble, I don't think we discuss scrubbing media used in control devices as being a listed waste. See page 25477. It is mentioned in the preamble to the proposed CC standards (FR July 22, 1991) see page 33491 and 33508. Spent carbon should be managed as a solid waste and must be regenerated to minimize the release of organics into the atmosphere by using a control device or else destroyed by incineration. Since this rule is only in the proposed stage, please be sure to find the final determination on spent carbon from the final CC rule.

Q: Will Subpart BB leak definition be modified to reflect the leak definition used by other regulations, such as the HON and Air Permits. This would eliminate the need for calibration records at 500 and 10,000 ppm.

Ms. Gotliffe: There's no move that I know to modify those and I unfortunately don't know exactly how those things are defined in the other regulations. I'm afraid I can't answer that one.

Q: Please elaborate on equipment designated not to leak and to give some examples.

Ms. Gotliffe: Pumps, magnetically-coupled centrifugal pumps, magnetically-coupled gear pump, canned meter centrifugal pump, and hydraulically-backed diaphragm metering pump. Valves: sealed bellows valve, diaphragm valve, and pinch valves.

Q: Seminar publication.

Ms. Gotliffe: It was a seminar publication that was done several years ago when the rule first came out and we went to all the Regions that did training for the public as well as for the regulatory community and it covers both AA and BB. It was entitled "Organic Air Emissions from Waste Management Facilities". The document number is EPA/625/R-92/003. It was written by ORD and OAQPS in August 1992.

Recordkeeping

My name is Emily Chow. I am a chemical engineer, and I work in the Office of Waste Programs Enforcement. Up to this point we have talked about the various aspects of the BIF rule and some of the inspections an owner/operator needs to perform. At this time, let's go over another very important aspect of the BIF rule, which is what a facility has to do to document its operation and compliance. Based on the questions that I have received from you, they can fit into four general categories. The first category contains the types of record required of BIF facilities, particularly the BIF units. The second category is how frequently should a facility record the data? The third category is what format should a facility use to record their data? And the last category is where should a facility keep its data and also, for how long should it keep the data? Now, today, besides addressing your concerns in these four areas I would also like to take the opportunity to share with you some of the difficulties and problems that our inspectors encountered when they conduct inspections. So, these are the five topics I'm going to cover today in this session. However, before I do that, let me just define the term recording or recordkeeping for your in the context of the BIF rule.

Recording is an act to capture or to memorialize the actual operation of a BIF unit either mechanically, such as via strip charts, or electronically, such as via computers. A facility may choose to record the operating parameter required by the regulation either on an instantaneous basis or on an hourly rolling average basis. And we'll explain and talk about these two terms later when we talk about frequency.

Let's now discuss the first topic, the types of records a facility has to keep. Obviously, there are different types of records a facility has to keep and some of the records ought to be kept for three years while the others until closure of the facility. Now, at the back of your notes

for this session, you will see that there are a number of tables and some attachments. Table 1 summarizes the major types of records a BIF unit must have. This table, however, does not include all the recording requirements for BIF units nor does it include other requirements for the BIF facility. It only addresses the BIF unit itself. The owner/operator should go through the regulation with a fine tooth comb to determine what applies in his facility and how long he should keep the records.

Let's now go over Table 1 and let me tell you how this Table is organized and what it contains. There are three pages to this Table and this Table has three columns. The first column lists the types of units such as interim status units, permitted facilities, direct-transfer facilities, small quantity burners, or recovery units to recover metals or precious metals. The second column gives you the location where you can find the requirements in the 40 CFR. Then the third column gives you the bulk of the table, the actual parameters that you need to record. One thing I want to point out is that the Tables only address the parameters that you have to set limits for in the COC. Let me give you an example of what I meant by that. If you look at the first page of Table 1 and go to the middle of the third column under total feed streams, it lists the parameters that you need to keep records for. However, I didn't put down that you need to record the total feed stream, because the regulation does not require an owner/operator to set limits for the total feed stream. However, that doesn't mean that you don't have to record the total feed stream going into the units. Specifically in 266.103(c)(4)(iv)(d), it states that a facility has to record the mass feed rates of the constituents. To derive the mass feed rates, you should know the concentration of the constituents and the flow rates of the feed streams going into each feed stream. Therefore, you need to record the total feed going into the combustion unit. Also, there is a misleading sentence in this Table on the first page. It's the second dash under the total feed streams on the 3rd column. It says, if recording volumetric flow rate of the total feed, then you also need the composition. That sentence is misleading because it doesn't matter what unit you use to record the feed going into the units, whether it is mass or volume, you will need the concentration anyway. I put down density also depending on the units. Let's say you have your feed stream going in -- it's measured in volume (gallons per hour). But if it's a solid, then the sampling analysis (concentration) will be in milligram per kilogram. So you cannot directly do a calculation to determine what your mass feed rate is for that constituent without the density. In these situations you will need to have the density to convert the ratio of mass to volume. So please cross out that sentence, which actually comes up in the following two categories also: the total hazardous waste feed stream and the total of pumpable hazardous waste feed streams. So, please cross out this sentence for those two categories also. All right. Let's turn to the second part of Table 1. Again, on opt of column 3, there are three parameters. The CO, O_2 and H_2. There should be a bracket next to these three parameters to indicate all three must be continuously-monitored at the same point. So, if please add a bracket next to these three, then it would explain that better. Now again, please take a look at page 2. In the first column, we are referring to the smelters, the melters or refining furnaces that recovers metals or precious metals, and the major requirements associated with them. The third page goes over the major requirements for small quantity burners, direct transfer facilities or facilities that generate residuals. So, it has basically the same format as Table 1. I just want to again reiterate the fact that Table 1 only lists the major reporting requirements. It doesn't have everything for you and the reason is that I really want you to go through the regulation instead of relying on the handout that I'm giving you today so that you will understand the regulations and see what part of the regulation applies to your facility.

Besides what is required for the combustion unit itself, there are other recordkeeping requirements too. For instance, the general facility requirements apply to most of the facilities. If you have tanks or containers on site, you will have to comply with the Subpart I and Subpart J requirements. Again, Subpart BB may apply to your facility as well. The regulation also requires the facilities to keep a correspondence file to allow the public to have access or make copies of relevant information. The information to be included in the correspondence file is listed in 266.103(b)(6). The regulation is very clear in terms of what is required in this correspondence file. But for some reasons, people are confused over what is required. Quite a number of questions came up regarding this, so let me address them here. One question came up on whether a facility should have a separate correspondence file or should they mingle this file with their other operation logs or other files. My answer to that is it depends on how comfortable you are to have the public going through your records. Bear in mind that the public has the right to look at what is in the correspondence file. The more spread out the files are, the less control you would have as to what people are looking at. So, it's up to the facility.

Another question came up regarding a third party sending a FOIA request (Freedom Of Information Act) to the regulatory agency requesting information on a particular facility. The question was whether the facility should keep the FOIA response that was sent to the third party in the correspondence file. And the answer is no. If you look at 266.103(b)(6), it stated that the correspondence file should have all the correspondence between the facility and the directors of states and local regulatory agencies. So, information the regulatory agencies sent out as a result of FOIA needs not be included in the file.

The last question on correspondence file was regarding inspections. Section 266.103(b)(6) listed out a list of documents a facility should keep in the correspondence file. You should keep all of the COCs and COPs, compliance test results, any inspection reports, any notices of violations and compliance orders. The question was what if an inspector came on site and the inspection was not focused on the BIF unit itself but on equipment or containers that are associated with the BIF units or the BIF operations. For instance, it could be a Subpart BB inspection, and the inspector was inspecting the pipes that go into the boiler and the valves that are associated with the combustion unit. Or, it could be an inspection which focuses on tanks and containers. Should inspection reports generated from these types of inspections be included in the correspondence file? The answer is yes. I think as long as an inspection covers any pieces of equipment that are associated with the BIF units and the BIF operations, you should include that inspection report and any notices of violation (NOV) in the correspondence file. If

compliance order is resulted from the inspection, they too need to be included in the correspondence files also.

Now, throughout the BIF regulations, the term of feed rates and flow rates were used quite often to measure the amount of wastes, fuel, and raw materials that go into the BIF units. Questions come up all the time as to how a facility should measure and monitor the feed that goes into the BIF units. Let me try to make this clearer here: In 266.103(b)(2)(ii)(a), where it says that a facility should know the mass feed rate of the constituents in pounds per hour. Therefore, a facility is supposed to monitor the mass feed rates of constituents going into the units. The regulations don't specify whether a facility should measure the volume or the mass that goes into the unit. However, I would like to point out that whatever unit you use, the owner/operator must ensure enough components are available to calculate the pounds per hour of feed. For example, the unit for the feed going in should jive with the unit of the concentration. If not, you should also record the density.

I hope to explain the recording requirement further in Table 2. Let me explain to you what the table contains. Again in Table 2, I focus mostly on parameters that we set limits for in the COC. The first column deals with the type of feed. It could be the total feed going in, the total hazardous waste feed going in, or the pumpable hazardous waste feed going in. The second column deals with the constituents of concern. Again, for the total feed you'll see that what I put down is for the constituents and not the total feed itself. But again, it doesn't mean that one doesn't have to record the total feed. The third column deals with the physical states of the feed. Whether it's a solid, a liquid, or gas. And the fourth column deals with the facility's mode of monitoring, whether you are monitoring the mass going in or the volume going in. The idea is that the fifth column would give you what is required to be recorded for different scenarios. In summary, the owner/operator has about three or four entries that need to be recorded for the feeds. Again, one must also record the total feeds, the total hazardous waste, and pumpable hazardous waste going in. In addition, a facility must record the concentration of the constituents. The facility may also need the density. And the last thing it will need to record is the mass feed rates of each constituent. So these are the parameters required by the regulations for recordkeeping.

If a facility, for whatever reason, has difficulty meeting these requirements, it should contact the appropriate EPA Regions and States. Now, this is in no way meant to undermine the regulation. The regulation is clear as to what are required. However, in certain situations, it may make more sense if one make recording entries in a different way. Not necessary that an owner/operator is recording less than what is required, but maybe he/she can record in a different way. Therefore, if you feel that you have an extreme situation, you should contact the States or the Regions.

Now, let's go over the second category, how frequently should a facility record? We received quite a number of questions regarding the hourly rolling average and instantaneous limits. In 266.102(e)(6)(i), 266.103(b)(5) and 266.103(c)(4)(iv) or the 40 CFR, the BIF regulation defines quite clearly what a facility has to do for the hourly rolling averages. Let me quote that for you. The facility must continuously sample the regulated parameter without interruption and evaluates the detector response at least once each fifteen seconds and compute and report the average value at least every sixty seconds. Therefore, the owner/operator must record the one minute averages. Then, the regulation went on to explain the hourly rolling average. It is the arithmetic mean of the sixty most recent one minute average values recorded. So, in addition to the one minute averages, the owner/operator must also record the hourly rolling averages. This applies to all of the parameters that a facility chooses to use the hourly rolling average for. And, again, it applies to CO and O_2 as indicated in Appendix 9. Actually, CO and O_2 are the parameters one must use the hourly rolling average, and not the instantaneous limits.

Now in the case of instantaneous limits, 266.103(b)(5) defines that as a limits for parameter that may be established and continuously monitored and reported on an instantaneous basis and then in parenthesis, such as the value that occurs at any time. Let me, at this time, give you some background on the intent of what we meant when we put this down in the regulation. Basically, the regulation allows the owner/operator two modes of monitoring. One can do it instantaneously or based it on the hourly rolling average. For the instantaneous limits, what the Agency's intent was that the owner/operator should set limits and at any time or discrete moment of its operation, the owner/operator should know that he/she is not exceeding these limits. As for the hourly rolling average, it's a little more lenient. It allows you to take into consideration the peaks and valleys of the operation. It allows you to set an average limit and allows you to average out the operating values ... the operation throughout a period of time to make sure that the average value within this period of time does not exceed the average limit. So, as you can see, the second mode, the hourly rolling average is indeed more lenient than the instantaneous limits. The problem comes in when the regulation defines quite clearly what the monitoring and recording frequency should be for the hourly rolling average but it is not very clear for the instantaneous limits. But, as I said, when we examine the intent, it's very clear. The instantaneous limits were never meant to be anything less than what is required for the hourly rolling average. Upon evaluating this issue, EPA Headquarters met with the Regions and came up with a recommendation that we feel would best meet the intent of the regulation. The EPA Headquarters recommends the monitoring and recording frequency for instantaneous limits to be every fifteen seconds just like the hourly rolling average without the averaging. We have told the EPA Regions our recommendations. And now we're telling you and eventually when the transcript is done, we're telling the public of what our recommendation is. I understand that quite a number of Regions are currently working out different frequencies with some of the facilities. We're not asking the Regions to change what they had negotiated. However, we feel it is our responsibility to let you know what EPA Headquarters' intent was when we wrote the regulation and what our recommendation is.

Let me address one additional question. A question came up on whether one should use or could use instantaneous limit for carcinogenic metals and lead. The answer is yes. Actually for carcinogenic metals and lead you have three options. You can use instantaneous limits; you can

use the hourly rolling average; and you can use the twenty-four hour rolling average. And the term "may" in the regulations means the owner/operator can choose one of the three options.

Now let's go into the third topic of this presentation. What format should the facilities keep the records? The BIF rule doesn't specify a particular recording format as long as all of the required parameter entries are made. Therefore, the facility has the flexibility of using any software programs, any electronic system, or authoring language to record their data. Or, it could use strip charts. For this reason, our inspectors see data being stored in various formats. This is all right, as long as it is clear and it is understandable. Unfortunately, in quite a number of cases, they are not. In these cases, the data are not recorded in an organized format as we'll discuss later. To make it easier for you and the Agency to see how well you're operating, we came up with five recording principles that we would like to recommend to you. And, again, these are only recommendations. But before I go into that, let me make one point that I think it's important for me to make. In this talk, I am giving you a lot of recommendations. The reason for these recommendations is to help you set up good recording systems which will give you good indication on how well your system is working. I really do believe that it is good business practice to know how efficient the unit is running, how steady the operation is, and how well it is complying with the regulations. Although good records do help expedite our review, it is not the purpose of this talk. In many instances, even if the records are not organized, the Agency will spend the resources to figure out the data. So, I hope that you will take these recommendations seriously.

Returning to the five principles. These five principles were recommended by the Regions, particularly those who reviewed a lot of BIF data.

Principle No. 1. All data must be labeled so that everyone or anyone who is not familiar with your operation will be able to understand the data that are presented to them. A Key to any abbreviations or acronyms is also very helpful if a facility uses any abbreviations or acronyms in the database.

Principle No. 2 is that a facility should clearly and explicitly list the units that associate with the number. This is critical. I think we all know that very well. A number without any units does not mean anything. Our inspectors see a lot of data without units and I think it is a real concern to us. It should also be a concern to you because you will not know how well you're operating if you can't even make heads and tails of your operating data. So, units are critical and you must have them in the data. And if you choose to use hourly rolling averages for some parameters and instantaneous limits for others, please do label them clearly so one knows what he/she is looking at.

The third Principle is to label clearly the mode of operation. We touched on this earlier. Whether you still continue to operate, record, or monitor when the instrument is being calibrated. If the facility continues to record when it is calibrating, then the records should reflect that. This will help to explain why some data turn out in a certain way.

Principal No. 4. If your facility uses a strip chart, then the scale should be clearly marked on every copy. This will expedite any review by avoiding going back to the first copy where the scale is on.

The last Principle, but not the least. If your strip chart has multiple tracers, please identify each parameter clearly on your records. Make sure it's distinguishable. Keep in mind that colors don't xerox very well. To give you an example, we received a question from a facility that fits in this situation very well. This facility has multiple tracers and it realizes that if it xerox the strip charts, the colors won't show up. So, the facility was questioning whether they should give the original data to the inspector. If the facility does that, then it could not comply with the requirement that it has to keep records at the facility until closure of the facility. Also, if the facility submit the original copy, are there time limits as to when the inspector must return the data? My answer to this question is do not give away the original data. If for any reason it is lost, the facility would not have any record to show that it is in compliance. And if the facility follows Principle No. 5, this would not be a problem. Now, besides the five recording principles, there are some additional thoughts I would like to share with you. Whatever format you choose to use, we recommend that you present your data in a table format with parameters and units clearly labeled. It's much easier to comprehend data represented in an organized format, and I think it also helps the facility a great deal if it is doing some trans analyses on the efficiencies of its units. Whatever system a facility uses, just bear in mind that it ought to be able to provide hard copies of the data to the inspector when the data are requested. However, if EPA Regions or the states agreed to accept data on discs, which could happen in some cases, then just make sure that the data are stored in a format that is compatible with the hardware that the Agency has. Also, you should work this out ahead of time before you submit the data. Some facilities submit maximum daily values in addition to submitting very organized, easy-to-comprehend data. We found that the maximum daily values are very useful. In a quick scan, we are able to tell how well the unit is operating and how close it is operating to the parameter limits. I think it's also very useful for a facility to determine how well it is operating at the end of the week or end of the month. If it's easy to do, we appreciate you submitting the maximum daily values along with other operating data. Up to this point I have not been able to identify a good example of what an organized and well maintained system looks like so I can't give you an example. However, I have a good example for the maximum daily value, which is attached after Table 2. It presents the daily maximum value in the table form with the parameters and the units clearly labeled. It's pretty easy to comprehend. If you're willing to do something like that, this is a format you can consider.

Let's now talk about where a facility should keep its records and for how long it should keep it. In Sections 264.71, 264.73, 266.100(c)(1), 100(f)(3) and a number of other places, the regulations are very clear as to where a facility should keep the record. The records are to be kept at the facility. The Agency received a number of complaints.

that the volume of record becomes horrendous and impossible to keep. To be honest, the Agency does not think this is a major issue. With the technology that is available at this day and age, we feel that it should be relatively easy for a facility to obtain a software program to store data on discs or in a main frame. This should not be too hard to do. If a facility does that, it should label the discs clearly and store the discs in an organized fashion so that data retrieval would not be an issue. This should be easier than going to the data storage location, where the facility has to go through piles and piles of hard data to locate data that are requested by the inspector. If a facility for whatever reason cannot store data on-site, I would suggest that you contact the appropriate EPA Region or State to plead your case. One thing I do want to remind you is that the inspector has the right to have access to all of the records that are required by the regulations. If you claim any of the information confidential (CB)I, just do so and the Agency will treat it accordingly. Since we are on the subject of CBI, I would like to clarify some questions that came up in the past. Some companies had claimed the quantity of hazardous waste and the types of hazardous waste burned at the facility CBI. In Section 266.103(b)(6) where it talks about the correspondence files, the regulation clearly stated that, the facility ought to notify the public of the quantity of hazardous waste, and the type of hazardous waste that it burns. So these information are really not CBI information.

Let's now move on to talk a little bit about record retention. How long should you keep the record on site? Generally, there are two durations of time. Some of the records have to be kept for three years, as I mentioned before, and some have to be kept until closure of the facility. I did not indicate the retention of each type of record in Table I because I want you to go through the regulation carefully to see what applies to your facility. However, let me give you a few examples. If a facility is not claiming any exemptions or recovering any metals, most of the operating records pertain to regular BIF units have to be kept until closure of the facility. For smelters, melters or refining furnaces or small quantity burners, records should be kept for three years. For direct transfer facilities, some of the requirements should be kept until closure of the facility and some (such as the inspection logs) can be kept for three years. Also, all of the records on the residual should be kept until closure of the facility. I hope at this point I have answered most if not all of the questions that were submitted prior to this workshop.

Now, I would like to take the opportunity to share with you some of the problems that the EPA inspectors noted to show you the dilemma that we face when our inspectors go out. A common problem we see is that data are very unorganized. They're not in any format; just numbers recorded randomly. Often times the numbers don't have units and again, I can't stress enough that numbers have to have units for the data to be meaningful. There are times the feed stream data do not integrate well with the concentrations. Often times data are missing. For instance, analyses were not done for feed streams. So, the facility doesn't have concentrations to calculate the mass feed rate. There are times the mass feed rates are missing, and sometimes even days of operation data are missing. Let me give you an example of a question that came up to illustrate this point. A facility claims that it has only one strip chart and sometimes the strip chart fails. It failed because the paper ran out or because some other mechanical problems occurred. The question is, when it fails, should we feed hazardous waste? And the answer is no. A facility should not feed hazardous wastes into the unit if it cannot record its operations to show compliance. I would recommend, in a situation like this, the permit writer should tie the strip chart as a trigger to the automatic waste feed cut off. One last thought I want to leave with you is that regardless what the situation may be, if a facility fails to keep any necessary records on-site or if the facility has missing data, not only that the facility is in violation of the record keeping requirement, the potential for harm is great when we calculate penalties for such violations. When there is no data showing the potential for harm is low, the Agency has no choice but to assume that the potential for harm is great. That concluded my talk. If you have any questions regarding this recordkeeping discussion, please pass it up and we'll address them.

(conversation inaudible)

MS. CHOW: OK. Sonya brought up a good point. I just want to make it clear that if your facility is burning hazardous wastes and the strip chart is not recording, it is a violation. A facility is supposed to continuously record and monitor its operation when burning hazardous wastes. All right, Let me address these questions that you have.

QUESTION: Why did it take the Agency more than two years to address how often a facility must keep instantaneous records? We have already purchased and installed equipment based on one minute average.

MS. CHOW: Frankly, because most of the facilities are using hourly rolling average and we have not encountered this issue being a real problem until very recently. Since the issue is being raised now, that is why we are addressing it at this time.

The next question is why was the retention time for operating data and inspection logs changed from three years to closure of facility? It would seem three years is adequate for compliance checks. This creates a big problem in how to keep records of the magnitude for twenty or thirty years. May be Bob can address that?

MR. HOLLOWAY: As I recall, I think we issued a technical amendment to change some of the recordkeeping requirements from three years to the life of the facility just to be consistent with the incinerator regulations. I think, frankly, as we were developing the BIF regulations, we thought that in many cases perhaps requiring recordkeeping for only three years was appropriate. Then when the rule came out, various folks alerted us to the fact that for incinerators, it's a lifetime requirement, and we couldn't justify a difference. So, the bottom line is that's why we changed it. I guess I should point out that we are going to go through a rule making. We're in the process now of developing upgraded regulations. I'll talk more about that tomorrow. But as we do go through that rule making, if in fact we think that, and this rule making will include incinerators as well as BIFs ... if we think that

some of the record keeping provisions are overly burdensome or not really needed for the Agency to insure compliance to the regulations, then certainly we can consider modifying them.

MS. CHOW: The next question. If you're measuring CO on an instantaneous basis, where do you set the automatic waste feed cut off? The reg says 100 parts per million or hourly rolling average basis. Again, I guess I didn't make that clear enough earlier. For CO, O_2, and HC, one can only use hourly rolling average. You cannot use instantaneous limits.

MR. HOLLOWAY: I'd like to point out, even though the regulation on .. and Emily you're exactly right ... the regulation didn't even contemplate that anybody would choose a ... didn't apply with CO on an instantaneous basis, which is why we only talked about hourly rolling average, I'm not sure that somebody really felt strongly about complying with it on an instantaneous basis that we would have a problem with it. And as I'm speaking, Sonya's saying, well, we discussed that before and we decided that we weren't going to say that. (laughter)

MS. SASSEVILLE: My impression was, this was one of the options that came up at the time we were doing the rule making and we considered various options. We considered the time above a limit approach so that we wouldn't have to require all facilities to have the rolling average capability and the conclusion was that it was just too complicated and so we did give facilities only one option for the CO limit.

(comment inaudible)

MS. SASSEVILLE: No, will it always be below a hundred?

(comments inaudible)

MS. SASSEVILLE: But when you shut off, there will still probably be spikes, right? That will be go above 100 and there won't be any way of tracking them, accounting for them, so you could actually have possibly higher overall CO on a ppm minute basis, then you might if you had a rolling average.

MR. HOLLOWAY: Yeah. I think Sonya's raising a good point. That's right. If you have a waste feed cut off and then as soon as you get back below 100, you start burning again, you could end up with more CO, a higher level of part per million of CO over a period of time then under the hourly average approach.

MS. CHOW: OK. Let me look at a couple of these questions. They're actually pretty similar. This one is asking whether it is necessary to record two values for each parameter. Every minute, a sixty second average and an hourly rolling average? If you're just asking whether it is necessary, the answer is yes. The next question is why is it necessary to record the minute average as well as the hourly rolling average? Well, I think one reason for it that I can think of, Bob & Sonya please jump in at any time, is that just to make sure that your hourly rolling average is calculated correctly. So we can see how the hourly rolling average are calculated or whether it is calculated correctly. Not that we don't trust you (laughter), the problem is that we do see a lot of facilities trying to get away from complying with the regulations, so I guess we just feel that it's necessary that we have you keep both records. (Comment inaudible) (laughter)

MS. CHOW: Here is another question on record keeping. Because not all operating records can be kept on computer disc, for instance, inspection logs signed by operators; the amount of hard copy information will soon become very large. Will microfiche be acceptable? I think you could say it's acceptable if you can make copies of it.

COMMENT: But it's not the original signature; would you accept it as an inspector?

MS. ANDERSON: I think that's fine. It's required to have the name of the inspector who does the inspection. I don't think it says you have to have their signature as long as you have a record of who did it. I think that's what we're looking for unless the State's requirement is more stringent that it requires a signature.

MS. CHOW: Actually quite a number of questions came up on the signature issue, so I guess that clarifies it. Another question, we track waste feed rates in pounds per hour rather than grams per hour because of our air permits, which is more stringent than the BIF regs would allow, is written in pounds per hour. Is there any problem with this from an inspection enforcement perspective? I don't think so. I think as long as your units correspond with your COC, then it just makes it easier for us to check compliance. I don't think there is a problem that you use pounds per hour. As a matter of fact, the regulation says you should do pounds per hour.

Records that are placed on microfilm or microfiche acceptable if the (inaudible) is allowable at the site with the reader and printer? Yes. Another question is if your computer system fails to record the info unknowingly, what actions will be taken by the regulatory agency? Unknowingly? I guess if it is knowingly, it may potentially be criminal; unknowingly will be a violation of the BIF regulation. It doesn't matter whether your know it or not know it, if no record is kept when burning hazardous wastes, the facility is not in compliance with the BIF regulation. It's a violation of the recordkeeping requirements.

Another question, what is the purpose of life of solely recordkeeping under BIF? I guess, Bob addressed that, right? ... and will record retention change back to three years? As Bob mentioned before, we can revisit the issue in the new rule making.

COMMENT: The question was do you have to keep the strip charts until the facility closes if you also have computer storage.

MS. CHOW: If you're choosing instantaneous limits and your computer actually is able to record every fifteen seconds, then you don't have to keep the strip chart. And it would be the same for the hourly rolling average. If your computer actually monitors and records in a way

that meets the definition and what is set in the regulation, I'd said, no.

MR. HOLLOWAY: You don't have to keep it. It might be of interest to you and it might be of interest to the inspector, but you don't have to keep it.

MS. CHOW: OK. The next question. Is there a way to store and use an electronic form for inspection records? What about signature requirements. You're talking about inspection that's done by the owner/operator.

MS. CHOW: Did I already answer this question? Good. Thank you.

MS. SASSEVILLE: Double check on the signature since quite a few people seem to think it's required that they sign it.

MS. ANDERSON: I'll double check. I thought it was just the name. Maybe I'm wrong. [According to 40CFR 265.15 (d), only the name is required, not the signature. However, States may have more stringent requirements].

(laughter - comments inaudible)

MS. CHOW: OK. The next question. Are mass feed rate records required for constituents that are not detected. If so, why?

MS. SASSEVILLE: Determination that they were not detected, right? Is that the question?

MS. CHOW: If the constituent is not detected, then you should record the detection limit. Use the detection limit as concentration to calculate your feed as your worst case. The second part of the question is how should records be handled if an erroneous one minute data point gets into the hourly rolling average calculation? When you say erroneous, I assume you have done some kind of check to determine that number is wrong for some reason and I will say that you should go ahead in your records document why this number is wrong and be ready to support it. There's a third question.

MR. HOLLOWAY: (inaudible) if we're not addressing the right question, you all speak up. We're trying to guess what you're asking and sometimes we take the easy way out, if you hadn't noticed. So, if you have any follow-up questions, speak up.

MS. CHOW: All right. If a facility records its data electronically, is it permissible to use data compression techniques for the stored information? The compression would record one data point for every fifteen minutes of data provided that data did not vary plus or minus 2.5% parts per million. I don't think so. Particularly not every fifteen minutes.

AUDIENCE: I know that EPA is interested in responding to the public's interest in knowing about operation of BIFs, incinerators, etc. Industry is also interested in responding to legitimate interest that the public has but it seems that a lot of things that are required to satisfy public interest groups are rarely actually used. In our company, the BIF correspondence file is a good example. Nobody ever asks to see it. Does EPA make any attempts to find out if such requirements are actually beneficial?

MR. HOLLOWAY: I think it's an interesting point. That's something that we might look into during the upcoming rule making. You might ask that question in the proposed regulation as the regulated community, you should get back to us as to whether or not the correspondence file or other things are really useful. It's a good point.

MS. CHOW: Question?

(inaudible)

MR. HOLLOWAY: Yeah. I think it's a valid point. It's good.

MS. SASSEVILLE: One question for you. Not necessarily to answer right now, but about that correspondence file. The issue is, is there a chance that people just aren't aware that it's there or does it seem more likely in your specific situation that they know it's there and they're just not interested. Because the reaction to the two things might be different.

MS. CHOW: OK. That's all the questions I have. Any more? If not, I'm going to turn the time back to Kate again to talk about personnel training.

Training for Facility Personnel

MS. ANDERSON: Again, as Ken mentioned this morning, several years ago there was an EPA/OSHA Task Force that looked at commercial and interim status hazardous waste incinerators. One of the main objectives of that task force was to look at whether or not the facility employees had been properly trained according to the RCRA personnel training requirements. A question that we got from you requested a basic overview of the RCRA personnel training requirements. I know there's already been a question out there as to whether or not there's any more written guidance or additional information on how to put together a RCRA personnel training program. I did some checking into this before this presentation, and there was a mention of a document in the original May 19, 1980 Federal Register where the personnel training requirements were promulgated and it said the agency was working on a guidance document. But I checked in the EPA library and there wasn't any indication that that document exists. So, for those of you who have looked for it, I can relate to your frustration because I couldn't find it either. What I'm going to go over right now are just some general requirements in 265.16 that talk about the personnel training requirements and if you all have more specific questions, I'm sure we'll get to them.

Basically, there's flexibility allowed in these regulations because they say that you can either have formal classroom training or on the job training that trains the employee. The main goals are that the employee is able to know what to do in case of an emergency and to effectively implement the contingency plan.

Some of the other basic requirements have to do with the qualifications of the training director. This is something we look for when we're out on inspections, to make sure that whoever is in charge of your training program is qualified. Another important consideration is that if your employee hasn't been trained yet and they have six months to get the training after they've been employed by you, that during that interim period before they receive training, they're strictly in a supervised position.

Another important requirement is the annual review. It is important to have an eight hour refresher or refresher training class on an annual basis. Here again this is where we find a lot of violations and it seems like just a paperwork requirement, but again, it's the only way that we have of checking to see that you're properly training employees. You need to have records for everyone showing that they have had this training. You need to have these records until the closure of the facility. And if the employee leaves, you need to have them for at least three years after the employee leaves your organization. Again, make sure that you have the position description, the job title, the employee's name and the type and amount of training that they had. This helps us determine whether or not the training was adequate for the responsibilities that the employee is faced with at your facility. And, remember there should be documentation of completion of these courses. And usually most trainers provide you with some type of certification at the end of the training so that's fairly easy to comply with.

Just to summarize what I've gone over, the basic violations that we find out there have to do with incomplete records and that's something you can rectify fairly easily by just being diligent about keeping records on your employees. Making sure you have job descriptions for everyone and making sure that the training they have matches up to their responsibilities. So, please send your questions up and we'll try and answer them.

MR. GIGLIELLO: Before we take questions, there's just a couple of things I'd like to say about personnel training that over the years I've come to find out. When I used to work in the private sector, I used to do environmental audits for major companies in the U.S. and one of the things we looked at were specifically personnel training in the records program. And the thing that I actually believe is that the reg here is perfectly fine. It's clear what it is you need to do. Straight forward. And I don't think there's a whole lot of gray areas, to be perfectly honest. I think this is probably of all the areas in RCRA one of the most straight forward. The biggest problem that people have is that they do too much generic record training and not enough site specific RCRA training. And some of the things that I've seen when I worked for this major manufacturing company is, they had developed a video on their site. It was a thirty minute video showing exactly where waste came from, from the beginning, walking them through, where it ultimately wound up in the plant. Where it was collected and then where it ultimately went. And they showed that video to every new person. They showed it on a quarterly basis to people that hadn't seen it and they recorded everything. And it was excellent. I went to people when I did the audit, and I asked people, do you know what hazardous waste is? Do you know how to handle it? And the people in the plant that handled it knew. Because it was site specific. A lot of the people that do health and safety training do this basic stuff on cradle to grave and to a lot of people in the plant, it means nothing, absolutely nothing. But if you walk them through and say, look, we generate TCE. TCE is bad stuff. Here's how we collect it. It goes in this drum storage area. We've got to keep records of it. Here's where it ultimately goes. It's incinerated; it's land disposed, whatever. It has real meaning for people. It worked and it was great. Site specific training is the way you have to do it. If you don't do it that way, you're wasting your time with a lot of generic hoopla and a lot of people aren't going to get a whole lot out of it. So, I would urge you to do it. We in EPA have a requirement that we have to do health and safety training every year before sending anyone out on inspections. Well, we do it. We document it. So this is something that we do internally within EPA. It is not that hard to do and it boggles my mind again, to this day, how many violations we find in the personnel training area. It's straight forward. It's easy. And I don't understand why people can't comply. I'll be perfectly honest. To this day I don't understand why people can't. Sorry.

MS. ANDERSON: Q. One question here is how far up the line in management is RCRA training required? Theoretically, this could be interpreted as requiring the highest levels to have training. A. I think that's part of why we require the job description to be included in the training records is that we're looking at how training matches the responsibility of the employee. So that, if you have a manager like the vice president who, rarely goes into the plant, but sometimes might, well maybe he needs some kind of training but maybe he doesn't need as extensive training as the front line person who's there and has to handle an emergency when it comes up. I mean some of it is just kind of common sense and, you know, again, I can't give you any definite answer, but I think if you follow OSHA's requirements for safety training that you're going to be fairly certain you're complying with the RCRA requirements.

Q. OK. Does haz worker training suffice for contractor training, that is non-employee personnel who works on site? A. Again, I think the RCRA regulations are specific to employees of the facility. I'm not sure how a contractor would work, but a contractor would have to have OSHA training to be in compliance with the OSHA requirements. And again, that's going to suffice for any EPA training in this area.

Q. OK. I understand how personnel training is important for a facility. Likewise, I would like to know how EPA trains its personnel and specifically its BIF inspectors. Our Region has had experience with a BIF inspector who is extremely unknowledgeable about the RCRA program and the BIF requirements. A. Well, sorry about that. But we do try and get out and do training for our RCRA inspectors. We did some BIF training actually this summer. It's going to be even more difficult once the

states are authorized because some of the state inspectors may not have attended our training. I think that one problem is the turnover rate for inspectors is fairly high and that makes it difficult to keep up-to-date on everything that's going on in RCRA. But there are requirements that we've set out for our EPA inspectors, some basic training requirements, to make sure that they are trained. There's some hours of basic RCRA training that they have to have and then there's program specific training that they have to have before they can be a lead inspector. So, it disturbs me to hear that somebody's out there you feel is totally unqualified. Again, the regulations, when they were new, there may have been an excuse that there's some lag time in getting up to speed. Now that it's been three years, I would hope that most of our inspectors have at least a basic understanding of the BIF regulations and the RCRA requirements definitely. So, I don't know what else I can say to that. Could be a contractor.

Q. Again, what is the eight hour requirement you mentioned when discussing the annual review training? A. I was referring to OSHA's requirement for an annual eight hour annual refresher and that's what we actually have to go through as Ken mentioned after we've had our basic twenty four or forty hour course.

Q. What is meant by written job description? What does the job description need to say? A. Again, the purpose behind having the job description in there is so that we have an indication of what the responsibilities are of the person in the particular situation. So, you'd want to describe what their basic day-to-day responsibilities are and that should relate to what type of training they have to have. Anything that would give us an idea of what their responsibilities are so that we could evaluate what type of training they should have had. That's the type of information we're looking for.

MR. GIGLIELLO: One problem that I've heard with that is that a lot of companies say they have problems with the unions where you basically put down a job description in this hazardous waste personnel thing and it's not there. Say they have a job as a laborer. OK? And that's their job description. The union's approved it and everything else and all of a sudden you put down their function that they're hazardous waste handler which is really all we care about. We really don't care about the laborer designation. We want to know what this guy does or this person does in relation to hazardous waste. That's the job description problem we've heard. And I don't know if that's a common problem anymore with the unions getting into this job description, but as Kate said, what we want to know specifically, is this the person that generates the waste and puts it in the five gallon bucket? Is it the person that takes the five gallon bucket to the storage area? Is it the person who signs the manifest? That's the kind of information we want as a job description, not the union label. The union label from our standpoint isn't going to help us any. It's not going to tell us anything. If you say he's a laborer or you say he's a technician per say, that does not help us. We need more specificity than that.

MS. ANDERSON: Q. Does a person who walks through a permitted facility need training? If so, what about site specific training requirements for agency inspectors? A. Again, I think Ken touched on this earlier. When we, meaning the Regions, States or HQ personnel, go out on inspections, we're required to have health and safety training, the same as probably many of your employees are. It's an OSHA requirement and so they should have their forty hour training or their twenty-four hour training depending on the frequency of their site visits and they need to have an eight hour annual refresher under OSHA. So, if that's what you're getting at, that's the kind of health and safety training that our employees are required to have when they go out on sites.

Q. OK. Who's a qualified trainer? That's a good question. I think OSHA actually has a certification program now for its trainers. In terms of RCRA, the regs just says qualified. That could mean a lot of things, but you would at least want someone who has had training themselves and has had experience training other people. I don't have any other specifics for you off the top of my head. I can look into this more, if you want and see if there's any specific qualifications. But again, a lot of this is kind of common sense. I mean you want somebody who's going to be able to impart the information to your employees to be able to help them know what to do.

Any specific training content required? Again, along the same lines, the regulations are pretty general, but there would be specifics according to the responsibilities of the people you're training. And certainly this is where OSHA requirements help fill in the gaps because where RCRA may be a little bit vague about what's required, OSHA's pretty specific and chances are you're going to have to comply with the OSHA requirements too. Yeah?

(question inaudible)

MS. ANDERSON: Yes. They are. That's a good point. His point was that the RCRA requirements for record keeping are separate from the OSHA requirements. OSHA may have additional record keeping requirements or less, but you still have to comply with all the requirements, such as they are, laid out in RCRA and in addition to that, the OSHA requirements as well.

Q. This question is, is annual review on 365 day basis or once per calendar year? Regions and states are split on this issue. A. Again, what we try and do for our employees is make sure that it's within the calendar year. In other words, if we have our annual refresher in October of one year, we try and make sure we have it in October of the next year and before the date, not afterwards. So, I guess we do it on a 365 day year. So, that's not a calendar year.

Q. All the speakers have given today guidelines, policies, etc. and emphasized that these are just recommendations. Do you plan to issue NOVs and fines based on these and if so, what authority do you have to do this? A. It's a very practical question. Again, where we said it's guidance and policy, it's just that. It's recommendations that we can give to you to help you comply with the regulations. Where the regulations allow some flexibility, the guidance we've given you can help you better define the limits and where the regulator thinks you are either

in or out of compliance with the regulation. Does anybody want to add anything to that ...

MS. : I guess everybody won't be able to hear me but let me clarify the questions that were asked or the guidance that we were giving ... (inaudible)

MS. ANDERSON: What we were giving was not on things that are above and beyond the regulations. They were on how to comply with the regulations. So, if you choose to go about it some other way, then it may not necessarily be wrong, but you are taking a greater risk and certainly you have to show that what you're doing is right and that your rationale is valid. Although this is guidance, it's not above and beyond what the regulations require. It's how to comply with what is on the books. Are there any last minute announcements that you guys would like to make?

Compliance Testing

MR. RAUENZAHN: First discussion we're going to have today is regarding compliance testing. As an overview, we're going to start talking about recertification and retesting requirements. Then we're going to move on to testing requirements for Tier 1 and Tier 1A, the validation status of some of the stack test methods, use of data in lieu of a trial burn and conclude with a real fast overview of selection of waste feed streams and what's important of when it comes to actually designing a trial burn.

Recertification retesting requirements. These are in 266.103. Recertification is required within three years of submitting the previous certificate of compliance and owner/operators must recertify every time they change designs or choose to change operating conditions. And whenever you do recertify, of course, you have to retest.

For Tier 1 and Tier 1A, you must remember that both of these establish feed rate limits. It assumes that everything you feed into your boiler is going out the stack, so stack testing itself is not required for Tier 1 and Tier 1A to establish these limits. But remember that other standards still apply if you choose to go Tier 1 or tier 1A for metals. The particulate matter of standard still applies and you still need to do particulate matter testing.

Next thing we're going to discuss is the validation of our stack test methods and hopefully discuss some of the problems that you all confronted out there. An important point to bring up. A general complaint we hear is that a certain method hasn't been validated at my type of facility. Methods are not routinely validated at every type of facility they will be used at. Just because a method has not been validated at your type of facility doesn't mean it can't be used or it should not be used or somehow it will not work. Whether a method will work at your type of facility is more dependent on the conditions of the gas stream you're sampling than the type of facility it was validated at. Now that doesn't mean that you may not have to make some minor modifications to the method in order to get it to work at your facility. Hexachrome's a good example of this. And we'll get to that in a minute. Other than that caveat, all have been validated as hazardous waste incinerators. The multiple metals train, hexachrome, HCl/Cl2 and VOST and semi-VOST have been validated for thirty compounds. They've all been used with good success at boilers. Some people have had problems with and we'll get to that on the next slide.

OK. Hexachrome. Hexachrome requires a high pH in the impinger. If you don't maintain a pH over 8.5, you will start having problems with Chrome 6 turning into Chrome 3. Ways to get around this, simple modifications you can make that doesn't affect the validation of the method, are: you can use a larger impinger; use a higher concentration of KOH in the impinger. The important thing is you do what you need to do to get the method to work at your facility. Another problem is temperatures above 300 degrees F may present a problem. It is my understanding that teflon tends to cold flow when it starts to get somewhere near 300 degrees. If this will create a problem at your facility consider using quartz for glass fittings in order to get around this problem. Once again, the important thing is not to rigidly stick to the validated method but modify it reasonably as you need to in order to get the method to work at your facility.

HCl/Cl2. According to our folks in ORD, there's only the one circumstance where this has been a problem. When you have extremely high levels of ammonia in your gas stream, you may run into problems. If you do run into this situation, work with your Region. If you run into other situations which are unusual and you don't think it's going to work, work with your Regions. The Region is going to wind up making the final call in the long run anyway.

Finally, dioxin method 23. There's really not a problem with dioxin or method 23. It's an air method and the air people made what some people consider a short cut when it comes to determining the recovery for dioxin. What they did was, they made the assumption that the recovery off of the particulate is the same as the recovery off the X-82. Some people have philosophical differences with that. They say, you've got to figure out what the recovery is off the particulate and the recovery off of the X-82 and that you can't assume that recovery off the X-82 will be the same as on the particulate. Well, that said, if you have a problem with that and you don't want to use the method, there are things that you can do. The problem is that the regulations tell you you've got to use method 23. If you want to use something else, you're going to have to once again work closely with your Region and try to iron things out. They may be able to do something. It starts to get really difficult however, when the method is mandated in the regulations.

Data in lieu of a trial burn. Start out with what is not acceptable. If you've got different sized units, you can't use data in lieu of a trial burn. If the air pollution control devices are different on the two facilities, you can't use it. If there's different operating or maintenance histories, you can't use data in lieu of a trial burner. Situations where it may be acceptable is where you have identical units at the same site, you have the same operating and maintenance histories

the data that you're using must result from a compliance test that was observed by a regulatory agency. Those are the situations when it may be acceptable. You notice I didn't say when it is acceptable. The reason why I didn't is because that's awfully site specific, and once again that's a call that your Region's going to have to deal with. How identical is identical? How identical do the operating and maintenance histories need to be? That's not something that we can go over here, unfortunately. Once again, you need to work with your Regions and get them on board. They make the final call.

Selecting waste feed streams for testing. Some combustion conditions that are important when you're setting up a trial burn. Obviously combustion temperature, the combuster design is important and waste feed composition and what the flow is into your combuster. Some feed stream conditions which are important for setting up a worst case trial burn situation. Feeds high in halogens, high in metals, high in ash content, highly viscous waste with highest solids levels expected and highly containerized wastes that have constituents in it which are easily volatilized. Those are examples of worst case feed streams and that's all I had. I believe what follows next in the handout is also a list of references that you folks can use to help design a trial burn. If you don't have copies of them, they're easy to get.

So ... next thing on my list is to introduce the panel but they're all previous speakers, so I suppose you know them.

MS. SASSEVILLE : Thank you. One comment just to make about this list of references. Something to keep in mind that July 1983 Guidance Manual for Hazardous Waste Incinerator Permit. In some areas it is out of date so in many cases when you're thinking about trial burn planning, if there's anything in that that is contradicted by any of the later guidances, especially the permit conditions guidance, go with the later guidance. Especially on the issue of synthetic waste versus actual waste. We're moving more towards concentrating on actual waste when possible as opposed to just automatically saying synthetic mixture is OK. So, just keep in mind that '83 document is a little bit out of date.

MR. RAUENZAHN: OK. The first question we have is: has EPA been invited to a test, I imagine a trial burn test, and not attended. And in this situation can this data be used for an identical unit.

MS. SASSEVILLE: I wouldn't be able to answer that. I don't know whether there have been any cases where EPA's been invited and not. So I guess you would have to just deal with the individual Region on that. Work something out.

MR. RAUENZAHN: I can make a quick comment with respect to inspectors going to compliance tests. We always encourage for them to attend a compliance test if they possibly can. I know some of our inspectors have attended compliance tests in the past in some occasions they just can't get out there.

MS. SASSEVILLE: Similarly with permit writers we certainly encourage them and they generally do try to make an effort to go.

MR. RAUENZAHN: Next question. Although you suggest working with Regions and states, they are not likely to accept even minor modifications to the method without significant trials of proof. Any suggestion on how to overcome these difficulties. All I can say is that you make sure the method works and that it's right. For instance for hexachrome using quartz fittings instead of Teflon fittings does not modify the method. That doesn't affect the test method. That's fairly obvious. What I've heard from our people who develop the methods is minor modifications are fine and in fact are acceptable and you should do. If there are people out there who are doing otherwise, then you know, maybe you need to get a hold of us here in headquarters or the folks who advise us down in Research Triangle Park to try to get these people on board on some of the modifications.

MS. SASSEVILLE: And the Regions and states generally do know that they have these people to go to, our sampling and analysis experts, so they often do consult with them in trying to make these decisions.

MR. RAUENZAHN: Next question. Will a chlorinated feed be required for a dioxin or DRE trial burn and if it is required during a dioxin test and the BIF does not burn any chlorine containing waste, the dioxin emissions during the test likely will be artificially high.

MS. SASSEVILLE: The idea of the test would be to try to make it as representative as possible and one of the things that we'll be continuing to do is using your trial burn conditions in your permit including maximum chlorine, so if you test during your trial burn at a low level of chlorine, you have to be willing to live with that during operation. But if you are, then there is some flexibility there to choose the trial burn waste appropriately.

MR. HOLLOWAY: I might add that if the boiler or the incinerator is not feeding any feed stream, whether it's fuel or waste that contains chlorine, with detectable levels of chlorine, then we're considering the obvious which is not requiring complying with the dioxin limit. You wouldn't even need to test for dioxins.

MR. RAUENZAHN: What test or operating conditions is dioxin trial burn to be run under. For instance, maximum or minimum temperatures, maximum or minimum velocity, what spike metals, POHCs, feed rates of the waste, boiler T, max/min. Are the answer or any of these answers in EPA documents?

MS. SASSEVILLE: OK. The answers are not in any finally published documents. It is something that we're working on and we've been doing a lot of thinking on. I can't go through all the things that were in there but basically the idea is test at your maximum chlorine, minimum combustion chamber temperature is probably going to be a worst case, probably for your air pollution control device, that's going to have to be a maximum temperature and there is some discussion about whether those two have to be in the same test or not. It may be they don't have to be if those two are not going to both be at their worst case during normal operations. Also, we have to look at the precursors. There may be some push to make sure that there are chlorinated aromatics in the waste. For

example, chlorinated phenols, maybe. So, those are just some of the things that we're thinking about. We are working on written guidance to the permit writers which we think will also be at some point available to applicants as well to look at. At this point what we're shooting for as far as the document that would be available outside also would be the end of April. So, we'll see how that goes, but that's what we're looking at this point.

MR. RAUENZAHN: Next question, a practical question. We'd like to modify our boiler, alter combustion chamber, what steps must we take, Part A Class 3 permit mod, recert of compliance, and if our compliance test fails must we initiate closure?

MS. SASSEVILLE: I guess I could start out with that. A permit mod, if facilities aren't permitted, a permit mod isn't necessary. You would have to ... Bob, jump in if you want ... you would have to recertify compliance after making the changes and I'm trying to think. If you failed, then yes, I guess you would have to shut down and not be able to operate until you get under a permit. If it is a facility that, I would have to think, if it came in under a Class 3 permit mod and it's one of those that we treat as if it were under interim status, because it doesn't have any permit conditions, I think it would still be basically the same that you would have to go through the steps of recertifying. Bob, any ...

MR. HOLLOWAY: I frankly have forgotten exactly what the BIF regulation says when you fail a compliance test. I'm not sure whether if you fail a compliance test then you have to stop burning and you can't burn until you're under an operating permit or whether the regulation gives some flexibility and says you can only burn after that for a period of 720 hours and only for purposes of shake down and subsequent compliance testing. I'm not sure what the rule says. Anybody here happen to know? Any of you guys happen to know?

QUESTION: I just wanted to ask if during the compliance test you'd want to provide enough scenarios that you might flunk one of the scenario but might pass one of the ...

MR. HOLLOWAY: That's an excellent point. Everybody hear that the point was that in order to deal with this possibility of failing a compliance test, you ought to run under multiple test conditions in case you fail one, at least you'll be able to operate under one of the other conditions. Good point, sir.

MS. SASSEVILLE: Maybe we just didn't think about this at the time that the rule came out because we were more thinking about the initial certification where it didn't necessarily matter if you failed initially as long as you came up with a passing test that was different from the failing tests by the time of the compliance date. But once you make it a modification then it gets to be a little different. I don't think we really thought about that.

MR. RAUENZAHN: The next question is from a facility that wants to use data in lieu of trial burn. Their problem is they've been informed by the Region that they don't have any funds to send an inspector out to observe the test. Is there any advice as to what to do under that situation?

MS. SASSEVILLE: Could you repeat the question.

MR. RAUENZAHN: Data lieu of a trial burn and EPA doesn't have funds to do travel to observe the test. Any advice?

MS. SASSEVILLE: I would say, you're going to have to, I know we keep saying this, work with the Region on that because it may be site specific. It may be that they are going to have to look at the test report in order to be able to decide whether to accept it or not. You know, it's not in the regulations that it has to be observed in order to be acceptable. but there's just a question as to whether they'll feel comfortable accepting it if nobody's seen it. So, you have to work with the Region.

QUESTION: I've run into the same problem. One of the problems I'm having is that some of the people in the Region are very uncomfortable in one situation or another looking at this data because they don't have the personnel or expertise to look at it. And they're looking to headquarters or OAQPS for guidance but you want to tell it to go back to the Region for guidance or tell it to what they're comfortable with. I would like to see more of OAQPS or HQ providing guidance to the Regions saying it's up to them but this is what we would recommend.

MS. SASSEVILLE: Yeah. In a way we're talking about two different things. We can't really answer these questions here because it is site specific. However, the Regions know that they can come to us if they need assistance on making that site specific decision. So, we are available and the Regions are aware of that and the states also.

MR. RAUENZAHN: The next question wonders why particulate matter testing is required for adjusted Tier 1 compliance. Then it goes on, if you assume a worst case scenario, i.e., ash in equals ash out, isn't that the same logic used for metals and chlorine.

Well, the particulate matter standard is a separate standard from the individual metal standards. You need to comply with all standards.

MR. HOLLOWAY: And again, as we said yesterday, we're not only ... we're using PM as a control not only as a supplemental control for metals but also to control adsorbed organics and in fact as you know, you can have particles of soot that can result from poor combustion and a PM standard would deal with that. So again, the PM controls are used both to deal with metals as a supplement to a metals controls and also to deal with adsorbed organics.

MS. SASSEVILLE: I just happened to think about some of those questions on accepting compliance test data in lieu of a trial burn. Something that is probably worth keeping in mind is that with the new combustion strategy and the new considerations we have for doing a risk assessment including PICs and dioxins, it may be likely that the data from

your certification of compliance isn't going to be enough anyway or that it may only be enough for certain performance standards but it's most likely that you're going to have to test again anyway in order to get the [illegible] data and the dioxin data to put into the risk assessment so ...

MR. RAUENZAHN: Next question is what is the status of omnibus authority versus the particulate standard. I guess the .015 versus ..

MR. HOLLOWAY: I'll tell you what ... I'm going to talk about that a little bit later on this morning, so if you still have a question, and you might after I finish, why don't you raise it again.

MR. RAUENZAHN: Next question. Given the EPA calls in Part B permit and the three year deadline for compliance tests will occur before the trial burn is approved, (a) will it be necessary to perform the compliance test or can the facility wait until the trial burn is performed.

MR. HOLLOWAY: We would certainly like to be reasonable about that and I'm trying to think if we said anything about that in the BIF regulation itself. I thought we anticipated that but I frankly can't recall what the regulation says. Let me, again, let me ask here that does anybody out there recall exactly whether the regulation deals with that? We certainly would like to be reasonable, again, and for example, if the BIF compliance test is due within two or three months of a scheduled trial burn, then we would certainly like to forgo the compliance test in lieu of the trial burn. But again, I don't recall what the BIF regulation says about it. And even if we didn't anticipate it in the BIF rule, the, again, the Regions, I think have some flexibility in making interpretations and dealing with issues like that.

MR. RAUENZAHN: And part (b) of the question dealt with what happens if the trial burn and the compliance test are scheduled to be performed close to one another and I guess it's .... Bob just answered it.

QUESTION: My (inaudible) is once you've submitted your Part B application, you're still under minimum standards if your Part B is granted so I would (inaudible)

MR. HOLLOWAY: That's a point. If we didn't anticipate in the BIF regulations, if we didn't allow you to extend this three year deadline on recertifying compliance when a trial burn was scheduled close to that deadline period. If we didn't explicitly deal with it in the regulation, then the point I'm trying to make is it certainly would have been wise to have done so and we certainly would like to be reasonable about it. You're right. My understanding is, Sonya, correct me if I'm wrong, you're still in interim status until a permit's issued.

MS. SASSEVILLE: Yes. That's right.

MR. RAUENZAHN: Next question. I might need some help with this. Is a concentration limit, i.e., the detection limit acceptable instead of a gram per hour feed rate limit for constituents which can't be detected and it says if a concentration limit is acceptable, are mass feed rate records required. If so, why? I guess what's meant by a concentration limit.

MR. HOLLOWAY: I don't understand the question.

MR. RAUENZAHN: Because if you know the concentration and you know the flow going in, then you know the mass rate gram per hour.

MR. HOLLOWAY: If you have a non-detect for a constituent, then you certainly can use and should use a non-detect level as the assume concentration. I don't think that was the question. We covered that yesterday. It sounds too easy. I'm not sure what the question was.

(question inaudible)

MR. HOLLOWAY: The question is, do you have to record the mass flow rate? You have to record as we discussed yesterday. You have to record enough information to document what your mass feed rate is of the individual constituents, metals, chlorine, whatever. So, if you're monitoring volumetric flow rate then you should record the volumetric flow rate, the density and the concentration and then, I guess, ultimately the calculated mass feed rate of the constituent.

(question inaudible)

MS. SASSEVILLE: The components that go into the calculation. Right.

MR. HOLLOWAY: Let me be sure that Emily heard that. The question was, Emily, if somebody is monitoring volumetric flow rate, I indicted that they have to document somehow ... document in the records the actual volumetric flow rate, the concentration of the constituents, say the metal, the density of the stream and then the calculated mass feed rate. So the point is, in that situation do they have to record all four parameters?

MS. CHOW: Again, if your units for the feed going in does not jive very well with your concentration, if one is in volume, the other one is in mass, then you would have to have the density and in that case you would have to record all four entries we talked about yesterday. That's right.

QUESTION: Do you need a continuous recording of the mass flow rate of constituents. You have a continuous recording of your feed rate and you're controlling based on concentration, do you have to have a strip chart (inaudible)

MS. CHOW: OK. The question is whether you need to continuously record the calculated mass feed rate of your constituents. This actually is something that, as I mentioned yesterday, you should discuss with the Regions. Some of the Regions will accept it and I think if you have a very good software program that can do the calculations quickly and are able to provide the mass feed data to the inspectors when they're on site, providing the Region and the State accept this mode of recordkeeping, then

it's fine with me. However, some Regions or States may be adamant about having the facilities record the calculated mass feed rates as part of their normal recordkeeping, then you will have to comply with that because it is required by the BIF regulation. So, I personally do not have any problems with it as long as the affected Region or the State accepts it.

QUESTION: I have one more question (inaudible)

(comments inaudible)

MR. RAUENZAHN: Use the detection limit.

MR. HOLLOWAY: The comment was, what happens when a constituent is present at a non-detect level and that when you do subsequent testing you get different detection limits. Let's say higher detection limits. Do you have to assume that when you get a hard detection limit that the constituent is present at the higher level, which obviously affects your feed rates and everything, and I think the answer is what John gave us, probably correct. Yeah. I don't know how else to deal with it.

MS. SASSEVILLE: There's no technical basis for going with the lower one.

MS. CHOW: Put yourself in the shoes of the regulator. If the constituent concentration is below the detection, it doesn't tell you anything except the fact that it's not above a certain level. And we don't know what the actual concentration is, so, using the detecting limits will be the most conservative approach.

(comment inaudible)

MS. CHOW: If you can come up to the microphone, we would like to hear your suggestions. Really, come up and give us your suggestion and we'll consider it.

MR. HOLLOWAY: This sounds like it might be fairly extensive and complicated. I wonder if maybe we could talk to her during the break, or afterwards, or you could talk to your region or state.

MS. CHOW: If that's what you prefer, it is fine with me to talk to you afterwards. I am certainly interested to hear the suggestions that you may have regarding the problems that you are facing. We're open to considering these suggestions if they are appropriate.

MR. RAUENZAHN: There's a second question from this person and it says that the Tier 1 eligibility criteria references the shore line of "a large body of water such as an ocean or a large lake" and they want to know what's considered a large lake. I know what the answer to that one is but we'll (laughter)

MS. SASSEVILLE: That's a dispersion modeling question. We'd really have to ask a dispersion modeler I guess to get the official EPA answer, you'd have to ask an official EPA dispersion modeler. I don't really know the answer.

MR. HOLLOWAY: The first one where she probably looked at is check the guideline on the air quality models whatever it's called and if it's not in there, then contact Joe Tickmard or one of his cohorts down in Research Triangle Park, North Carolina. EPA's dispersion modeling experts.

MS. SASSEVILLE: Or else the Regional meteorologist. Each Region has a meteorologist. So, talk to them too.

MR. RAUENZAHN: Last question from this person. Agency notifications are required for a compliance certification test. Are Agency notifications required for annual performance spec tests?

MR. HOLLOWAY:. Annual performance? I don't know what that is. What's an annual performance test? For the CEM? No.

MR. RAUENZAHN: Next question is, where do you get a compliance testing references or new guidance documents?

MS. SASSEVILLE: They're listed here where we also talked about after the workshop sending out to everybody a more complete list of guidance documents, so that's basically it and for keeping up with updates, just keep in touch with the Region and some things where you actually notice in the Federal Register, but the best way is just to keep in touch with the Region.

MR. HOLLOWAY: Are these documents available through NTIS for example ...

MS. SASSEVILLE: They're most available through NTIS and some of them like the Permit Conditions Guidance, we also have a Measurement Guidance, QAQC Guidance, are available through EPA Publications Office in Cincinnati, and those are free. So they're available through there until the supplies run out and then they'll be available thought NTIS.

MR. RAUENZAHN: I'm not sure we can answer this without a little clarification, but this one's addressed to Sonya. It says, based on your comments, can we still use the surrogate for trial burns?

MS. SASSEVILLE: People use the word surrogate differently, so I'll just try to answer what I think you mean and if that's not what you wanted, then please speak up. As far as what wastes have to be used in trial burns, what we're trying to do is to get them to be as much as possible like the regular wastes. And that's easier to do for an on-site facility, where you have a regular supply of those waste streams and you're only going to be burning a few waste streams. We realize it's harder for say a commercial unit where wastes are going to be coming from all over the place and it's harder to predict and you're trying to maximize a lot of things at one time. That may not be easy to do. So, basically, what we're saying is we'd like it at least if your base waste was an actual waste that you're going to be burning and then if you need to spike up to reach maximum chlorine levels, for example, or whatever, then it's OK to spike. But we would like to try to get the base material to be an actual waste.

MR. RAUENZAHN: Next question. Must EPA be notified when testing is conducted for state air permit requirements and that's ...

MS. SASSEVILLE: That's up to the air program.

MR. RAUENZAHN: Are two sets of test conditions required to establish a usable minimal combustion chamber temperature, especially when natural gas and liquids are the only fuels. Conditions that demonstrate maximum combustion chamber temperature are not likely to demonstrate minimal temperature.

MS. SASSEVILLE: Yeah. I suppose we're talking about a permit where you have to demonstrate maximum temperature for metals and minimum temperature for DRE and PICs. There's no way that you can set those from the same test unless you want one temperature that you have to maintain all the time which of course isn't feasible. So, you really would have to do two separate tests. Unless of course you're complying with Tier 1 for metals in which case you don't need to do the maximum temperature. Did that answer the question?

QUESTION: I was referring to the minimum (inaudible)

MS. SASSEVILLE: Oh, you mean ... for maintaining interim status? OK. That I think we've generally allowed under a separate ... I mean it's not a very complicated ...

QUESTION: Regulation says that you can use the lowest hourly rolling average but that's likely not to be a useful temperature because you're pushing for maximum temperature.

MR. HOLLOWAY: Exactly. So you can run a separate test for your low temperature ... to establish low temperature that would apply during the automatic waste feed cut off.

MS. SASSEVILLE: It wouldn't have to be a very complicated test since you're not testing for DRE or anything, so ...

MR. HOLLOWAY: In fact, I guess all you'd have to show is compliance with the CO limit. You don't need to worry about metals or chlorine or ... whatever. Or even PM; just CO.

MR. RAUENZAHN: Next question is regarding one of the test methods. The EPA method for HCl/Cl2 does not discriminate between HCl and Cl in the HCl portion of the sampling train. Is there anything being done to address this?

I guess this is the first time I've heard of it. I can get to our people and hopefully get an answer in the transcript.
[NOTE: We assume that the HOCl in question was sampled from the stack. If this is the case, we would expect HOCl to be trapped in the acid solution designed for HCl collection. We wish to measure all reactive species of Chlorine, of which HOCl is one. Therefore, we do not consider this to be a problem with the method.]

Has it been brought to your attention that method 1057 has a significant positive bias on the chlorine analysis? When Cl reacts with the caustic hypochlorite, something or other continuous to react and a portion will form additional chloride. The bias is that IC analysis CLPIC area is multiplied by two for the reassumed half split. Larry Johnson of EPA in RTP is aware of this. Is there any dialogue with the BIF method developers to resolve this?

[NOTE: The caustic impinger designed to trap diatomic chlorine does so by <u>forming</u> HClO and HCl in the impinger. The method can be biased to higher Chlorine concentrations when the caustic impinger is contaminated with a reducing agent. The reducing agent aids in the formation of HCl, which is what the analytical method, 9057, measures. If this is a concern for your facility, use the reducing agent Thiosulfate in the caustic impinger to ensure that <u>all</u> the chlorine forms HCl. If this is done, make sure you change the calculation so that every two HCl detected represents one diatomic Chlorine. The air program has endorsed this as an acceptable alternative for their Method 23. Consult the OAQPS Technology Transfer Network for specifics on this alternative.]

MR. RAUENZAHN: How do you suggest adjusted Tier 1 boiler (inaudible) you certify at maximum feed rates needed. If you do not accept extrapolation, should we spike, i.e, particulate/ash. This is not a specific site problem. Many boilers are dependent on their processes heat demands and cannot arbitrarily run at 100%.

MR. HOLLOWAY: Well, under Tier 1 you don't need to spike the metals because your feed rate limits are the Tier 1 screening limits, irrespective of what level of metal you may be feeding during your test to demonstrate compliance with PM and CM and whatever else. Is that the question? Do you have to spike metals under Tier 1?

MS. SASSEVILLE: Was it about spiking ash? If you need to do that to get a level that you can live with then yes. And that's not an uncommon thing for trial burns to spike some ash material.

QUESTION: So you'd rather see spiking than ash (inaudible) you would consider that better for the environment?

MS. SASSEVILLE: We would not necessarily consider an extrapolation to be valid.

MR. RAUENZAHN: The answer is yes.

MS. SASSEVILLE: Because removal efficiencies change as you ... as the load on air pollution control device changes, so ...

MR. RAUENZAHN: Is recompliance, i.e., a new test burn required three years after the last test burn, or three years after the last COC?

MR. HOLLOWAY: I believe the regulation says you must submit a new certification of compliance, a revised certification or renewed, whatever it is every three years, so that's irrespective of when you do the actual tests. Again, so you have to certify within three years of the

previous certification.

MS. SASSEVILLE: If you're talking about that you did a trial burn in between there, then I mean, was that your question? If you're collecting the same information ... if you have the right information, I don't see why you couldn't put that information into a COC and just resubmit early and then use that to start your time frame.

(question inaudible)

MR. HOLLOWAY: That's correct. The comment was in the handout or in the slide. It says that the ... you have to recertify within three years of the previous certification of pre-compliance. You're right. That was a typo. It should have been certification of compliance.

MR. RAUENZAHN: Next question. As EPA considers the no dioxin testing scenario which I fully support, what chlorine levels will default to no test? And if EPA does not know the answer to this, what are they doing to find out?

MR. HOLLOWAY: That's a really good question. One of the concerns we have is whether somebody will use a test method that has very high detection limits, frankly. But if we can find a method or if we can find an approach that ensures that a method with a good detection limit is used for chlorine. And, by the way, I should also say that we also may be concerned about brominated dioxins and other halogens but so, if ... we feel comfortable that no feed streams are being fed to a device that contained detectable levels of halogens at good detection limits, then I think we will be prepared to say that dioxin testing isn't needed. But, again, I don't know how we're going to ... we haven't gotten to do that yet. We haven't finished dealing with that issue.

MR. RAUENZAHN: Next question. Somewhat related. How do we submit a Part B application which must include a dioxin test when there is no official guidance on how to set it up.

MS. SASSEVILLE: As usual, talk to your Region. You can also, I mean, we mentioned a little bit earlier, some of the ideas that need to be incorporated as far as worst case and also which I mentioned earlier, there will be a guidance document out probably at the end of April which should help you out with that.

MR. RAUENZAHN: Next question. EPA's own published data suggests that metal volatility is somewhat less than would be expected based on uncertainties. Is EPA collecting data and continuously analyzing results of low/high temperature trial burns to verify the need for these tests? Is there some range that could be acceptable for operating temperatures to limit the need for two trial burns?

MR. HOLLOWAY: That's an interesting point and the Agency will be looking into the existing data base as we go through the upcoming rulemaking to see if there are ways we can simplify the regulations. So, yes, we will be looking into it. We haven't yet.

MR. RAUENZAHN: Next question. If I submitted data from boiler A in lieu of, I suppose a trial burn, for boiler B during the 720 hour extension after August 1992, does that mean that I could not burn at all in boiler B assuming I do not burn more than 720 hour total in both boilers?

MR. HOLLOWAY: I have no idea what that says.

MS. SASSEVILLE: That does sound kind of site specific, too. I don't think it's something we can answer.

MR. RAUENZAHN: ... BIF only one stream burns at a given time. Given also 2) two of the streams do not have enough material accumulated to perform six hours of compliance test and 3) given two streams are high BTU greater than 12,000 BTUs per pound, is it acceptable to not perform a compliance test on these two streams if they are analyzed. I guess this is two streams that do not have enough materials to perform six hour compliance test. And that's it for compliance testing. I'm also lucky enough to be the person giving the next discussion, so is the slide projector on back there, Andy? There you go. OK.

Management of Residues

MR. RAUENZAHN: What we have to discuss here is give guidance in three points. The frequency of residue sample on analysis; the handling and storage of bevel residues; a little bit about F039 constituents that first came out of the administrative study. You folks also requested a review of what the requirements are and we hope to go over that by giving an example, finally at the very end.

Now, for a frequency of residue sample analysis we recommend that sampling and analysis be done daily. Now, based on John's discussion yesterday and the setting up of statistical models, you can, based on certain site specific factors, gain enough information about the residue to sample and analyze less frequently than daily. And some of those factors are: historical data, knowing the variability of toxic constituents in your residue. If they don't vary a whole lot, you may want to back off from daily. If you make changes in your operations that may affect the constituents in your residue then you may want to sample and analyze more frequently. If you never make changes to your operations, then you may want to go over a longer interval. Liability factors. You have to remember as this stuff accumulates, you're getting more and more residue that you need to handle and you need to deal with. Obviously, if you sample and analyze over shorter periods of time you don't have that much residue to deal with at any one particular time. In the event that there was a non-compliance, if you're sampling daily, there's not a whole lot of material and your liability factor is a heck of lot lower then they would be if you had six months worth of stuff which is out of compliance. And finally, storage factors which I'm going to get to two slides from now.

Frequency of residue sample analysis. We recommend, as a minimum, weekly sampling and analysis assuming you can justify less than daily

Once again, based on factors I just went over.

Storage of Bevill Residues. What you need to do is you need to treat this waste as a hazardous waste rather than a Bevill residue and there will be no problems as far as Bevill compliance is concerned. If on the other hand, I know you folks wouldn't do this, so let's say we have a cement kiln that takes all of its cement kiln dust, piles it into a corner of a quarry, tests once every six months, and God forbid it fails, finds out that half of that residue is already thrown into the quarry, it has a major compliance problem at that point in time. The only way you can avoid having a compliance problem as far as Bevill is concerned is to assume the stuff is a hazardous waste until you find out otherwise, and then when you find out otherwise, go ahead and dispose of it as residue or if you find out that it fails, go ahead and treat is as a hazardous waste.

And you're also going to have to separate the residue by sampling periods. If you were to decide to sample daily, you would have to keep your daily residue separated. That way you can tell the difference between one day's residue and the next day's residue. If you test weekly, you can tell the difference between one week and another week. Once again, the rationale is, is that the sample fails, it must be managed as a hazardous waste and if you keep your residue separate, your sampling period separated, you know what's the hazardous waste and what's not and it keeps things nice and simple for you.

F039 constituents. Now this came from the interim final rule. I don't believe this is in your handouts. This is new late breaking news. Basically what the interim final rule did is it stayed the Appendix 7 non-metal residue limits. It set the F039 limits in lieu of those Appendix 7 non-metals. Unfortunately we did not replace the default value for chemicals not listed on the stayed list. What this means is that if the toxic constituent is not listed on F039, the owner/operator need not test for it. And we'll be sending out communications to everybody. By everybody I imagine we mean the Regions first and I imagine you can get the communication from the Regions from that point when that communication comes out. OK.

Now this is the overview. If there's a boiler and you're burning at least 50% coal on a total heat input or mass basis, then your facility qualifies for the Bevill exemption. OK? If you don't burn coal, you burn natural gas, you don't have any residue, unless you're burning hazardous waste, it's assumed that all the residue comes from the hazardous waste. Point number 2 is how you go about determining the first point of the two point test. You have to go out and you need to composite samples, ten, twenty-four hour residue samples to determine the upper tolerance limit for each of the constituents you expect to find in your residue. I imagine now that's everything on the F039 list. Now you can choose not to do this and go directly to and apply the F039 limits and the metal limits in Appendix 7. For some facilities that are doing that, it's more stringent because your residue may have naturally a concentration higher than what's published in F039 but if this is too much of a bother for your do, then that's up to the facilities determination.

OK. Now, after you've determined the upper tolerance limits every day for some period of time, you need to get historical data. You need to find out what's in the residue. That's one of the four factors I mentioned and that help you determine your sample and analysis frequency. And then you sample and analyze for these constituents and compare them to the upper tolerance limits to make a Bevill determination. Let's assume for now everything goes well; everything passes; none of them fail; and based on this historical data, you sampled and analyzed for say a month. None of them have failed. They're all comfortably below your upper tolerance limits or the F039 limits. You decide to back off on that daily testing
and decide once a week. That's acceptable.

Next, after determining the upper tolerance limits, you start burning hazardous waste, RCRA storage requirement comes into play. Once again, you don't want to find yourself in a situation of piling all these wastes in the corner of a quarry (particularly for the cement kilns) and the dust is blowing everywhere and then he finds out later that it fails the Bevill test and he should have been managing the whole thing as a hazardous waste the whole time. For that reason, store it in a RCRA storage facility pending the Bevill determinations.

There's one more point. I would like to make. Based on historical data, you can relax your sampling frequency. Once again, it's based on those four factors .. possibly others, depending on the type of facility. If you have fairly consistent residue and it is below the Appendix 7 and F039 limits, you may decide to reduce your sampling frequency. You can relax it more than weekly, even if you want. More than our recommended amount, but it's been our experience that most facilities are going weekly and that's the smart thing to do. But if you can handle that much residue and you don't care, the only real compliance problem you can run into when it comes to Bevill is not properly handling and managing hazardous waste. If you're storing it in a RCRA storage facility and you dispose of it properly, you should never have a violation.

QUESTION: Most of your slides are not in the new books, can you provide copies?

MR. RAUENZAHN: We will include them in the transcript. OK? For clarification, did you say that the default value for constituents not on the F039 list were stayed and not replaced, therefore facilities are only obligated to test for constituents on the F039 list? That's what I said.

I'm not so sure we can answer this one, but it says, LDR analyses are based on a single grab sample. Compliance levels and LDR are set at 99% confidence levels. Thus, per 10 to 20 samples, there is close to 100% probability of failing. Has EPA given any thought to changing the procedures to allow for outliers and natural data variability to enable facilities to comply?

MS. SASSEVILLE: That's an LDR question. Unfortunately, ... none of us works on that rule here.

MR. RAUENZAHN: And, well, let me give a stab at this. What I think they're saying is the compliance levels that were set in LDR were based on some 99% probability limits and that the F039 numbers who are based on the 99% confidence interval, that should help you. OK? Because the mean is standing at a 50% confidence level. 99% should be over here -- right?

(comments inaudible)

MR. RAUENZAHN: If there's a 99% ... I agree with what you're saying but .... and if the residue you're analyzing is from the same population of F039, I agree. OK? I think you're making a couple of bad assumptions; your worst assumption is that Bevill residue is F039, which it is not. But to get to what I think is your point, yes you may fail 1% of the time due to statistics. That is one of the reasons why we're telling you that you've got to handle this stuff in RCRA storage facilities. Because 1 % of the time you may fail through no fault of your own. Is that what you're asking? If that's a fact... that's statistics. But remember that your assumptions are faulty. Bevill residue is not F039 and may have constituent concentrations widely different from F039. That's why there is a first part of this two part test..

How often should the base line upper tolerance level be updated? Is an evergreen approach of random non-waste ... oh; I don't understand that .. that's not my repertoire, but every time you make a process change, you have to update your upper tolerance limit.

MR. HOLLOWAY: If you make any change in your design or operation, that could affect the base line, the normal levels of toxic constituents in the residue, then you have to reestablish your upper tolerance levels.

MR. RAUENZAHN: You may want to do it every so often anyway because there are situations where things that are beyond your control or things that you're not aware of may be going on in your system that may be affecting the concentration of the residue so it might be a smart thing to update them periodically. Is it required to do Bevill for burning non-hazardous waste? Bevill doesn't apply to non-hazardous waste. So ...

MS. SASSEVILLE: That determination doesn't need to be made because it's clear that the residues would be exempt. There's only a question when you're burning hazardous waste and trying to figure out what the effect of the hazardous waste has on the residue.

MR. RAUENZAHN: You mention that natural gas has no ash content, then why must we analyze our natural gas for BIF metals? Isn't this a waste of time and resources which could be better spent on real issues? I guess I was answering to what the regulation said as far as Bevill was concerned. That it's assumed that for these don't have any ash. For any high quantities of ash and that at that point if you do start getting quantities of ash, let's assume that it came from your hazardous waste, you know.

MR. HOLLOWAY: Yeah. That's true Scott and it would certainly be the appropriate I guess and good if we could, the Agency could establish default values for levels of metals or chlorine or whatever that might be in natural gas. But I don't think we've looked into that. If we have time, if you guys have data you'd like to provide us on levels of metals and chlorine what else would be important? Organics? Toxic organics that could be in natural gas, we'll certainly consider putting out some sort of guidance or interpretation that could include default values. That could be zero or whatever.

MS. CHOW: Let me just make a comment on that. A while ago, I received a copy of a document written by the Southern California Gas Company regarding a study that this company conducted on its own product. This report contains disucssions on the analytical methods the company used to analyze their natural gas. They found that there were traces of metals, such as mercury in their gas. Some of the contaminants may not necessarily be in the product originally , but were there as a result of contaminations through the pipe lines. So, natural gas may not be as clean as some of us like to think. From what I can recall, the levels were not high, but they were there. Unfortunately, I don't have a copy here with me. Yes, I will see whether I can attach a copy with the transcript package. [The EPA is unable to obtain permission to release this document at the time of the transcript.]

MR. RAUENZAHN: I'll stop and say, personally speaking, I know of one problem in my home state of Pennsylvania as far as natural gas is concerned. They're finding puddles of mercury under the gas meters of old homes, which indicates to me that there's at least some metals in natural gas.

You stated that if you burn liquid waste and natural gas, not coal, you assume that all the residues come from the waste, OK, it's the same point. Is this EPA policy? Could it be communicated to the Regional offices who keep asking for natural gas analysis for metals, ash, etc.

MR. HOLLOWAY: There are two separate issues here. The EPA's already stated either in the regulation or Preamble to the Bevill regulation that if you're co-firing hazardous waste with oil or gas, then your residues are not eligible for the Bevill exclusion because we're presuming that the residues are more characterized by the hazardous waste you're burning than anything ... any residue coming from oil or gas. The separate issue is in complying with the feed rate restrictions or the feed rate limits under the BIF regulation. You need to know what's in all of your levels of metals and whatever that's in all of your feed streams. Including natural gas, if you're burning natural gas. So, that's a separate ... entirely separate issue.

MR. RAUENZAHN: Next question says, why frequent and expensive Bevill analysis if residues contain levels of BIF elements less than that found in natural top soils we live with every day.

If your Bevill residue is that clean, and you are assured that you can back off of frequent expensive testing, then that's certainly a prerogative. But you need data. Do you have that data? Then that's fine. At other facilities, that may not be true.

MR. DOMBROWSKI: Just another point as far as Bevill's concerned with ash. Our inspectors (at least at cement kilns facilities) they do go out and sample the ash and analyze and compare it to the data that you provided, so they are checking it as well, so if you do make a determination like Scott said, document it and be sure of yourself.

MR. RAUENZAHN: There's a lot of things that factor into that also. You know, if you happen to be lucky to have an extraordinarily large RCRA storage facility and you can get away with storing a year's worth of stuff in there ... now I don't know why you'd want to do that, but I don't see how you could be out of non-compliance as long as you treat that year's worth of stuff appropriately. So, once again, it's a site specific call that you folks make, you know, based on your resources, how expensive it is and what not. All those factors get factored in.

Next question is addressed to you again, Sonya. You mentioned that ash extrapolation is not allowed if you have an air pollution control device due to collection efficiency variability. What about a facility that does not have air pollution control device such as natural gas boiler? Is it allowed in this case? If not, why not?

MS. SASSEVILLE: That's not something we've really talked about a lot.

MR. HOLLOWAY: Excuse me, John. Another consideration we've had does not only effect on air pollution control collection efficiency but it's the issue of partitioning. How much of the ash is going to partition to the combustion gas versus that stays in the bottom ash, or whatever. And we just don't have and neither do you have enough data to fully understand partitioning for metals or ash or anything else. So, it's not expensive to run a PM test, so you cannot extrapolate ash. You must run a new PM test. By the way, let me just finish. Guys, if you're complaining about PM testing, you're in for a rude awakening under the new regulatory regime. We've been talking about dioxin testing and much more comprehensive testing than we've talked about today, so I wouldn't be worrying about PM testing.

(question inaudible)

MS. SASSEVILLE: At the least I don't think it's something we could answer here. We would have to think about whether there can be anything else that influences it.

MR. HOLLOWAY: That does sound more reasonable, but again, there's probably something that maybe we're not thinking about. Maybe we can give it a try and try to deal with it in the transcript but, have you talked to the Region about it?

(inaudible)

All right. So I guess nothing's going to happen any time soon?

MS. SASSEVILLE: Actually another good point that was brought up is that there is, for things like this, a difference between compliance certifications and permits where the permit writer does have more flexibility on the permitting process of what they accept whereas for interim status where it was set up to be self implementing, it is pretty prescriptive and so that Regions are really sticking to what's in the regulations which doesn't allow for extrapolation. So, if this idea does hold merit then it could be considered under a permit but probably not under the interim status.

MR. RAUENZAHN: Next question is more common. Please include references for obtaining natural gas test analysis data. Other sources would be a better for this type of information. I imagine API [the American Petroleum Institute] has a constituent list of a what a natural gas would be. From what I remember, though, natural gas varies a lot across the nation. So, your local gas company may be a good source. SAE [the Society of Automotive Engineers], with all the natural gas vehicles that are going into fleets since the Clean Air Act Amendments of 1990, they must have lots of data also. There are better places to get this kind of data than from us.

A Tier 1 BIF, I guess this relates to the previous issue. A tier 1 BIF burns hazardous waste that has a very low ash content. If repairs to the inside of the boiler are necessary, is it required to treat any thin film coating of residue on the equipment as hazardous waste?

MR. HOLLOWAY: Any residue that you generate, as a result of maintenance, has to be managed as hazardous waste, if the BIF burns a listed hazardous waste or if the wastes exhibit a characteristic. That's point 1. And if you're burning a listed hazardous waste, then the residues based on the derived from rule are considered to be hazardous waste. If you're not burning listed waste, then you need to see whether the residue exhibit a characteristic.

MR. RAUENZAHN: Is there any means of obtaining some of these guidance documents electronically, i.e. on bulletin boards?

MS. SASSEVILLE: Not at this point. It might be something we do sometime in the future, but at this point, no, they're not available that way.

MR. RAUENZAHN: OAQPS does have their technology transfer network and we depend a lot on them for our sampling and analysis methods. You can get on their technology transfer network, as I said. There are several resources and they're available to giving you validation of test methods and also some technical publications for problems people have had, how they got around them and whatnot. So ...

MR. RAUENZAHN: Thank you. The OAQPS Technology Transfer Network modem line is 919-541-5742. And there's also a number for help which I don't know since I didn't know this one. [NOTE: The help line for TTN is 919-541-5384. For the Emissions Measurement Technical Information Center, EMTIC, the help number is 919-541-5222.] That's all.

MR. HOLLOWAY: Emily, should we start in 15 minutes from now rather than waiting for 10:15, let's speed this up, all right? So, you want to start again at 5 after 10?

MR. GIGLIELLO: There are sixteen people that asked for the ERP. I have the copies in the back for those sixteen people. I also have additional nine copies for someone who wants it and I need to see Maryanna Ramos...

[End of proceedings as recorded.]

P R O C E E D I N G S

MR. HOLLOWAY: ... I will go quickly on upgrading the technical emission standards and we want to talk about the driving forces for revising those standards and then give you some idea of our current thinking on some of the key issues. But again to put things in perspective. The waste minimization combustion strategy has a number of components. Let me give you a quick overview on where we stand on each of these. With respect to public outreach, I think everybody knows that we held a national roundtable back in November of '93, a forum of virtually all the stakeholders on these combustion regulations, not just the BIF rules but the incinerator rules as well. We had over 200 people attending and as a follow-up we have Regional roundtables scheduled in San Francisco, Chicago, Houston and Atlanta. The one in San Francisco is the first one scheduled for April 16th; the one in Houston will be second. That's scheduled for the 23rd and then Chicago is next and Atlanta is the final one. They're a week apart on Saturdays, and we will try to get as many local citizens and public interest groups attending as possible.

Waste minimization. The waste minimization piece of the combustion strategy, we've already provided guidance for what's called a program in place back in May of '93. What that really means is the requirement for all generators and treatment storage and disposal facilities to develop a waste minimization plan. And in last May we developed a guidance to a system in developing those waste minimization plans. Just recently in December we sent out letters to generators and their CEOs advising them or requesting, recommending that they make those waste minimization plans available to the public. And finally, we're in the process now of developing an overall waste minimization strategy.

Facility permitting. We discussed this yesterday. This is another major feature of the strategy. I think we've already called in all of the Part B applications, for commercial interim status facilities and of course, we're giving top priority to permitting all of the interim status facilities starting with the commercial guys and then moving to the on site facilities as opposed to permitting new capacity.

Public involvement in the permitting process. We are currently developing a proposed regulation to help ensure public participation. That regulation is scheduled to be proposed in the Federal Register some time in the window between this May and July. A couple examples of the requirements are 1) each facility, any facility would have to conduct a public hearing ... a public meeting before submitting their Part B application. Another requirement would be for a public notice of the availability of the trial burn plan.

Risk assessment is also a major part of the combustion strategy with respect to upgrading the emission standards. The Agency's current approach is to require a risk assessment for all new permits to insure that the emissions in fact are safe. We've developed what's called an addendum to indirect exposure ... to an existing indirect exposure guidance document. By the way, this risk assessment is different from the, as most of you know, it's different from the risk assessments that we've conducted to date in the combustion program and much different than is included in the BIF regulation. It involves multi pathway indirect exposure assessment. And as I said, we've developed what amounts to an update or a refinement to an existing guidance document that the Agency's Office of Research and Development had developed back in I think it's 1989 or 1990. We've submitted that addendum to EPA's Science Advisory Board for review. We've also asked for public comment on it. We've published a notice in the Federal Register requesting public comment on the addendum and we're in the process now of revising the addendum. I believe the revised ... the addendum will be made public sometime ... will be ready for public distribution in late spring or summer. In addition, we're developing a guidance on how to conduct a risk screen so that you can avoid the time and expense of conducting a comprehensive risk assessment and I understand the guidance document on how to conduct a screening assessment will also be added roughly in that same time frame, by some time this summer. Of course the advantage of a risk screen is that it's quicker and cheaper than a comprehensive risk assessment but the downside is the risk screens are conservative, very conservative and because of that you might fail. And if you fail the risk screen, of course, you really don't have a choice but to get into the comprehensive assessment.

Enforcement. We probably don't need to discuss that too much with this group. I think you're pretty much aware of what we're doing in the enforcement area.

Now let's focus on the emission standards piece of the combustion strategy. We really have a couple of phases that we're dealing with on the emission standards. One is the rulemaking process that we're going through, just starting now. And secondly, however, we want to apply upgraded controls, particularly on dioxin and particulate matter immediately during the permitting process. So, let me talk about both of these. First, with respect to the rulemakings, let me give you some idea of why we're doing this, what the schedules are and what we're thinking about doing on some of the key issues. Why are we doing it? The Agency frankly is concerned that our existing standards are not necessarily protective, or don't ensure safe burning in every situation. For example, the existing regulations don't have limits on dioxins. Another example is, as I've said before, a number of the BIF regulations for metals for example and chlorine are purely risk based regulations based on site specific risk assessment. Those risk assessments only consider direct exposure through inhalation, don't consider multi pathway exposure. So for a number of reasons, those and other reasons, we're concerned that the existing regulations may not ensure safe burning. That's not to say that facilities out there, that your emissions are actually posing a risk. The concern is that our regulations don't ensure that your emissions are safe. The cement people in particular are fond of standing up in public meetings and saying that they're only emitting a tenth or one percent of the

allowable emissions or the emissions allowed by EPA's regulations and that's something that we want to put a stop to. Another issue is as a result of BIF litigation, we've entered into settlement agreements to propose and promulgate revised standards for BIFs, and incinerators too, for that matter.

What's the schedule? We've broken the rulemakings down into two phases with the first phase including incinerators, kilns and melting, smelting and refining furnaces and those regulations are scheduled to be proposed by September of '95. We hope to be able to beat that date, at least our management does. We will be promulgating, we're obligated to promulgate those regulations by the end of '96. The second phase will include boilers and industrial furnaces. We've split them up simply because we just don't have enough resources, don't have enough people to deal with all source categories at once. We would prefer to do them all at once, we just can't handle the load.

Some of the key issues or current thinking on key issues. One, you've heard about this. We are considering whether it is appropriate to establish technology-based or risk-based standards. And I think it's fairly clear that we will be establishing standards that reflect the use of best operating practices or technology-based standards. We will, however, certainly consider residual risks by one or more approaches. The options that we're now looking at, one option is to use the approach as outlined in the Clean Air Act Amendments which established ... which requires the Agency to establish the MACT standards ... the maximum achievable control technology standards. And under the Clean Air Act, the MACT process, the Agency has to revisit these source categories within seven years of establishing the MACT standard to determine if the residual risk is significant. And if the residual risk is unacceptable, then the Agency would of course rachet down on the MACT standard. That's one option. Another option is to use what we call a generic risk assessment on the national standards. The national standards for dioxin or PM for example. And here, what we can do is identify some reasonable worst case scenarios, look at model facilities, assume a high emission rate, we'll assume emission rates at the limits, assume some worst case scenarios for exposure, dispersion, whatever and show by generic risk assessment that these performance standards, the regulations appear to be protective in most cases. Another approach is to use site specific risk assessment. Either a screening model, a comprehensive approach or maybe something even simpler than a screening model where if we were to use a generic risk assessment on the national basis, then maybe on a site specific basis all we'd have to do is determine whether the facility's features meet the conditions of the generic risk assessment. If so, no more questions asked. It should be protective. If not, you fall outside of the generic risk assessment assumptions, then maybe you'd have to go into either a screening model or a comprehensive risk assessment approach. And there may be others. I think we'll be using a combination. I personally think we'll be using both generic and site specific risk easements but we'll see what happens. To the extent we use risk assessment, to the extent that risk assessment affects the emission standards, the regulations, it's likely that the risk assessment will only be used to rachet down on the emission standards, not to back away from the technology-based emission standards.

Now, having said that, we also are very concerned about applying reasonable technology-based standards, if in fact the technology based standards require emission levels that go well beyond what a risk assessment would require. Again, if the risk assessment, let's say a risk assessment shows that a dioxin TEQ of one nanogram is just fine, yet our technology-based standard would say that these facilities can easily meet a technology based standard of .2 TEQ. Well, in applying a .2 TEQ, for example, we would certainly want to consider economic impacts on various folks. Again, even under RCRA we would do this, again because we're going beyond what the risk assessment calls for, and as you know, RCRA is primarily a risk based statute. So, a couple of approaches .. and by the way, these approaches also are very consistent as many of you know, with the Agency's mandate under the Clean Air Act, under the MACT standards. The MACT standards or the MACT process clearly allows the Agency to consider, if not require, the Agency to consider or to develop different standards. For example, for new facilities versus existing facilities and allows us to consider different standards for small versus large facilities. Obviously we're talking about reduced standards, less stringent standards for small facilities and for existing facilities. Again, it remains to be seen how this plays out.

There's another major issue and that is whether we should promulgate the regulations under the Clean Air Act Amendments or RCRA authority or maybe even both authorities. And the bottom line is we obviously think it makes sense to promulgate these regulations under joint authority. We don't think it makes sense for two different agencies in the office in EPA, two different offices in EPA to be developing standards separately for the same source categories. Cement kilns, incinerators, boilers, whatever. So, we have ... we are coordinating efforts with them. We've had numbers of meetings at the staff level and the office director level to coordinate our efforts and again we think it makes sense because it avoids duplicative agency effort and obviously it helps you guys because it avoids piecemeal regulation. We wouldn't be establishing for example a PM standard of .01 and say a year from now and then have the Clean Air Act turn around and establish a standard of .001 a year or two later.

Now, so the current thinking is to promulgate regulations for all these source categories under authority of both statutes, Clean Air Act and RCRA. But now, under RCRA, since RCRA is a risk based statute, we need to ensure that when we apply the MACT process and develop the MACT standard, we need to ensure that the MACT standards meet RCRA concerns. And there are at least two concerns we would have under RCRA that might go beyond, that might require something maybe more stringent than the MACT process would drive us toward. One issue the residual risk. I mentioned that earlier. Under the MACT process residual risk doesn't need to be considered until seven years later. Under RCRA, frankly, we're considering just what our options are for considering residual risk as I mentioned earlier. Do we have to conduct a generic risk assessment? Can we rely on site specific risk assessments, or can we just wait, even under RCRA, and deal with risk like it's going to be dealt with under the Clean Air Act. Wait seven years later.

Another concern is, does the MACT process ... is it going to drive us always to do what we think are best operating practices? In some cases

in fact, the MACT process, which let me give you an example ... the MACT process says you take the ... you look at a source category and if you have more than thirty different sources, if you have a data base for more than thirty facilities, the MACT standard for existing facilities is based on the average of the best 12% of the technologies. If in fact applying that formula, and by the way there's lots of flexibility as you might have guessed into applying that formula, but if in applying that formula we determine that the average of the 12% percent of the technologies really doesn't represent best operating practice because for example, maybe the industry isn't doing a very good job of trying to control a given pollutant and could in fact have done a lot better job with existing technology that has a reasonable cost, if that's true, then we might determine under RCRA that the MACT process isn't good enough, doesn't give us what we think is best operating practices, we have to go beyond that.

An issue that we're looking at is whether we should establish separate standards, emission standards for metals, dioxins, PM, whatever, for each source category, boilers, cement kiln, smelters, whatever, separately or whether we should establish generic emission limits and generic standards for a source category that might be called hazardous waste combustors. There's a lot of sentiment, frankly, for establishing a generic emission limits for hazardous waste combustors. The thinking goes that hazardous waste should only be burned in devices that can do the best job. If a given source category such as cement kilns or boilers cannot burn hazardous waste as efficiently as other types of burners can achieve, then maybe they shouldn't be burning hazardous waste.

On that point, let me back up. Current thinking is to establish generic emission limits for all pollutants except possible for particulate matter. We're leaning very heavily toward generic standards for everything but PM. On PM it's very much up in the air whether to go with source category specific standards or generic standards for a couple of reasons. Frankly, PM is a poor surrogate for metals emissions when you look at what metals emissions you actually achieve for a given PM standard across source categories, the metals emission levels can vary all over the place at a constant PM emissions rate. So one problem is PM is a poor surrogate for metals emissions even though that's one of the reasons that we're limiting PM. Another reason that we're considering, or that it's very much up in the air as to which way we'll way for PM, is that some very preliminary data analysis indicates that the PM standards might be drastically different under the MACT process. Might be drastically different for various source categories. So, the economic impacts could be really substantial if we had a generic PM limit.

OK. I've talked pretty much about the rulemakings, the longer term effort, now let's talk about what we are doing in the interim to insure that as permits are awarded between now and the time new rules are promulgated and become effective, to be sure those permits ensure safe burning. And what we want to do is use what's called the Omnibus Permit Authority to ensure that permits are safe. As I think most of you heard before, the Omnibus Permit Authority says that the EPA permit writer has the authority and the responsibility to apply additional controls to the permit beyond those that would be dictated by the regulations to ensure that the emissions are protective of human health and the environment. And since this is outside of the normal rulemaking process, however, the permit writers will explain what their concerns are on a case specific basis and of course, listen to and respond to comments from the facilities. It sort of amounts to a mini-rulemaking, rulemaking on a specific site as opposed to a national rulemaking. In order to help our permit writers and also to give facilities an idea of where we're heading with our dioxin and PM standards, we are now developing a technical resource document called CETRED, that's the way we're pronouncing the acronym, combustion emissions technical resource document, that is going to take the available data base we have and apply the MACT process to it and based on that preliminary analysis, it's preliminary because it's based on available data and frankly, there are a number of things we don't understand now, and it may be many months before we do understand. For example with respect to dioxin formation. Anyway, we're taking the existing data base, existing knowledge and applying it ... using the MACT process and identifying what we believe would be reasonable MACT numbers for dioxin and PM and again, our permit writers will be using this. This will be a public document. The schedule for making it available at the earliest, sometime in the middle of May. And it might be a little later than that, but my best guess would be it should be available in the middle of May.

To give you some idea of where these numbers may be heading, everybody's aware I'm sure that when the combustion strategy was announced last May three were target levels given for PM and dioxin. The target level for dioxin was 30 nanograms, total congeners. The preliminary data analysis shows that the MACT technology can achieve a total congener limit level well below 30 nanograms. Well below. We're still looking at a lot of issues. One of which is whether to establish dioxin limits on TEQs or total congeners or both. The current thinking is that we will at a minimum establish the dioxin level as TEQs. As a TEQ on a TEQ basis and we might also, in addition, establish a total congener level. The logic for establishing limits on both would be our concern that health effects data over time would show that some of the congeners we now think don't pose significant risk could in fact pose significant risk. So, to be conservative, there is some sentiment toward limiting both TEQ and total congeners. By the way, the data indicate that a TEQ limit that might represent MACT technology would be close to the EC target level of a tenth of a TEQ. Of course, our technology-based dioxin limits, as opposed to the European community target level, would be a number never to be exceeded. It's a number never to be exceeded while under the EC target level of a tenth of a TEQ as I understand it, meant to be an average value, as is as you may know the dioxin limit for MWCs. The existing Agency dioxin limit for municipal waste combustors is as I understand it an average level not necessarily a level never to be exceeded. So our implementation approach would be more stringent than either what the EC's looking at or how the Agency currently regulates MWCs. With respect to MWCs, let me also point out that the Agency is reevaluating the MWC standards and expects to propose in the Federal Register revised dioxin limits and PM limits for MWCs by I believe this September. And the preliminary analysis indicates that both the dioxin and the PM levels will be substantially lower than they are right now. And in addition on dioxin, under the MWC, revised MWC standards, they will be establishing,

current thinking is to establish dioxin limits on a TEQ basis as opposed to the current approach of total congeners. I believe that's it. Questions, comments? I figured if I didn't get questions from this, they were asleep.

If we obtain our Part B today for BIFs, would we be shielded by permit from the combustion strategy changes? Do you have an idea, Sonya?

MS. SASSEVILLE: Well, first of all, I think it's going to be hard to get a permit for a BIF at this point without having many or most of the combustion strategy elements incorporated for any rule changes that happen afterward. It's my understanding, if we're partially using Clean Air Act authority that there wouldn't be a permit as a shield. That the limits would have to take effect even before modification to the permit. We can recheck that for when do the ... send out the minutes. but I'm pretty sure that's the case.

MR. HOLLOWAY: We're talking about in the interim prior to establishing regulations under joint authority. No, you're absolutely right. So, if we were to follow through and issue regulations under joint authority Clean Air Act and RCRA, then I think you are right. Then I think the Clean Air Act requires compliance within, I think, three years of the MACT standards, and I think you're right, it would be irrespective of whether you already have a RCRA permit. You're right.

Where can you find a copy of the combustion strategy or the principal components of the strategy? The RCRA hot line has copies of the information, the press release and accompanying documents that describe the strategy.

Who is the main contact to get information on the risk assessment portion of the combustion strategy? Contact within the Office of Solid Waste, Alex McBride. If you want ... talk to Alex about things such as the screening model and general application implementation of the risk assessment. If you have questions about nuts and bolts of the methods, of the data inputs, whatever, the algorithms, then you should be talking to the Office of Research and Development and the contact there would be John Schaum, but I'm sure he's in the locator.

How does EPA plan to keep tabs on over zealous permit writers who choose to over use or even abuse their Omnibus Permit Authority. What are the checks and balances?

I can't imagine that would ever happen. In reality, the permit writer has to explain to you, as we said, as our guidance documents, an old guidance document says, the permit writer needs to explain to you what his concern is with respect to dioxin, PM, explain the risk methodology that he thinks is appropriate to use, if any, to identify more appropriate standards. He needs to explain where the dioxin and PM levels came from that are going to be presented in CETRED. Using the supporting documentation we'll provide he should be able to answer all your questions.

MS. SASSEVILLE: As far as the official checks and balances, certainly the Permit Appeals process is there, not that we want to encourage people to appeal, but as far as legal checks and balances, there is the appeals process. One thing to keep in mind that there were a number of appeals of metals limits that were set for incinerators under the Omnibus provision and most of those permits were upheld. So as far as just the idea of using the Omnibus provision, that has been upheld widely so it would only be if there is some specific use of it that's not appropriate that there may be a problem.

MR. HOLLOWAY: Another question. Will the MACT rule be under RCRA or Air Regulations or both? The MACT rule, the MACT standards are a Clean Air Act Amendment standards, but what I was trying to point out is that Agency intends to establish technology- based standards for your industry under joint Clean Air Act and RCRA authority. It goes on to say, if MACT is duplicated under RCRA, how will EPA avoid the double jeopardy of multiple program penalties and enforcement actions on a company who might only have a single noncompliance identically covered by RCRA, MACT and by a Clean Air Act (inaudible). Issues we have not yet even begun to discuss with the Air people, the MACT people, is how we would implement these regulations. And that's an important issue, we just haven't gotten to it yet.

If limits are set on dioxin and furan emissions will this be done using a scientific risk assessment or will it be done in an arbitrary manner, such as the German standard? Certainly, under the rulemaking, as I said before, we're leaning toward a technology-based approach for the dioxin standard and we'll go through ... it'll be scientific approach, looking at existing data as well as data we intend to obtain over the next several months both at the research level, lab scale level, bench scale level as well as full scale data.

Research shows that 290 NMs, whatever that is, wave length UV light from the sun destroys dioxin. This was shown in ... Sevaso ... wherever it is ... Italy. Why is the atmospheric discharge of small amounts of dioxin the top priority of emission concerns?

Did many of you attend the dioxin seminar? The public dioxin seminar, the EPA, ASME jointly sponsored dioxin seminar, when was it? A couple of weeks ago down in the Research Triangle Park. There was a speaker, Dr. Linda Birdbaum, an expert on dioxin toxicity and exposure, whatever, was explaining the concerns. If you have a question about that, talk to Dr. Birdbaum.

MS. SASSEVILLE: If the question was related to the idea that maybe dioxin isn't persistent in the environment, that's certainly not correct based on our data which indicates that there are high levels of dioxin out there, especially in some areas that acts kind of ... sinks ... like the Great Lakes, for example. So it is persistent in the environment and the levels seem to be on a general increasing trend. So, they do seem to be persistent. I think we hear that they've somewhat leveled off right now, but there's no guarantee that that will persist.

COMMENT: A clarification of what you said was (inaudible) The second point that was made here at the conference was that hazardous waste

consideration is (inaudible)

MR. HOLLOWAY: I think in summary the comment relates to why is the Agency worried about or so concerned about dioxin emissions from combustion sources. Aren't there greater things to worry about, more prominent sources of dioxin emissions and the answer today is the same as it was when you raised the question four times at the dioxin seminar. The Agency has two separate Congressional mandates to control toxic emissions from hazardous waste combustion units under the Clean Air Act as well under RCRA and we're going to do that until the statute changes.

What is TEQ with respect to the dioxin discussion? That's a good point. We use a lot of acronyms. TEQ relates to a toxicity equivalence approach where the toxicity of various dioxin and furan congeners are related to the toxicity of the most toxic congener which is 2,3,7,8 TCDD. Some tetra through octa congeners ... for some reason those are the only congeners considered, I don't know why. Some of the congeners within that band are considered to have zero toxicity compared to 2,3,7,8, while others are considered to have a toxicity of a tenth of 2,3,7,8, and I don't know what some of the other ratios are, but the idea is to have a toxicity equivalent compared to the most toxic dioxin congener.

With the increasing tightening of requirements and the possibility that the number of viable outlets for waste treatment are diminishing coupled with the realization that pollution prevention will not likely get us to zero, what is the Agency's current thinking on how industry will handle its waste and if site specific BIFs are closed, I guess on-site BIFs are closed, is the Agency considering the increased risk associated with transportation? Well, in the first place, based on the data we have, it looks like it will not be that difficult to comply with the dioxin and PM levels that we're considering and it is not that expensive. I'm sure you might have opposing views on that and you'll have an opportunity during the rulemaking process to give us your thoughts on that and frankly, even earlier. So, with respect to shutting down the on-site facilities, one of the things as I tried to stress, we want to take into account and that is the opportunity or the possibility of establishing less stringent standards for small facilities to the extent that you've got a small on-site facility, not all on-site facilities are small, but if you have a small on-site facility, then there certainly is some logic to have a less stringent standard. The mass emission rates are lower from a small facility. Small combuster, and in addition the economics ... the cost of a CEM is a greater portion of the capital cost, for example, or the cost of a retrofit to comply with the dioxin standard is a greater cost of a greater portion of the capital cost for a small facility than a large facility. So, if in fact the technology-based standards drive us to levels ... to emission levels that are well below any risk-based standard, then we will consider economic impacts as needed.

The question was, are we going to consider risk from transportation, I guess storage and transportation and then the perhaps it could be argued that when commercial off-site facilities take waste from a number of generators, there's less certainty as to what they're burning and possibility for uneven operation. All those are real concerns and we hope to be able to take those into account during the rulemaking.

Are there thoughts to lower the PM standards on BIFs? Yes. The Administrator has publicly given some lower numbers such as lowering from a .08 to .015 as her viewpoint. When the dust settles we'll have PM standards that are ... let me slow down on PM. On PM, I'm not sure where we're going to end up. Some of the ... the target level in the Combustion Strategy was .015 grains; the current standard for all hazardous waste combustors is .08. Some of our data indicates that some source categories can get well ... can achieve levels well below .015. And as I said before, the MWC standard that's now being revisited is going to end up being ... there's a good possibility it will be well below .015. On the other hand, there are other source categories that when you apply the MACT process indicates their PM level would not be that low. So, I don't know where we're going to end up on PM.

Where does the Agency currently stand on the allowable ambient chlorine standard? It's my understanding that this value is being revised, is that accurate? And when will it occur? I understand that some of the, in fact, some of the CMA members have made available to the EPA toxicologist at Research Triangle Park, North Carolina, some new ... I guess it's not new now ... some health effect data that we didn't have available when we wrote the BIF regulation that shows that the ambient standard for chlorine ... that the acceptable ambient level for chlorine should be substantially higher than we used in the BIF regulation. And in the communications we've had with these people, I guess we said two things. Primarily to the CMA reps. One, if the Agency toxicologists are in fact convinced that new data exists such that the level should be revised, we'll certainly take that into account in fixing the current number, but as a practical matter, unfortunately, we've got our hands tied moving forward with the Combustion Strategy on all these schedules and I'm not really sure how quickly we can move forward with some sort of technical amendment or this would be more than a technical amendment ... some sort of rulemaking to provide notice and comment on the new number and then promulgate a new number.

Just as an update, I haven't heard anything on this issue. I forget who we we've been talking to. We've been talking to some of your members. I haven't heard anything on this issue in over two months and I'd practically forgotten about it until about last week when I was trying to think about some of the questions I might be getting today. And it occurred to me that nothing to my knowledge has happened on that. I haven't heard anything from a toxicologist yet as to whether they've been convinced by you guys and until I do, I'm focusing on other things. Yeah?

(comment inaudible)

MR. HOLLOWAY: All right. I guess I asked for it. All right. OK. Currently 60% plus of air borne air pollution comes from mobile sources. If headquarters doesn't know the answers to these questions, what makes you think that the Regions will provide better, if any, guidance? The point of us directing you to the Regions and the states is not because we don't necessarily know the answer. We can certainly come up with an answer among ourselves, but we just ... a lot of these issues, especially the ones that we're trying to pass off deal with site specific issues and we don't know the issues. We don't have the time to get

involved in site specific issues. That's what the Regions are for. That's why the Agency has Regions. It seems like a lot of people are concerned though that the Regions may not have the time to provide the level of ...

SIDE B

I don't know how to deal with that other than I mentioned this to somebody at the break, if you try to communicate with the Region and they just don't have time to deal with you, and frankly, things are going to get worse in that respect rather than better, maybe all you can do is document the problem you're having and what action you plan to take because of that problem and justify that action. Justify why you think that action meets the spirit and the intent of the regulation, if not the exact letter of the law. Yeah, Dennis?

QUESTION: This group of people deals with RCRA as a body ... the whole of RCRA and we attend a lot of conferences here in Washington on the subject of waste classification, land disposal restrictions, the whole body that is RCRA. Do you know whether (inaudible) do we get the kind of counsel that we in the (inaudible) and that is you go to the Regions for the answer to a lot of these questions. If all of RCRA, I submit all of RCRA was administered in this fashion, we wouldn't be able to get along because we would be trying to get interpretations on thousands of issues at the Regional level. We really think you need to think carefully about the message that you're getting from this group that the Regions are not being responsive to this sending that you are undertaking. You're sending us to them and they're kind of throwing up their hands. And this group is in the middle.

MR. HOLLOWAY: I understand exactly what you're saying. I can sympathize and really, what in effect I think we're saying is, although I don't like it ... is the process ... the way the process I guess is going to work, if it works at all, is that we send you back to the Region then it's up to the Region to find the time to deal with all the site specific issues and understand exactly what your facility looks like and why you ... what problem you have and why you think your fix makes sense and then often the Region would then turn and check with Headquarters, with other Regions to see if your approach or if their response to your request makes sense. All that takes an awful lot of time and the Regions just don't have the time to do that as ... for the most part. So, I don't know what the answer is. I understand the problem. Something, I guess we need to work on.

COMMENT: I was going to address this issue finally in March. The thing that people have to realize is that number one, we deal with the Regions on a routine basis on the phone an enormous amount of time. OK? (inaudible) (tape stopped)

MR. GIGLIELLO: ... the reality of the situation is that I think the Agency is going to be a decentralized organization in the near future. Our reorganization basically is empower, empower, empower. And I'll tell you, the reality of it is, we are trying to farm more and more stuff out to the Regions, more and more stuff out to the states. If you really feel this strongly that you are not getting the input that you need, OK, to be perfectly honest, there's not much that we can do at our level. I mean, we spend an enormous amount of time with the individual Regions and enforcement cases and I feel we provide them with answers from a Headquarters standpoint. I personally have never been called by anyone in a regulated community saying, the Region is not giving me any kind of answer. I haven't been called. I don't know if Bob's been called. It's just ... I haven't heard it and if .... (comment inaudible) well, that's fine but I'll tell you the reality of it is, you have to do it at a much higher level than sending it to Bob and me.
It is very unlikely that we can provide the site specific kind of answers that you want from Headquarters. We're a finite number of people and we just don't have the resources to do it.

MS. SASSEVILLE: Something to add to that is that, you know, we are sympathetic to your concerns, but just to explain the position that we're in, there have been times occasionally, when someone from Headquarters has tried to work with the facility on a site specific issue, either because they weren't aware of the policy or weren't thinking about it. And inevitably we end up answering the questions wrong and the reason is because the Regions always know some site specific fact that we weren't familiar with just because the Regions are out at the facilities; they are in more regular contact with the facilities and so it's not just an issue of not having time but we frankly just can't do as good a job unless we spend so much time with one individual facility that we're not going to be able to do the national work. So, that's a big part of it too.

MR. HOLLOWAY: Another question. Will generic standards for all combustors be acceptable under the Clean Air Act? That's a good question. I should have mentioned that. Generic standards would be acceptable under the Clean Air Act provided that the generic standards were at least as stringent as the MACT standard would be for each individual source category. Thinking further about that, I don't know what case we would have to make, if any, to justify going beyond the MACT standard for source category to require compliance with the generic with, say the RCRA generic emission limit. I'm not sure whether we'd have to make a case to go beyond the MACT floor or above the MACT floor, as they call it, for that source category.

Let's see, what's next on the agenda? Did we ... since Houston is going to be signing off ... are they like gone or did we ... well, I was going to say, I don't know whether Emily or Ken might have had a few words of wrap up, but if we've already lost them, then we can decide here what we want to do. Do you guys want to try that?

Wrap-up (CMA & EPA Parties)

MR. GIGLIELLO: I'll try to make this quick. The first thing I want to do is try to get everybody to fill out the evaluation forms. Whenever we do any seminars like this, we really need the input, so I'd

like people to fill out those evaluation forms, give them to Cindy, give them to whoever, so we could have those.

The other thing I wanted to say about the workshop. One thing that would have probably made this more useful for all of us is if these questions came in before the workshop. As you've noticed, we've probably gotten about, and I think my last tally, over 250 questions on our little 3 x 5. And we really tried hard over the last eight months, getting a list of questions and trying to answer these questions that you had. And in all honesty, and be very frank, I think we answered every single one of the questions that you gave us beforehand, in a thoughtful manner and we really researched it. Some of the answers that we gave to you that were impromptu, it wasn't fair to us at EPA to have to answer those, to be honest. But we did try our best and I think we've answered most of them. Maybe they weren't the answers that you wanted to hear, but we did answer them to the best of our abilities. OK? And we really didn't expect that many questions to be perfectly honest. We thought we had most of your questions and we thought we were going to answer those in the way that we did.

What are the next steps? The next steps are, we're going to take these audiotapes and transcribe it, edit it, if necessary, if there are minor changes or changes where we just made some mistakes up there from the podium. We're going to make those changes, if need be, and we're going to send that to CMA and other interested parties. There are some questions that we are outright not going to answer. I want to make that perfectly clear. If there were any site specific questions, and there are a number of them, we are not answering them. If there are any questions that we felt were off the topic totally, and there are a couple of those, we're not going to answer them. Some of those questions, you will not see in the transcript. What we will do with those questions is compile that list and have that attached to the transcript and send it out to you and the other interested parties so you know what questions we received today. But there will be some that we will not answer.

We'll also compile a list of the guidance documents and guidance document numbers which we'll send out to you with the transcripts. I've given out the ERP to everybody. I have four copies left. If anybody wants them, come and grab them. Two other things. We really hope to learn from this workshop in order to improve future workshops like this. In the new office of compliance that I'm going to be in, I think we're going to be doing a fair number of these types of workshops both at the Headquarters level and hopefully at the Regional level. And maybe even the states once we get them on board with this process. But what we need from you is how to make these more beneficial. Is the process of getting the questions beforehand, trying to answer them better? Is it better to have more of a free for all? what format really helps and how can we improve these work shops? We really need to know.

The last thing I want to do is to thank everybody. You've been really good from the standpoint of being engaged, asking questions, staying awake, I know it's hard after a day and half of just listening to a lot of EPA people talk about a lot of regulations to actually stay awake. You've bene very good from that standpoint. You've asked a lot of good questions, and I want to thank all the participants because you really did a good job from that standpoint. I also want to put in a plug for the people that worked on the workshop, Emily Chow, Bob Holloway and his staff, Sonya, and the other people from EPA, who had spent a lot of time and a lot of energy putting this workshop together. Cindy from CMA spent a lot of time and I appreciate her help as well. Houston, you're probably gone by now, but if you're still orbiting out there, thank you for participating and we really hope to see you in more seminars like this so we can have more dialogue. Thanks a lot. (applause)

[End of proceedings as recorded.]

ATTACHMENT A

CMA/EPA BIF WORKSHOP
REVISED AGENDA

March 29, 1994

Time	Topic
8:30 - 9:00	Introduction * CMA & EPA Representatives
9:00 - 9:30	RCRA Overview * Brief Overview of the RCRA Program
9:30 - 10:00	General BIF Overview * Brief overview of the BIF regulations and available resources to assist in implementing the regulations
10:00 - 10:15	Break
10:15 - 11:15	Sampling & Analysis of Feed streams * Waste analysis & Waste analysis plans * Frequency of sampling & analysis
11:15 - 12:15	Monitoring Requirements & Automatic Waste Feed Cut-Off * What is required for measurement of: - Feed rates - Production rates - Temperature - Emissions * Calibration of monitoring equipment
12:15 - 1:45	Lunch
1:45 - 2:15	Owner/Operator Inspections
2:15 - 2:45	Subpart BB Inpsections
2:45 - 3:00	Break
3:00 - 3:45	Recordkeeping * Types of records * Special issues * Format of records
3:45 - 4:15	Training for Facility Personnel: * Who should receive training * What type of training
4:15 - 4:30	Wrap Up for the First Day
4:30	Adjourn

CMA/EPA BIF WORKSHOP
REVISED AGENDA

March 30, 1994

Time	Topic
8:30 - 9:15	Compliance Testing * Establishing operating conditions: - Feed rate limits - Recertifying, retesting, & revisions
9:15 - 10:00	Management of Residues * Applying the Bevill Exclusion: - Sampling requirements - Constituents for sampling - Applicability of the two part test
10:00 - 10:15	Break
10:15 - 10:45	Regulatory Development Up-date
10:45 - 11:00	Wrap-up * CMA & EPA Representatives
11:00	Adjourn

ATTACHMENT B

Qs & As ON WASTE ANALYSIS

Q. 1) What percentage of BIFs utilize the exemptions contained in the BIF regulations?
2) Region VI provides practically no guidance for BIF-they avoid the questions. Who else besides Reuben Casso should we ask a question?

A. 1) We do not have such information available to us.
2) Besides the permit writers, a Specialized Hazardous Waste Combustion Inspectors Workgroup was established and each Region has one or more representatives on this workgroup. For Region VI the representatives are Teena Wooten [(214) 665-2279] and Ken Cooper [(713) 983-2148].

Q. 1. A batch tank is analyzed before burning and then while burning. The concentrations of BIF constituents are higher (say 2x) before burning then during burn. which analysis should be used?

A. Use the higher results. Sampling & analysis protocol should be checked. Sounds like there is a problem occurring with the current sampling & analysis procedures.

Q. If there is wide variability of data, low values cause the upper confidence limit to be higher than if the low values were not there. This seems unfair. Why should low values hurt when low is better?

A. In reference to concentrations of constituents, the higher values of the upper confidence limit will require a lower feed rate which is more conservative. Suggest using the statistical methodology of "upper tolerence limits", therefore, the lowere values should not increase the upper limit.

Q. Re: SW-846 Sample holding temperature?

Why must a sample being tested for metals be held at 4°, when the material being sampled is liquid at temperature in excess of 100° (at which it is stored), and solid at holding temperature specified by SW-846.

A. This is a regulatory requirement for sample collection and storage. You may want to try to ask the Region for a variance in the sampling & analysis plan if you can demonstrate that it has no effect on the results.

Q. Is a database (for statistical analysis) required when you fall into case by case sampling.

A. Case-by-case sampling and analysis is for a sampling scheme for a facility that cannot use batch or statistical analysis. A database may be appropriate for other reasons for a particular case-by-case situation.

Q. A waste is a waste, it is often subject to trace level of analytical variations in BIF metals, Cl and ash. If a BIF constituent's content in waste is insignificant compared to feed rate limits established in the compliance certification, is statistical sampling and analysis still a meaningful thing to do? Or is this a case-by-case sampling candidate to determine frequency issue.

A. If there is variation, then statistical analysis does have meaning for on-site generated wastes. Case-by-case may or may not be an option.

Q. If a facility mixes all waste streams before imputing into the boiler, why can't the point of measurement (i.e. the sample to demonstrate compliance) be the mixture of the streams?

A. Batch option could be appropriate as long as the sample is representative of what is going to be fed into the BIF and no additional materials are added to the batch after the sample has been obtained or while burning the mixture. This will ensure your knowledge of the concentrations before feeding.

Q. Are sampling frequencies greater than one year acceptable? Assume process generating waste & data supports this.

A. The Agency is currently asking for comments on the draft BIF Waste Analysis Guidance regarding minimum requirement for sampling and analysis as once a year. We suggest that frequencies less than this should be worked out with the appropriate state or Regional offices given the supporting data.

Q. Is an ongoing waste analysis program required for an Adjusted Tier I facility burning a listed waste?

A. An ongoing waste analysis program is required for all facilities regardless of what tier they are operating under and whether they are burning a listed or non-listed hazardous waste. The concern is not necessarily with the listed waste; rather, we are concerned with the constituents in the waste and other feed streams. A listed waste may contain constituents of concern that are different than the constituents contained in the listing description.

Q. Please provide a copy of your example slides to Cindy Brych of CMA so copies can be made and distributed to attendees. If you have a hard copy on paper of these few slides, we can make copies today.

A. Included in response.

Q. How many states are RCRA authorized? Are they also BIF authorized?

A. At the time of this workshop, only 4 states and 4 territories are not authorized for RCRA and they are Alaska, Hawaii, Wyoming, Iowa, Puerto Rico, America Samoa, Virgin Islands, and Guam. Only 1 state is authorized for BIF and that is Arkansas. [As of December 1994, 3 more States are authorized.]

Q. How specific does the routine analysis have to be for an on-site chlorinated organic waste? For instance: Full characterization has been done and there are no heavy metals. Is analysis for chlorine only for routine analysis sufficient?

A. We recommend that the full range of parameters be characterized. However, it may be plausible to work with the Regions or states to establish different testing frequencies for different constituents based on analytical data and statistical analysis.

Q. How is non-normal distributed data handled to calculate upper confidence limit?

A. Use normal distribution for most cases. If you can prove statistically that a log-normal distribution is more appropriate then it should be allowed. Arc sign and square root transformations are out. They are basically playing with numbers.

Q. For <u>everyone</u> of the samples obtained for any of the types (batch, SA, or case-by-case) does the full range of parameters have to be run or can only a few parameters by chosen, using process knowledge to determine which ones are more important?

A. We recommend that the full range of parameters be characterized. However, it may be plausible to work with the Regions or states to establish different testing frequencies for different constituents based on analytical data and statistical analysis.

Q. If an off-site waste is batch analyzed to establish a database, can statistical analyses be used to establish a reduced sampling frequency or must each load be analyzed?

A. We recommend that each <u>batch</u> be fully characterized for off-site wastes.

Q. Does blending with fuel oil trigger use of batch analysis?

A. Yes, the batch analysis is recommended for off-site wastes and blended wastes. Statistical analysis is only recommended for on-site "as-generated" wastes.

Q. Phased Sampling:
SW-846 uses an 80% confidence interval - You have given an example of 95-97.5% is this required or just an example?

A. Material presented at this workshop is only recommended guidance by EPA Regional and Headquarters staff.

Q. Batch Sampling
Full metals analysis to be tested and <u>verified</u> by QA/QC protocol can take 4-5 Days. How can waste be effectively burned without massive tankage increase or can preliminary (unaudited) analysis be used.

A. The facility can use data from a preliminary (unaudited) analysis at it's own risk.

Q. A lot of the compliance requirements under RCRA are based on grab samples. Does a facility have to be in compliance on every grab sample? Since most standards are based on longer term risk exposures, shouldn't the compliance strategy be geared toward demonstrating compliance in average over a period of time, say hourly or daily?

A. Not for sampling and analysis. Case-by-case may allow for compositing but this should be worked out with the appropriate Regional or state office.

Q. Sampling/Analysis
Can process knowledge be used for non-hazardous feed streams, such as process vaporous air emissions or combustion cooling water being burned in a BIF unit, instead of sampling?

A. Generally no, we recommend process knowledge in combination with analytical data be used.

Q. How often is confidence limit established? It is revaluated with each new data point? If so a high valve; even when below confidence limit, can drastically raise it, especially if database is small.

A. The confidence limit is reevaluated every time the database is updated, i.e., every addition of a new data point.

Q. Do you plan to allow some period of time to utilize "new guidance"for those who have used 1984 guidance in designing their waste analysis plan? Is "new guidance" being applied now?

A. There is no implementation period associated with guidance documents. This new guidance document was developed to assist facilities in updating their existing waste analysis plans which they are currently using.

Q. Do daily test methods have to be performed exactly as the test methods conducted during a trial burn test? Are the QA/QC requirements the same for daily testing as during a trial burn?

A. No, after the trial burn you are not required to use the SW 846 Method promulgated for the trial burn unless the method is promulgated as the regulatory operational requirements or in the permit.

Q. What are significant differences between new waste analysis- draft guidance and the old 1984 waste analysis/waste analysis plan guidance? Is the presentation discussion of sampling (phased sampling based on the draft guidance?

A. The significant differences between the two versions are that the new version is in a more user friendly format, it is updated to include new regulatory requirements (e.g., LDR), examples are provided, it is more comprehensive. The material for this presentation is not solely based on information from this guidance manual. This material is more specific for BIFs and was developed in combination with the Regions.

Q. Can sampling methods be evaluated before being implemented to gain approval to avoid an N.O.V. upon inspection? i.e. going from batch to phased sampling w/statistical analysis.

A. We recommend that a facility consult with the appropriate state or Regional Office when selecting a sampling & analysis option. However, due to lack of resources, it may not always be possible to receive approval prior to an inspection.

Q. If a feed stream is non-detect for a metal during the compliance test, should feed rate limits be set using non detect value or "zero"?

A. At this time, we recommend using the non-detect values, however it is not specifically required by the regulations. Keep in mind that it may not always be below or at the non-detect value.

Q. Then during interim operations if a non detect value occurs do you use ND valve or zero for feed rate calculation?

A. At this time, we recommend using the detection limits, however it is not specifically required by the regulations. Keep in mind that it may not always be below or at the non-detect value.

Q. If a sample result in above the 95% confidence interval and you resample, and the resample result is within 95% CI then do you use lower numbers 1 average of two or sample again. Any guidance available on this?

A. If a data point is above the 95% CI, this data point should be evaluated as discussed for outliers using the appropriate QA/QC procedures. Also, the sampling frequency should be verified. If a resample shows you have returned within the 95% CI, use the lower 95% value. However, we recommend that you use the higher value until this data point can be disqualified or resampling shows that you are within the 95% CI.

Q. Why is phased approach only appropriate for as-generated wastes and not blended?

A. The chances for irregular variability are much higher with as-blended wastes (i.e., the waste stream will not be consistent. The phased approach is to show consistency.

Q. Confidence limit
Where in the regulations or guidance does EPA get the 95-97.5% confidence limit? SW-846 only requires 80%.

A. The material presented for the workshop is only recommended guidance from the Regional and Headquarters personnel.

Q. Waste Analysis -
If a waste stream does not change, does it have to be analyzed once per year. EPA seems to want once per year sampling even when we know that the waste does not change. Where in the regulations does it say that annual sampling is required?

A. We recommend that sampling & analysis be conducted at least once a year. Frequencies less than this should be worked out with the appropriate state or Regional offices given the supporting data.

Q. In establishing sampling frequency under phased sampling, should all parameters be analyzed at the same frequency, or is it proper for the facility to determine sampling/analysis frequency on a parameter specific basis. Example: Feed stream may only contain 2 BIF metals consistently show up below detection limits at low MDL.

A. We recommend that the full range of parameters be characterized. However, it may be possible to work with the Regions or states to establish different testing frequencies for different constituents based on analytical data and statistical analysis.

Q. 1. Where does the requirement to develop a statistical database come from - not in rule or a BIF technical guidance?
2. Can you address sampling frequency where a parameter is not detected?
3. Can process knowledge alone be used for <u>non</u> RCRA feeds (natural gas, combustion air, either gas streams)
4. Is appendix VIII required under interim status? What guidance can you give for "excluding" constituents on the basis that they not reasonably expected to be in the waste? Is process knowledge acceptable? Do non-SW-846 methods need EPA approval?
5. Are there guidelines for demonstrating that multiple waste streams, generated at different points in a process, are similar (so sampling one is representative of all)?

A. 1. Statistical analysis is not a requirement, it is just an option presented at this workshop. However, waste analysis is a requirement.
2, 3, & 4. We recommend that the full range of parameters be characterized. However, it may be possible to work with the Regions or states to establish different testing frequencies for different constituents based on analytical data and statistical

analysis. Process knowledge in combination with analytical data to determine constituent concentrations for feed rate calculations or exclusion should be used. Non-SW-846 Methods may be used if a SW-846 Method is not required by the regulations. Keep in mind that if a non-SW-846 Method is selected it will be evaluated by EPA during an inspection.
5. There is no guidance available in this area. EPA expects that each individual generated waste stream be fully characterized independent of other waste streams.

Q. I have heard repeatedly to "work it out with the Regions". In the context of a part "B" this will likely work and result in permit conditions. What is the mechanism to "work it out with the Regions" during interim status. Do you just discuss it and document it with the Region? Reach a formal agreement signed by both EPA and Operator? or What? Regions are often too busy to give written documentation/interpretations of the issues.

A. First, it is true the Regions do not have the resources available to develop a formal document or agreement on all the issues for every facility. However, the facility should try to contact the appropriate state or Regional Office to arrange for a meeting on specific areas they need to work out. At a minimum the facility should establish contact with the appropriate personnel via telephone. Documentation should be kept of all contact and discussions. A common mistake facilities make, especially during interim status, is they contact only permitting personnel. The facility should always try to contact enforcement personnel discuss issues as well as permitting personnel.

Not Answered:

Q. Contrary to Ken's comment, sites have brought up the question to EPA on how too sample and analyze gas streams. EPA has not identified a course of action.

Q. Why can't a site use general data for metal content of stream like Natural Gas when most metals are not present instead of site specific statistical Data?

Q. Regarding outliers:

When performing statistical sample a metal comes up below detection levels always (greater that 50-60 samples). Then one sample shows detectable quantities of the metal which if not used in the process or equipment material of construction. The outlier cannot be explained. Is this then a violation if the waste was burned in a BIF?

Q. In our process, product goes out the top of a distillation column, and the waste to the BIF goes out the bottom. Can product quality analysis change in waste stream characterization?

Q. Has EPA determined the _____ cost of waste analysis per the statements just made ? -unrealistic in cost believe > $1,000,000 lyr.

Q. Has EPA, in its "New" guidance on waste analysis plans considered the cost of complying with the "Daily" frequency recommended. Estimated cost to comply for my company would be about $50 million dollars per year for this approach.

Q. Your recommendations go way beyond the regulations of 40 CFR 265.13.

Q. At our facility, for RCRA waste characterization, several classes of similar waste streams were characterized in detail.
For BIF, we felt it necessary to further break down the characterization to specific streams, but <u>only</u> for BIF constituents (metals, i.e., ash). Is this now a problem-will EPA now require <u>complete</u> characterization including, for example herbicides, viscosity, etc? Even if these streams are a subset of originally characterized wastes?

Q. Sampling/Analysis
Is an "outlier" analysis considered a violation (assume it's a valid analysis)? Given that statistical reliability is always < 100%, should not "valid" outliers occasionally be expected?

Q. There seems to be a lot of confusion about how mon-detect values are to be treated. Does the Agency have any guidance?

Q. Not analyzing vent streams (burned in BIFs) has been the basis for complaint process. Is the EPA currently developing analysis methods for metals and ash for vapor streams?

Q. Site-Specific
Having multiple RCRA stacks may force a limit to near or below normal organic matrix detection limits for metals. Analysis in this situation is nearly impossible. Can process knowledge be used? Options? What to do with false positive that will result with pushing the low detection limits?

Q. Since Chrome from pipe is Cr+3 and not the carcinogen Cr+6 does EPA intend to exempt this form of chrome as it does for waste disposal. If not, why the inconsistency?

Q. We have had issues in finding laboratories that can meet reproducibility and repeatability analysis as detailed under SW 846. Is EPA reviewing test methods especially for ash and metals?

Q. If a site is using a statistical approach and gets a "hit" isn't it also legitimate to switch to batch sampling until comfortable again that the waste is statistically unchanged?

Q. Waste analysis plans - During inspections of on site

Generator/Burners, EPA has stated that wastes be analyzed at least once per year. What is the statutory/Regulatory basis?
Comment: Many of these streams have been burned longer than EPA has been around. There is more than 20 yrs. data available on production processes that have not changed? Is the new guidance to cover rule this? Your phased sampling obviously didn't include cost. A typical plant i.e., 30 days x 6000/sample x 6 streams. Analytical Cost of waste streams = 1,080,000. What happened to SW 846 Chapter 9-80% confidence interval-Now 95%? Do you analyze for all appendix VIII or a subset? dependent upon waste stream.

Q. What is the purpose of the ash test (ASTM methods). The ash test is run at temperatures lower than the minimum boiler temperature. What information is to be derived from this test to determine that the waste feed to the BIF unit will not result in an exceedance of particulate emissions?

Q. Could data which was collected for a recycling permit be used to demonstrate consistency of an extremely stable process if data was collected quarterly for about six years, but not all parameters tested under BIF were deserved. The tested data did show little to no variation of observed parameters. Current BIF testing is done quarterly with inclusion of all parameters.

Q. Could you give us a reference for a method for metals, chlorides, and ash in gas? (since we're required to analyze all feed streams and we're been unable to find a method).

Q. Is analytical data required for flue gas and process went gas feed to boilers if so, does EPA have protocol method or recommended methods to sample and analyze these gas streams, if not. What is EPA's recommendation?

Q. What methods are to be used? We know of no SW-846 methods that apply for metals analysis of gas (in the feedstream). or any other methods either. Depending on answer, is it really necessary to analyze a natural gas stream?

Q. Where are the states going to get assistance on the Risk Assessment requirements?

Q. If a required monitor fails, you stated you must not operate the unit. Later you state that all controls must be in place for 24hrs. after H.W. feed stops. If a monitor fails and you stop hazardous waste feed immediately are you allowed same period of time to shut down the boiler (in order to do it with equipment change) or is this a non-compliance situation??

Q. 1. Susan's description of her new office's direction - to work with industry and to help better educate the regulated community provide good. Will EPA consider providing more up-front training before new regulations go into effect? Can the first one or two inspections, after a new regulation goes into effect, be more oriented to identifying and correcting start-up problem (with the new regulations) recognizing that there is a learning curve for any new regulation rather than using hard-hammer enforcement actions right off the bat?

Queations on RCRA Overview

1. How do I get a copy of the Enforcement Response Policy?

2. Why is an "Ignitable" only material considered a RCRA Hazardous Waste? Shouldn't these materials be regulated by OSHA regs instead of RCRA?

Questions on AWFCO

1. Do all of the parameters during automatic wasted feed cut-off testing need to be tested or can one parameter fulfill the requirement?

2. Question on AWFCO testing parameters 266.109 and 266.110 allows for BIF units operating under certain conditions to be considered as satisfying the low-risk waste and DRE waiver requirements. For units operating in this manner, does the weekly AWFCO procedure still have to test for minimum combustion temperature?

3. Some regulation allow programming systems to use the and logic to prevent unneeded trips. Can this be used for BIFS.

4. Most of the AWFCO parameters has an HRA valve as well as an instantaneous maximum value i.e. co HRA of 100 ppm and instantaneous max value of 3000ppm. It is enough that when the AWFCO is checked electronically, that the signal for 300ppm will suffice for both parameter HRA as well as instantaneously?

5. Does this 24 hr. burn out apply to liquid feed only BIF's where there is no ash generated?

6. What is expected from the 7-day waste stream cut-off test and the 30-day cut-off test be done on a monthly basis?

7. When redundant instruments which one is the liquid to be tripped from and when is it allowable to be swapped to the other?

8. What exactly is a WFC for a unit burning "solid" wastes? i.e. a charge is introduced every 5 minutes. A charge is introduced the unit goes out of compliance but is back in to compliance before the next charge is introduced, has a WFC occurred?

9. I understand that minimum combustion chamber temperature be monitored after an AWFCO but most of be physically recorded on a strip chart or data acquisition system?

10. Is CO >100 ppm HRA a violation by itself, even if the AWFCO has worked?

11. Residues which are removed during maintenance are HW. Do you mean only if the BIF was burning listed waste characteristic waste would not leave hazardous derived from waste.

12. How quickly does the feed valve need to be close if a BIF limit is exceeded?

13. In many cases, when CO levels are rising above standard, the total instantaneous closure of the AWFCO will cause a much more catastrophic upset then a controlled cascading closure e.g. 15% every ten seconds.

14. This has been discussed with some Regions but will HQ prefer specific guidance?

15. Is the Agency planning to limit the number of waste feed cut-offs and why?

16. Where/How do we measure combustion temp. in a boiler?

17. Do you want to see outlet gas temp, flame temperature?

18. 24 hour residual burn out- If BIF flows a tube-immediate shut down required for safety - how apply this residual burn out in this case?

19. What is an under burden for 7 to 30 day?

20. When a BIF unit is not burning hazardous waste. can one turn off CEM & AWFCO devices? What about when on BIF unit is only burning non-hazardous waste and another is burning hazardous waste?

21. Does the liquid need to be cut-off when you have redundant demand one is calibrating and the other shows a calibration out of range?

22. Must cutoff be "instantaneous" or can waste fuel be ramped out over a defined period of time (to prevent boiler upset or shutdown)?

State inspectors use the terms "lag time" and "length of cutoff". Please define and discuss their significance.

23. What does instantaneously mean in terms of cutoff of hazardous waste flow? Some systems cannot shut off instaneously without creating safety problems for the operation of the BIF.

24. Waste Feed Cert offs - Must value be physically closed, even if waste stream by passed? Regulators have stated the value must be closed and show that no waste is leaking thru value - yet guidance suggested using by pass so unit won't shut down. How do you show valve has closed completely?

25. What location is preferable to measure the combustion chamber temperature.

26. You now say burnout reg wires 4 hours.
-Is that new information today?
-If a device like a CO, monitor or fuel rate monitor fails, hazardous waste feed stops.
-Does that mean boiler must be shut down?
-If so, how can you finish burnout

27. During an AWFCO test, how do you show that the valve has closed completely? This assumes that the AWFCO valve is tested only when there is no HW flow.

28. What is the testing frequency for the AWFCO VLV for leak-by and to what percentage of the operating pressure do you hydrostatical test to?

<u>Questions on Training</u>

1. I understand how personnel training is important for a facility. Likewise, I would like to know how EPA trains its personnel, and specifically its BIF inspectors.
Our Region has had experience with a BIF inspector who is extremely unknowledgeable about the RCRA program and BIF requirements.

2. Does HAZWORER training suffice for contractor training? I.E. non-employee personnel who work m-site.

3. How far "up the ladder" is training required?
Technician handling waste
Technician supervisor
Staff Engr. of generating unit
Dept. head of generating unit
Plant manager
Offsite company manager

4. What is meant by "written job description"?
What does the job description need to say?

5. What is the <u>8-hour</u> requirement you mentioned when discussing the annual review training?

6. Who is a qualified trainee?

7. How far up the line in management is RCRA training required? Theoretically, this could be interpreted as requiring the highest levels to have training.

8. Does a person who walks through a "permitted facility need training? If so what about sit specific training requirements for Agency inspectors?

9. What was the training frequency of sampling and analysis that was assumed in the BIF C/A?

10. Annual review-on 365d basis or once per calendar year? (Regions and States are split on this issue).

11. Any specific training content REQ'D?

12. If we obtain our Part B today for our BIFs, would we be shielded by permit from the combustion strategy changes?

13. The training requirements spelled out in RCRA are pretty general. Does EPA have any additional guidance on the type of training it would like to see for BIF operators? Could EPA work with ASME or others to develop a training program that could be endorsed by EPA?

Questions on Subpart BB

1. The permitted facilities exemption to BB applies to facilities (a) permitted before Dec. '90
(b) where the permit covered the relevant accumulation tank and piping...
other requirements?

2. BB would apply to such "permitted exempt" facilities are of
(a) date of class 1 permit mod request (b) date of class 3 permit travel request or (3) of class of 3 permit approval.

3. will Subpart BB leak definition be modified to reflect the leak definition used by other regulations? ex: How, air permits This would eliminate the need for calibration records at 500 and 10,000 ppm.

4. 1) With regard to 266.103 (h) (Fugitive Emissions). Is this where subpart BB is pertinent to the BIF regs? If so, why doesn't it state that? How does 266.103 (h) relate to 266.103 (a)(4)(VIII) (this is where subpart BB is referenced) if at all?

2) If a fugitive leak is found in the combustion zone, how soon must it be repaired?

5. Is scurbbing medium from a control device installed on a less than 90 day accumulation tank for a listed waste also a listed waste? If so, why? It's not derived from TSD o the waste, and it's not a mixture.

6. The hazardous waste fuel tanks that supply hazardous waste fuel to the BIF units are operated as 90-day-or-less hazardous waste tanks under the generator regulations. The BIF units and associated equipment are monitored under subpart BB and the tanks systems are monitored under after fugitive emission monitoring requirements. It this correct?

7. Supart BB - applicability flow chart did not include waste gas (not H.W.). What is regulatory definition for waste geses? Is process vent gas containing fuel value still called waste gas? If not, does BTU determing gas to be fuel? What is the cut-off BTU?

8. How do you define CERCLA identified In References pumps, values, compression etc?

In other words-are activity required or and detailed inventory lists adequate?

9. Where does Subpart BB begin? If you are transporting hazardous waste by truck from one process to you BIF unit, is the process unit subject to Subpart BB?

10. Can samples be taken through an open ended one that meets the requirements of subpart BB, or must a special sampling connection system be installed?

11. Please elaborate on "equipment designed not to leak"- examples of please.

12. What is the boundary limit for subpart BB monitoring applicability?
Are the subpart BB requirements and the upcoming STDs for tanks containers, and surface impoundment duplication of CAA STDs? Do we need both?

13. What is the compliance boundary for a BIF unit. For example, does subpart BB (fugitive emission) apply to production unit waste storage facilities?

Questions on Recordkeeping

1. Does chrome include Cr+3 as well as Cr+6 for BIF recordkeeping. Cr+3 is exempt for other hazardous waste considerations. Cr+3 can be present due to low level corrosion of equipment such as pipes and tanks.

2. 1. Will strip charts need to be kept for the lite of unit under 264 if records are also kept via computer means?
Are strip charts to be kept for life under 265 if computer kept data?

3. Is there a way to store or use an electronic form for inspection records? What about signature requirements?

4. Is the facility required to record/report mass feed rates of

constituents that are determined to be non-detect in the waste stream?

5. Can "keys" be used for strip charts instead of physically losing each chart as long as scape, etc. don't change?

6. If your computer system fails to record the info. unknowingly what action(s) will be taken by the regulatory Agency?

7. What is the purpose of life of facility recordkeeping under BIF, and will it be changed to RCRA type time limits (3 years)?

8. For CO, where limit is on rolling average, checked every minute, does planet have to archive every 15 second (or less) determination. Or cain they sort and back off to record just the average -- each minute.

9. We track waste feed rates in pounds 1hr rather than gram/hour because our air permit (which is more stringent than the BIF regs would allow) is written in pounds/hr. is there any problem with this from an inspection/enforcement perspective?

10. Because not all operating records can be kept on computer disk - for instance, inspection logs signed by operators-the amount of hard copies information will soon become very large. Will microfiche be acceptable?

11. Are records that are placed on microfilm or microfiche acceptable if the film/fiche is available at the site w/a reader and printer?

12. Is it O.K. to electronically scan an inspection sheet including signature? Also, once this is done, can the original be discarded?

13. Why was the retention time for operating data and inspection logs changed from 3 years is adequate for compliance checks. This creates a big problem in how to keep records of this magnitude for 20 or 30 years.

14. If you are measuring CO parameters on an instantaneous basis where do you set the AWFCO for CO? The regs say 100ppm or hourly rolling average basis?

15. Why is it necessary to record the minute averages every minute as well as the hourly rolling average?

16. Is it necessary to record two values for each parameter every minute? a 60 sec. avg. and an hourly rolling average.

17. Why are you just now (after 3 years) defining how often the instantaneous limits must be monitored and recorded. We have already purchased and installed equipment based on one minute averages.

18. Are mass federate records required for constituents that are not defected? If so, why? How should records be handled if an erroneous 1 minute data point gets into the hourly rolling average calculation?
What is record retention time for daily calibration of CO + O2 monitors daily system audits (appendix IX).

19. We have documented required RCRA inspections with these guidelines: use of an inspection form, must be in ink, form must be signed, and forms must be hold for Agency inspection. During inspections these have been considered deficiencies if not followed. Yesterday it was stated that all the above are not required. Please clarify.

20. I know that EPA is interested Recordkeeping in responding to the publics interest in knowing about operation of BIFs incinerators, etc. Industry is also interested in responding to legitimate interests that the public has, But it seems that a lot of things that are required to satisfy public interest groups are rarely actually used? In our company, the BIF correspondence file is a good example. Nobody ever asks to see it. Does EPA make any attempt to find out if such requirements are actually beneficial?

21. If a facility records its data electronically is it permissible to use data compression techniques for the stored information? The compression would record 1 data point for every 15 minutes of data provided the data did not vary I2.5% (PPM or GPM). The reconstructed data would be a straight line for this time period.

22. Records for Records that are maintained by computer (Distribute Control Systems) How quickly must the records be retrieved during an inspection? By: Records seed rates.

<u>Questions on O/O Inspection</u>

1. In the information Collection Request (10/21/94) on page 134, 6th bullet, it states that daily inspections are performed each working day 260 times/year. Does that mean only Monday thru Friday?

2. Is there any means of obtaining some of these guidance documents electronically (i.e. bulletin boards)?

3. Are inspections required on days when hazardous waste is not burned?

How far upstream of combustion unit do you inspect (i.e. from point of generation)?

General Questions

1. Does RCRA require a facility to self-report RCRA violations. Is there any advantage in doing so? Assume reporting is not required by a permit or CERCLA, CWA or CAA.

2. Instead of using a definitive approach to national regulations, Headquarters has elected to allow and force the Regions to sort out their own interpretations. This has led to confusion in the regulatory community -and in the perception of non-compliance. Why is HQ reluctant to provide clear direction to the Regions? Is this the best approach?

3. Why are some EPA Regions calling the BIF permits while others are not?

4. What kind of permitting priority will be given to BIF units
-compared w/commercial incinerators undergoing permit renewals?
-compared w/capture-site incinerators and undergoing permit renewals?

5. How far "up the pipe" in a factory does RCRA/BIF extend? E.G. does an intermediate stream FED into a cracking furnace which is an integral part of manufacturing process cause the furnace to become 4 BIF if it meets a hazardous waste definition?

6. Is an intermediate stream a waste?

7. How will the "Omnibus Authority" be applied? Only during permitting , or not at all? Case by case, or generic?

8. When will BIF facilities start moving from interim status to being permitted?

9. If my attendance at this seminar will be counted against me if a violation is found at my facility, I'm leaving right now.

10. You spoke about "Priority setting based on Environmental significance" how does this apply to clean fuels where sometimes the waste is actually cleaner than the original fuel??!

11. Will BIF NOV's result in an automatic enforcement action?

12. Is it enforcement policy to write NOV's before a civil complaint is filed in court?

13. Is there a publication or guidance that discusses each and every generator reqt, and includes terms that the generator needs to fill-out and submit?

14. If the primary goal of EPA compliance monitoring is to return a facility to compliance why does the administration use press releases to notify the facilities rather than giving the facility an opportunity to correct deficiencies.

15. You spoke about "priority setting based on environmental significance" how does this apply to clean fuels where sometimes the waste is actually cleaner than the original fuel??!

16. Will BIF NOV's result in an automatic enforcement action?

17. What actions are being taken to gain consistency among regions?

18. Has EPA had training for its various region inspectors?

19. How will the agency work to eliminate Region-to-Region inconsistencies in interpretation? It makes giving direction for compliance very difficult for multi-state companies.

20. Why are some Regions (i.e. Reg) 3007 information request monthly report? This is not a consistent Region to Region approach.

21. Susan's description of her new office's direction - to work with industry and to help better educate the regulated community provide good. Will EPA consider providing more up-front training before new regulations go into effect? Can the first one or two inspections, after a new regulation goes into effect, be more oriented to identifying and correcting start-up problem (with the new regulations) recognizing that there is a learning curve for any new regulation rather than using hard-hammer enforcement actions right off the bat?

Residues/Bevill

1. The EPA method for HCL/C12 will not discriminate HC1 and HOC1 in the HC1 portion of the sampling train. Is anything being done to address this?

2. Why frequent and expensive bevill analysis if residues contains level of bif elements less than natural top soils we live with every day?

3. You stated that if you burn liquid waste and natural gas (not coal) you can assume all residue comes from the waste. If this is an EPA policy, could this be communicated to the

regional offers who keep asking for not gas analyses for metals, C1-ACN?

4. You mentioned that natural gas has no ash content. Then, why must we analyze our natural gas for the 10 BIF metals? Isn't this a waste of time and resources which could be better spent or <u>real</u> issues.

5. For clarification, did you say that the default valuers for constituents no on the F039 list were stayed and not replaced, therefore, facilities are only obligated to loot for constituents on the F039 list?

6. Most of your slides are not in notebooks. Will you provide copies?

7. LDR analyses are based on a single grab sample. Compliance levels in LDR are set @99% confidence levels. Thus offer 10-20 samples there is close to 100% probability of failing. Has EPA given any thought to changing its procedures to allow for outliers and natural data variability to enable facilities to be able to comply.

8. How are we expected to submit a part B application which must include a dioxin test when there is no official guidance on how to set it up.

9. 266.103(cX8Xd) says period recertification within 3 years of 3 years of previous certifications. Your slide says within 3 years of the certification of precompliance which is it?

10. A tier I BIF burns HW that has very low ash content (no APCD. no soot blowing etc). If repairs to the inside of the boiler are necessary is it required to treat any thin film/canting of residue on the equipment as a HW?

11. Is it requires to do Bevill for burning non-hazardous waste?

12. How often should the base line UTL be updated?

13. Is an evergreen approach of Random non-waste data periodically added to the original data base a sound method?

14. Where to get compliance testing references on new guidance documents?

15. What is the status of omnibus authority vs particulate std 0.015 vs. 0.08)

16. Why is a PM test required for Adj. Tier I compliance? If you assume worst case scenario, i.e. ash in equals ash not, that the same logic used for the metals and chloride! (There is no APCD in this case)

17. Must EPA be notified when testing is conducted for state air permit requirements?

18. Are 2 sets of test conditions required to establish a usable minimum combustion chamber temperature?
Especially when natural gas & liquids are the only fuels
Conditions that demonstrate maximum combustion chamber temperature are not likely to demonstrate minimum temperature.

19. Sonya, Based on your comments, can we still use a surrogate for trial burns?

20. As EPA considers the "no dioxin testing scenario--which I fully support, what chlorine levels will default to "no test".

If EPA does not know the answer to this what are they doing to find and?

21. Is recompliance (new test burn? 3 year after cert. of compliance?

22. How do you suggest adj. tier I boiler owners certify at maximum feed rates needed. If you do not accept extrapolation, should we spike? (i.e. particulate/ash).

23. This is not site specific, because many boiler are dependent on their process heat demand and cannot arbitrarily run at 100%. You said data maybe acceptable in lieu of trial burn when observed by EPA/regularly Agency, but we have been hold there are no funds for EPA Region to travel for test observation-any advice?

24. We would like to modify our boiler alter the combustion chamber-what steps must we take part A , class 3 permit mod, recertification of compliance? If our compliance test fails, must we initiate closure?

25. What test/operating conditions is dioxin trial burn to be run under? E.g. 1. Max. or Min Temp.
2. Max. or Min Velocity
3. What to spike: a. metals
b. Pohc c. Federates
4. Boiler lead (production rate) Max. or Min.
Are the answers in any EPA document that a chlorinated pohc be required for a dioxin or DRE trial burn?

26. If it is required during a dioxin test and the BIF does not burn any chlorine containing waste, the dioxin emissions during test likely could be artificially high.

27. EPA has been invited to test but will not attend. Can their data be used for identical unit?

28. Although you suggest working with the Regions and States they are not like to accept minor modifications to method without significant trials/proofs-any suggestions on how to overcome these difficulties?

29. Given the EPA (or state, whoever is supposed to) calls in the part B, and the 3-year deadline for the compliance test will occur before the trial barn plan is approved (only EPA/state knows schedule) a) Will it be necessary to perform the compliance test, or can it wait until the trial burn is performed? b) Assuming that the 3-year compliance test and trial burn were scheduled

within 3 months of each other, could the trial burn be done be before it is approved.

30. 1. Is a concentration limit (i.e. detection limit) acceptable instead of a g/hr feed rate limit for constituents which can't be detected? If a concentration limit is acceptable are mass feed rate records required? If so, why?

2. The tier I eligibility criteria references the shoreline of "a large body of waste lake".
What is considered "A large lake"?

3. Agency notifications are required for compliance certication testing. Are agency notifications required for annual performance spec test?

31. Why can't "Ash" be scaled up to the limits when a low level of Ash is present in the tested feed stream. This should be allowed when BIF unit has no APCD.

32. EPAs own published data suggest that metal volatility is somewhat less than would be expected. Based on these uncertainties, is EPA collecting data + continuously analyzing results of low/high temp trial burns to verify the need for these test? Is there some range that could be acceptable for operating temperatures to limit the need for two trial burns?

33. Given that you have more than one waste stream to burn of a given time), 2) Two of the streams do not have enough material accumulation to perform 6 hours of compliance test 3) These 2 streams are high BTU (>12000 BTU/lb. Is it acceptable to not perform a compliance test with these 2 streams if they are analyzed?

34. Sonya, You mentioned that "ash" extrapolation is not allowed if you have an APCD. due to collection efficiency variability. But what about facility that does not have APCD such as "natural gas" boiler is it allowed in this case? If not, why not!

35. Has it been brought to your attention that method 9057 has a significant positive bias on the chlorine analysis. When (1 reacts with consitic the hypochlorite that burns continues to react and a portion will form additional chloride. This biases the IC analysis since the (1 peak area is multiplied by 2 for the assumed 1/2 split. Larry Johnson SPA RTP is aware of this. Is there any dialogue with the BIF method developers to resolve this.

Questions on Regulatory Development Evaluations

1. I understand that Environmental Justice will be on additional topic to the waste min. & combustion strategy Regional roundtable-won't this dilute the focus--even overshadow--the purpose of the roundtable?

2. Will MACT Rule be under RCRA or Air Regulations, or Both?

If MACT is duplicated under RCRA & Air. How will EPA Audio the double jeopardy of multiple program penalties & Enforcement Actions on a company who might only have a single noncompliance identically covered by a RCRA MACT & by a CAA MACT?

3. Currently, 60% of urban air pollution comes from mobile sources. As MACT standards implemented, will the EPA eventually look at actual improvements in local air quality instead of continuing to ratcheting down on industry?

4. Two of my feelings are:

A. Combustion strategy seems to be in large part "Regulation" by press conference news release.

B. Enforcement initiatives seems to be enforcement by ambush. Seems there could be a better way. Comments on above??

5. Strongly Encourage EPA to base particulate limit on site specific situation. For instance, NaCl particulate should not be a stringently limited as metals.

6. If part B permits are issued under joint authority of CAA & RCRA - will the permit shield provisions of the CAA apply. To both CAA and RCRA?

7. Omnibus authority is triggered by response to threat to HHTE. Yet you say the CETRO would use preliminary MACT analyses to guide the permit writers. Technology based. Isn't there legal conflict here?

8. EPA argued in court that current standards do protect HHE (Horsehead). Is there new information that says standards don't do this If not what is the rationale for new strategy?

9. What kind of time frame a chemical plant's BIF unit as to be called for part B permit? Expect how many units may be called in one year, and what is EPA Region's permit calling criteria on minority?

10. If a BIF pact B application has submitted under current regulation adn it isn't acted upon prior to the new BIF regs. in 1998 & 1999, will a facility have to start over? How will that be handled?

11. Are they thoughts to lower PM STd's on BIF?
Ms. Browner has publicly given some lower #'s (from .08-0.02 dg(SCF) as her viewpoint.

12. The compliance process under RCRA has changed. Enforcement seems to be the only interest EPA has under BIF in developing compliant programs. What plans does the new office of compliance assurance have to re-focus on good permit development first-thin follow with enforcement?

13. Are proposal being considered for stack emissions only, or are liquid emissions also being considered for Dioxin and furans?

14. Further explain the meaning of "never" exceeding the dioxin & furan emissions that are currently an average value in germany?

15. Research shows that 290 nm wavalangenth OV light from the sun destroys TCDD (dioxin). This was shown in Seveso Italy. Why is the atmospheric discharge of small amounts of dioxin the top priority of emission concerns?

16. Will "opneric" standards for all combustors be acceptable under CAA?

17. Halogen Acid Furnace (HAF) is defined as a unit producing >3% Halogen Acid. During the development of the rule, this part of the definition started out as 6%-20% then 3%-20% and ultimately the upper 20% bound was dropped. 1) What happened to the 20% upper limit? 2) Did EPA intend to include non-acid halogen production such as gaseous anhydrous hydrogen chloride product manufacturing as part of the HAF definition?

18. What is TEQ with respect to the dioxin discussion?

19. If Headquarter doesn't know the answers to these questions, what makes you think that the Region will provide better, if any guidance? Typically Region (especially VI) provides little or no guidance!

20. Where can you find a copy of the "combustion strategy" or the principle components of this strategy (i.e., Federal register, internal correspondence...)?

21. Who is the main contact(s) to get information on the risk assessment portion of the combustion strategy?

22. How does EPA plan to keep tabs on over-zealous permit writers who choose to overuse or even abuse their omnibus permit authority? Where are the checks & balances?

23. Will RA guidance document be similar to those used for CERCLA (RI/FS) and RCRA (RFI)?

24. Will facilities in interim states be required to perform RA? When will EPA complete generic RA for national standard?

25. The last one I looked at are Horsehead settlement, industrial furnaces are in the first of review rules for PM, Dioxins & furans at least.

26. If limits are set on dioxin and furan emissions, will this be done using a scientific risk assessment or will it be done in an arbitrary manner such as the german standard?

27. Yesterday, it was indicated that public disclosure of waste information is required and so claiming certain waste information as confidential is not appropriate. Our company is very concerned about the lack of sensitivity & understanding apparent in the agency about this issue. Industrial espiorage does exist and is very vanpant in the global economic community. As EPA delves into more process information (i.e., waste generation points upstream of disposal for permitting pruposes, RFA review and waste minimization activities) these concerns increase. Considering the "revolving door" to private industry, many regulators take advantage of and the number of individuals reviewing the waste info. submitted to the agency, what specific procedures are in place to protect sensitive information designated confidential? How does EPA assure the procedures are adhered to?

28. Where does the Agency currently stand on the allowable ambient chlorine standard? It is my understanding that this value is being revised. Is that accurate and when will it occur?

29. I thought EPA back backed down from using omnibus authority to tour when technical standards after CKRC sued you last year, and ask use of omnibus authority was to be limited to case-by-case, as determined by side-specific risk assessment. Also, since omnibus authority is restricted to that necessary to protect human health and the environment, how can ERA justify using MACT (a technology-based approach) to determine omnibus-based limits?

30. With the increasing heightening of requirements and the possibility that the number of viable outlets for waste treatment diminishing, coupled with the realization that pollution

31. The Agency's "concern" over combustion units seems to be based on pretty soft reasoning. Where is the epidemiological study, real data to show that exclusive Agency effort and cost to the regulated community are justified-compared to other places efforts resources could be applied.

Have we created a political "frenzy" based on limited and inadequate data that is attacking a non-problem-considering the high level of Prevention will not likely get us to zero, what is the Agency's current thinking on how industry will handle it's wastes? And if site specific BIF's are closed, is the Agency consider the increase Risk associated with transportation.

32. regulations that already apply to BIF's

33. Seems like a lot of issues about the BIF rules are still up in the

all yet EPA is planning on proceeding with permitting shouldn't the rules be finished before we have to permit?

14 The BIF regulations include very comprehensive interim status standards. The regs are still pretty new. Facilities have spout a lot of energy and money trying to comply with the BIF regulations. Now we are talking about completely rewriting the BIF regs. What new evidence/information does EPA have that really burns into question whether the current regs are not adequate to protect human health and the environment?

ATTACHMENT C

LIST OF EPA SPEAKERS AND PHONE NUMBERS

Please contact the appropriate Regions and States for questions concerning hazardous waste combustion. In the event that any non-site specific questions cannot be resolved by the Regions or States, then contact the following persons at EPA Headquarters. Difficult issues brought to the individuals listed below will be discussed by EPA Headquarters and the Regions.

1. Sampling & Analysis of Feed Streams - John Dombrowski
   (202) 564-7036

2. Monitoring Requirement - Mark Mercer
   (703) 308-8652

3. Automatic Waste Feed Cut-off - Dwight Hlustick
   (703) 308-8647

4. Owner/Operator Inspections &
   Training for Facility Personnel - Kate Anderson
   (202) 564-4016

5. Subpart BB Inspections - Ginger Gotliffe
   (202) 564-7072

6. Recordkeeping - Emily Chow
   (202) 564-7071

7. Compliance Testing & Management of Residues - Scott Rauenzahn
   (703) 308-8477

8. Regulatory Development Up-date - Bob Holloway
   (703) 308-8461

9. Panelist - Sonya Sasseville
   (703) 308-8648

   - Ken Gigliello
   (202) 564-7047

ATTACHMENT D

Hazardous Waste Combustion Guidance and Resource Documents

Hazardous Waste Incineration Guidance Series

Volume I:	Guidance Manual for a Hazardous Waste Incinerator Permits, July 1983	NTIS PB84-100577
Volume II:	Guidance on Setting Permit Conditions and Reporting Trial Burn Results, Jan. 1989	CERI EPA/625/689/019
Volume III:	Hazardous Waste Incinerators Measurement Guidance Manual, June 1989	CERI EPA/625/6-89/021

Other EPA Guidance and Resource Documents

Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration, January, 1990	CERI EPA/625/6-89/023
Engineering Handbook for Hazardous Waste Incineration, Sept., 1981 (currently being revised)	NTIS PB89-179543
Trial Burn Observation Guide, 1988	NTIS PB89-179543
Technical Implementation Document for EPA's Boiler and Industrial Furnance Regulations, March 1992	EPA/530-R-92-011 PB92-154-947
Combustion Emissions Technical Resource Document (CETRED), May 1994	RCRA/SF Hotline EPA/530-R-94-014
Exposure Assessment Guidance for RCRA Hazardous Waste Combustion Facilities, Draft, April 1994	RCRA/SF Hotline EPA/530-R-94-021
Memorandum on Trial Burns (Trial Burn Failure Guidance), July 1994	RCRA/SF Hotline EPA/530-F-94-023
Addendum: Methodology for Assessing Health Risks Associated with Indirect Exposure To Combustor Emissions	RCRA/SF Hotline

Public Information Materials

Hazardous Waste Incineration: Questions and Answers, April, 1988	RCRA/SF Hotline EPA/530-SW-88-018
Permitting Hazardous Waste Incinerators (Fact Sheet), April, 1988	RCRA/SF Hotline EPA/530-SW-88-024

Various information materials on Hazardous Waste Minimization and Combustion Strategy, 1993 to present		RCRA/SF Hotline

Obsolete Documents

Volume IV:	Guidance on Metals and Hydrogen Chloride Controls for Hazardous Waste Incinerators, Draft	*see below
Volume V:	Guidance on PIC Controls for Hazardous Waste Incinerators, Draft	*see below
Volume VI:	Proposed Methods for Measurement of CO, O2, THC, HCL, and Metals at Hazardous Waste Incinerators	**see below

* Refer to the BIF Rule. These documents need to be finalized/updated
** Refer to 40 CFR PArt 266, Appendix IX or the Methods Manual for Regulating BIFs (NTIS #PB91-120006)

NTIS: (703) 487-4650
CERI: (513) 569-7562

RCRA/Superfund Hotline: toll free (800) 424-9346;
local (703) 412-9810

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