Water System Design, Operation, and Maintenance Committee

December 7, 2016

JIMMY GUIDRY: Okay, we'll go ahead and get started. Even though Amanda isn't here yet. She's at the Capitol and should be walking in shortly.

We are trying to find money for next year. We are trying today that for 4 years now or more.

I guess what we'll start with roll call and see if we have a quorum. Who is taking roll call? As soon as she gets roll call, we'll do roll call. There we go.

RANDY HOLLIS: Is there any reason the mic is over here?

JIMMY GUIDRY: We had it engraved for you.

(Roll call was taken)

Again, welcome to the Water System Design, Operation, and Maintenance committee on December 7. Hopefully, we can get some of the work completed today. We are getting close to the majority of our work getting done so that's encouraging. I appreciate all of you showing up in December when everybody is trying to close out the year and trying to get things done.

So we can continue with the minutes. Do I hear a motion that we approved the minutes? We have a first and a second. Do I hear anyone oppose? Okay, the minutes will be approved as written.

Now we get to old business. We want to talk about 4.4 and 4.7. This is a final approval. Any discussion in what was sent to you on that section?

ROBERT BROU: Page 12, the first paragraph ended. Page 12. I don't know what we wanted to say. We missed something.

JIMMY GUIDRY: I think she is going to retrieve some of the language.

RANDY HOLLIS: I have the original language from previous copies. The way it read at the end was "of service or any other polluted waters or following lime soda softener". That's just the end of the sentence got cut off. I would think it's supposed to be "(inaudible) or following lime soda softener".

JIMMY GUIDRY: Let's try to use the microphone so it will make it easier for the note taker. If you got it, read it one more time.

RANDY HOLLIS: Karen, I found the original language. That's it.

JIMMY GUIDRY: That was quick. Any other discussion about this section?

RANDY HOLLIS: One thing. Right below there on the same page on the design, we talk about this is the underdrain system with a minimum wall to it of 5 feet. This is convergence, not really for the purpose of that depth. It's for horizontal filter, if you've got that clearance between the top of your bed and the back walls draw at the time then it's still operable.

RANDY HOLLIS: But that's not the shell height. The shed, it is convergence, yeah, but you still got the shell height. It's laid down, you still got that minimal 5 feet. The description is in

(inaudible) or apply very well.

CHRIS RICHARD: But is it measured from convergence? It's the vertical portion of the shell.

RANDY HOLLIS: (Inaudible).

CHRIS RICHARD: So it's described from the top of the underdrain from the backwash trough like that.

RANDY HOLLIS: You can see on hole filter design, the shell height is about 4 feet. It's the standard the most units. The bottom goes vertical 5 feet and that's what we are designing to, not horizontal. It doesn't apply to edge. That's why I was trying to clarify this. It was really just recommended for vertical filters. This is is side wall.

KEITH SHACKLEFORD: You need a further description to address the horizontal side wall.

RANDY HOLLIS: Yes, we do. I thought that was something in under the clearance between the media and the backwash convergence. There it is, C. Above the surface of the media. Is it C or it moved? Not C, it's E. Sorry.

RANDY HOLLIS: And that's true for holes. Especially for vertical ones. You don't have the collector. It just goes out the top. You have the single pipe at the top. Maybe that's the reliably for vertical.

UNIDENTIFIED SPEAKER: They put it under vertical. If you say side wall heights, it should be 5 feet.

RANDY HOLLIS: Yes. Shell height of 5 feet for vertical filters. And then under E, you could put the top of the wash water collector for other filters.

CHRIS RICHARD: It can apply to both. Just leave it as it is.

RANDY HOLLIS: Could it apply for vertical? Because they don't have logical collection roughs. Okay. What you could do is at the top of -- at least means okay a minimum .0618 inches. We can leave it like it is and we can apply it to both.

JIMMY GUIDRY: Further discussion on the section?

RANDY HOLLIS: Let me check my notes. We are going through what part of this?

UNIDENTIFIED SPEAKER: 4.7. We are in the specs that we approved last time. So we'll have to have a vote to make this change.

JIMMY GUIDRY: Right. I wanted to make sure before I brought it to a vote that there were no changes in this section. This was already voted on but it's amending it one more time. We passed it last time. We discussed the changes at the;last meeting. We need a motion that we accept those changes first, second, anybody opposed? That section is complete. Thank you.

All right. Getting on to new business. Now we are looking at 4.4 to 4.7.5.4.

PATRICK KERR: 4.4.

RANDY HOLLIS: I have a question for the staff, on the first one, under disinfection, it says this is in accordance with paragraph 355 and 357 of this part. That means it's inclusive within of these standards?

PATRICK KERR: No, part 12.

RANDY HOLLIS: Oh, part 12.

PATRICK KERR: Right. If that's understood, I'm okay.

JIMMY GUIDRY: We need to be careful how we put that in there. Let's pull it up and then everyone can see.

RANDY HOLLIS: And that occurred numerous places in the section.

JIMMY GUIDRY: You didn't say that. Now we have to do all the changes.

RANDY HOLLIS: Let's do a search and if it's understood, and y'all understand the law better than I do, leave it like it is.

JIMMY GUIDRY: Our job is to make things as clear as we can going forward so people don't have to go search somewhere, and they know where to search if they have to. There is no guess work. If someone submits anything they misunderstood, it's more work for all of us. I certainly agree we make it clear as possible.

Other suggestions as we go through these parts?

RANDY HOLLIS: On the -- page 21, the next page. It says in red, in Chapter 11 of this part, do we have Chapter 11? So that's where I got thrown off. Where is Chapter 11 of this part? Because that's not --

KAREN: (Inaudible) is known as there will be no chapter in the design section.

RANDY HOLLIS: Right. That's where I saw Chapter 11 of part 12.

CHRIS RICHARD: Or name it a treatment. You want to make that official?

RANDY HOLLIS: One other little one here. Under page 23.

PATRICK KERR: I found something in 22.

RANDY HOLLIS: Go for it. 23, under Pipe Material 4.4.6.6 under Pipe Material, you change it to aqua ammonia, but the last is for aqueous ammonia solutions we are going to.

PATRICK KERR: Aqua ammonia is the feed stock. It's a form of ammonia in water, I believe. So what aqua ammonia but we don't say we add any ammonia to water. It's an aqueous solution. We are talking about any ammonia in water.

RANDY HOLLIS: Don't change the first one Karen, because that is anhydrous. So the second sentence is aqua. That's the part you are talking about?

PATRICK KERR: I believe we do use different solutions after we inject the aqua into water.

ROBERT BROU: After we make it a solution.

PATRICK KERR: You could make it water.

RANDY HOLLIS: I understand the clarification. You can -- I'm okay with leaving it like it is.

PATRICK KERR: Back to 2. If you don't have the 4.4 pipe material, I think we should have a reference to it. There is a lot of verbiage in there. For example, while 400 we use for transfer tubes is not addressed in this part. If you rather not use that, we probably need to list all of the different metallic and manual pipes that are listed in 6. I think the other material that are recommended would be fine. And they say to use PVC if we choose to. That's fine. It's very specific in accordance to the requirements so...

And on the next page 23, 4.4.6.4, just some terminology. And maybe I'm off-base here but we actually feed aqua ammonia through, here we go again, aqua ammonia is again the base chemical. The diffusers are at the end of the ammonia solution line where we inject them into the pipe. And I know in Baton Rouge we do not use diffusers; we use injection quills. I can't figure out the difference is but ammonia solution should be fed through injectors, however you want to call it. But we address the meshing else where. I don't quite know how to fix it, except the quills are designed for replacing center flow for mixing, but they are (inaudible) not diffusers however you want to call it. And diffuser I would take aqua off of there, and say "should be fed through injection. You could say injectors/diffusers. I thought I was getting more specific because we are mixing at the point of injection but --

I'm going to bring something up half of people in the room may kick me, but other oxidants, we say a change should result in public notice because --

KAREN: It impacts the public.

PATRICK KERR: To people that are doing (inaudible) change one to free chlorine. I wonder if we could have something in there about notice.

KAREN: We require --

AMANDA LAUGHLIN: You are saying you want to add it?

PATRICK KERR: Chlorine dioxide. The government wants us to notify if we change to free chlorine chlorine or not.

RANDY HOLLIS: These are design standards. I don't think we ought to

put it in design standards.

PATRICK KERR: Okay. The code already requires it. That's all I've got for a few pages.

RANDY HOLLIS: Can we go to the very end of the section, page 41 of what we are looking at right now? It's under packed tower aeration, section 4.7.5.3. There are a lot of questions in this that were left in comments. H. Would be the next page. In blue it says, For what purpose? If you have multiple towers and you are (inaudible) or something, shouldn't you go the flow to each tower? So why did we take that out? It should be meters? It can be a manual meter but do we take it out? Power or not, no matter how will we try to do the piping, it's not going to be an even split. That's something important in the process.

KAREN: That was a revision.

JIMMY GUIDRY: Anybody have a problem with that? Reinstating it?

RANDY HOLLIS: I recommend that we leave it in. It's a very minor cost for a huge benefit.

CHRIS RICHARD: If it says it needs to be, I would say put a means of measuring the -- if you have redundancy, you can have 2 towers and you are only using one. You don't have to put another one on the line. You have a backup.

PATRICK KERR: That would be consistent with the other change.

CHRIS RICHARD: We didn't say what to do if you are using both of them.

BEN BRIDGES: It goes in use of the report. I think that's why, I

think --

JIMMY GUIDRY: So it says meter should be --

CHRIS RICHARD: Should be the means of measuring the flow.

BEN BRIDGES: Would it be at the source? One for the discharge and one for the --

RANDY HOLLIS: There should be a means for measuring the flow to each tower.

KAREN: Should or shall?

RANDY HOLLIS: Shall. I guess I never seen a plant with redundant towers that never operated.

CHRIS RICHARD: If you have one tower and you have a couple of different wells that come to it, you have 2 wells pumping. This covered it because you have a means. I don't have to have one at the tower.

RANDY HOLLIS: I agree if it's a single tower, but if you have multiple towers. Meaning more than one. So if you have got more than one I can see the measuring of each one. Measure it, then you can throttle it and you can go.

PATRICK KERR: That works, yeah.

RANDY HOLLIS: Okay. So if you go down a couple of paragraphs, you will see there a number of comments in here. Are we going to address each one of these today? These are comments that should be in the standard.

CHRIS RICHARD: The comments were why it was stricken. It was to give a reason instead of just striking something. The blue would not be

incorporated at all; it's only an explanation of the action

RANDY HOLLIS: Okay. Your communication of why you took them out.

CHRIS RICHARD: Right.

PATRICK KERR: Is that the people formally known at DHH? Seems necessary.

CHRIS RICHARD: We discussed that at the last meeting and they explained why that's good.

PATRICK KERR: I have something on 45 if we get there.

RANDY HOLLIS: I notice they have got that under new business. We int this one at if you have seen 54. This is part of old business and that's new business. So if we want to take this into consideration and jump to the other one.

JIMMY GUIDRY: You want to do the both parts together? Old and new business and vote on the whole thing?

PATRICK KERR: Good to me.

JIMMY GUIDRY: All right, so page 45?

CHRIS RICHARD: Are we approving this section since it's our second go-through? It's our first on the other. So you want to vote on the section we just finished? We want to vote on 4.4 to 4.7.5.4. Do I hear a motion to accept the changes as recommended? Second? Anybody oppose?

BEN BRIDGES: Where is it in that section?

JIMMY GUIDRY: It's the new business in the other section. You good?

BEN BRIDGES: Yes.

JIMMY GUIDRY: All right. Now we'll go to new business and that

starts with 4.7.5.5. So Pat, you want to go to page 45?

DIRK BARRIOS: Wait a minute. We jumped chlorine oxide completely?

JIMMY GUIDRY: That's what we are going through now.

BEN BRIDGES: 4.4 is where I thought we were going.

DIRK BARRIOS: I thought we were going to the section before chlorine oxide. Remember last time we said not to do anything until we talked about it? We haven't said a word..

PATRICK KERR: I withdraw my motion,

JIMMY GUIDRY: Too late.

RANDY HOLLIS: I make a motion we go back discuss chlorine dioxide.

JIMMY GUIDRY: I'm not trying to pull a fast one. I'm going at the will of the committee.

BEN BRIDGES: Page 20. It starts on page 21.

DIRK BARRIOS: Bring up chlorine dioxide and talk about it as we done in the past.

RANDY HOLLIS: I just made a motion.

PATRICK KERR: I second.

DIRK BARRIOS: I believe there is a lot to be said about it.

PATRICK KERR: What do you have to say?

DIRK BARRIOS: One of the things we have an issue with is, most of this is for the chlorine system. The system we have is an acid system with chair at was is a chlorate and I think a sodium chlorate. Anyway, it's a different acid. We don't use chlorine. A lot of stuff in here, we spoke with John yesterday to get a feel where y'all are

going with it. We want some clarification of our (inaudible) not even technology is the same. The fluorite system and the new technology is the purate, which is a chemical with 70 percent sulfuric acid. And it's a little bit different on how we send it. It doesn't seem to apply. What I'm trying to see is how it's handled here. And I'm trying to see where and what we are going to have to adhere to with this different technology.

JIMMY GUIDRY: John, you want to explain your thoughts on that?

JOHN: Your specific concerns where the regs doesn't address it? Sodium chlorate system?

DIRK BARRIOS: John. It's almost impossible to read. It's up on the screen, though. If I remember correctly, the shall design the ratio of chlorine and I can't pronounce the word

JOSEPH YOUNG: I know you raised concerns about yield and efficiency.

DIRK BARRIOS: Is it something we are going to have to worry about when we get it sized? Are we going to have to continue periodically doing it?

JOSEPH YOUNG: Almost.

DIRK BARRIOS: I was said some of the stuff was going to be applied.

CHRIS RICHARD: After, after.

JOSEPH YOUNG: If I remember correctly, some of the concerns you raised was about the methodology being used? So the standard researches in OPA methods used in barometric tests and efficiency. And I believe your concern was that you were using a manufacturer method that wasn't an empirical method and you expressed interest to continue that. I

heard there are concerns raised that the barometric doesn't yield to the result accurately and at the plant? So I think that was the resistance. And actually I would like to open this up for discussion. My intention with this rule is that certainly we are looking for numbers that we can rely on in determining where a generator meets the yield requirements which is generally what I've seen (inaudible) EPA guide slow standard is 95 percent. And EPA method is recommended and pretty much the gold standard and barometric analysis to determine chlorine dioxide on this site. What we are talking about is doing the solution using their generator at the stream. I'd like to open this up for discussion, if you have particular concerns are questions?

DIRK BARRIOS: We have more qualified people sitting here.

JOSEPH YOUNG: I can handle these as you bring them up whatever they are.

DIRK BARRIOS: That's his.

SPEAKER: Jared Allemand with Lafourche Water District. I think the sophistication of the method is more than what a water system can handle. Bottom line, we are currently doing what I think John referred to a manufacturer yield test. That has its challenges. The accuracy of that test is not very good. However, we talked about yesterday, we use a relative number. So if it gets off its more out at this test. Not 95 percent. If it gets off its normal levels then we can react and we can attempt to invalidate it.

JOSEPH YOUNG: Or adjust the generator.

SPEAKER: Whatever instance is warranted. But I truly believe that

running a chlorite test is not as simple as EPA makes it sound for a water treatment plant. I wanted to say that to reinforce what Jared said.

SPEAKER: Tony with (inaudible). If you look at the EPA guidance manual on the table for the anolyte capacity for dioxide they list 6 different test procedures. The procedure that Jared is referring to is the only one where they say a skill analyst is needed. We have run that test and I think a lot of us have. It works well for measuring low levels of dioxide or chlorate. But what you guys are asking us to do is test really strong solutions coming out a chlorine dioxide generator.

SPEAKER: If the generator is working properly. If for some reason we'd change that you're asking that test to be able to format. Someone like me or Jared, we may be able to figure that out, but I don't think a typical guy in a water plant is going to be able to figure that. And I think the whole intention of this is to get to Tier One and if we go down this road we are going to have more responses wondering if we have a Tier One or not, becausef somebody writing down a bad number, getting confused, thinking the generator is not working properly and making an adjustment. I don't want to see that happening.

SPEAKER: Roy. I work with, I think one of the issues we have right now is we need more training and focus on what we actually have on the books and train our operators being able to diligently and efficiently (inaudible). If you make it too complicated, what happens is they are

not going to do it or and they are going to lie. But at the same time, we have formed already. What I think is we are not doing a good enough job in the field, myself included, to train these operators in efficiently applying chlorine dioxide. They should be checking the gauges every day against a calculation. The chlorine dioxide dives a little bit, then something changes in the generation of the chemical.

One of the other issues I see is everyone uses a different water the calculation of all this with distilled water, it would be different. If everyone had the same water wall in the water but people have DDOA (inaudible) and engineers standard or solution. Normally, I can tell you from experience, guys running the test and checking the generator every day and running the chlorite numbers, they know when they have a problem. There is no reason everyone can't promote safe drinking water to the people and you have a unified effort, but we have got to get to a point where the operators are held accountable. But we give them accountability based on stuff that is practical in the field. I agree with Tony, the efficiency test can be all over the map. What is important is, as an operator and as a consultant now, I think regulations are getting more and more stringent. I think the issue here is more training in what we have instead of more regulations. When a guy is not doing what he was supposed to be doing already, he's not going to do that either. So I'm not debating. I think there needs to be accountability in chlorine dioxide. That's what I'm seeing.

JOSEPH YOUNG: So the intent is for design, we are going to not a

generator. We are going to make sure it's the operator that's 95 percent efficient. I think running an amperometric test at the point would be done. Next week is as you move forward and perhaps checking the generator monthly. What are you going to use to make sure it continues to operate with that efficiency. Some need for a change. So what we are talking about is using a method that would be maybe a manufacture specified method that isn't amperometric and what I can that is equation and calculates the efficiency so it avoid a loss of error. In the other methods there is some introduced, but what it boiled down to is those methods which can vary, do have this error and how much of that would we be willing to live with? What we require the systems to use amperometric for their monthly? We do have some systems that all doing amperometric analysis for their chlorine dioxide compliance. So they are running this test now and they are finding out what their chlorite is and their chlorine dioxide. The hardship is instead of doing it out of the point of entry would you doing it off the stream. It's a dilution. Use the same procedure but you dilute it. It's sensitive.

SPEAKER: I'm Glen Holden. I am the tactile support manager for (inaudible) water, and I've been involved in the chlorine dioxide business for 35 years, national and internationally. There are over a thousand chlorine dioxide installations of various means coast to coast, north to south, over 200 in Texas. The EPA -- I can tell you I'm also a member of the council, a chlorine dioxide panel which is an industry group involved in the chlorine dioxide business. It's in

Washington D.C. We have interfaced with EPA on the different regulations. EPA has pushed several different procedures for monitoring the chlorine dioxide systems and chlorine dioxide chloride chlorate residuals in the finish water.

So we produce chlorine dioxide on site in almost all cases from the starting set of raw materials. That could be chlorate plus sulfuric acid. It could be chlorite plus chlorine, chlorite plus bleach and acid and so forth. The generators, typically, the use of chlorine dioxide at 95 percent molar conversion efficiency, which we also call reaction yield. So the chlorine system, 95 percent from a chlorine. From the chlorite system, 95 percent from a chlorite and we monitor the generators using several different procedures.

One procedure that has been very common is a standard by the federal EPA and many of the states,that typically is used when you start up the system and it's typically used on a monthly basis thereafter to monitor and maximize the conversion efficiency. For a disinfection byproduct, sorry, for disinfection residuals like chlorine dioxide, chlorite, free chlorine, there are other methods that can be used that are from all EPA used.

One of these test methods is Chlordiox Plus. It's very easy for operators to use. Takes about 10 or 15 minutes to run. It's very accurate. I know my own company, did months of beta testing with the manufacturer Palintest and side by side, and the accuracy of that method on chlorite residuals and chlorine dioxide in finish water is

within a one percent ratio. That's over 18 months, day after day after day testing.

So what I'd encourage everyone to understand is that our industry, the chlorine dioxide industry, suppliers are really interested in public health. I know our company, the American Chemistry Council, it's all about public health and protecting the public. And the methods that you are going through right now and looking at are very important from my perspective, and I think from our industry perspective.

So what does all this mean? You have analyctic titration and several other published EPA federally approved methods for determining these residuals and other methods for running generator efficiency conversion efficiencies. Proper training is really important and that typically happens during startup. So it should always be a part of the startup. The operators get trained to run these procedures. And there should be something in place every 6 months or at least once a year there should be training. Because operators move on. People change jobs. So all that is very important.

In almost all cases, I think the municipalities are concerned about the same things I'm talking about and they do a pretty darn good job of making sure what they are doing is correct. The right procedures are in place. That's really what I want to say. Sorry for taking up so much time

JOSEPH YOUNG: We have a lot of the same concerns.

PATRICK KERR: I guess my question is the language contained in the

document that we are considering is designing chlorine dioxide generators, feed and storage facilities. Everything I just heard, there is nothing in the slightest objection. What the designer is requiring is, in order to get the approval for chlorine dioxide generation, have to submit an OM that shows who is going to test it, when it's going to be tested. But we don't spell any of that out in this design guide. All we call for is that there be 95 percent efficiency in the design and when the design engineer applies for the permit to install it, submit information about the water being treated, is this going to be effective? Submit an OM manual that spells out what the operators have to do, and the 3rd thing is we have to train the operators according to the OM manual.

So everything that was just said is wonderful and very true but I don't see how it affects this body, that we are not asking you to do something specifically. If you have a specific way to solve the problem, submit it to the department, the department reviews it, and you have a discussion about it and you decide on the method that goes into your OM manual for testing. We are not laying out the way it's to be tested or the methods which you are going to test it, or anything else, unless I'm missing something. Again, I don't know what the objections are to the language that we are contemplating in the chlorine dioxide section of this manual.

SPEAKER: Michael Musso . Basically, what we need to do, DHH as a whole, we need to set up training on how and what method we are going to use to test for the chlorite and the chlorine dioxide. Those are

the only 2 things that are recommended. That's it. We also need to address, when we train, the procedure if we get a hit of one PP over the dioxide or over the chlorite residual.

The biggest problem is the operators don't know what to do or have not known what to do. And I say it's partially our fault. We didn't push it like we should have. And I think DHH also needs to take responsibility and set up classes to train operators on chlorine dioxide testing and the procedure what to do when you get a hit. I think if that happens, you are never going to see any Tier Ones occur with chlorine dioxide. Because we size every generator based on the water flow at the water plant, where we can't physically overfeed the chlorine dioxide. It's impossible. And we monitor the levels of the chlorite or the acid, whatever system we are using. We monitor it weekly, the plants monitor it daily.

We just went something where the engineer sets up a proposal to whoever, we are going to run the chlorine dioxide generator, we are going to test it daily, we are going to make sure we are feeding what we say we are feeding. If the efficiency is 95 percent, 98 percent, 83 percent, you are not really going to get a hit because the efficiency goes from 83 to 97 percent on chlorite. The guys need to be trained to adjust the generator if the chlorine dioxide or chlorite starts coming up.

And if you underfeed the chlorite and overfeed the chlorine, all you are going to get is excess chlorine in the system which will cause

a higher DBP. But normally it won't be a DBP high enough to go above the limit set forth by the EPA.

We are all on the same page. We want safe water, we don't want the operators to panic. Most of the operators can't even do the math to figure the parts per million. And one of our goals as a water treatment company is to train the operators to do the math to make sure they understand what they are doing and not plugging some numbers into the computer. The computers dumb down some people. They think they can plug it in and they trust it.

Our goal has also been to do the physical math and teach everybody the right we if we do that I think we are never going to have a problem. We just can't do some of the things we are talking about. It's impossible for some of the operators to do that and they get frustrated and angry and people start hollering and screaming. We want safe water. If we monitor that on a daily basis, and we have a new system started up and I just gave John a bunch of paperwork. If it's monitored properly we are not going to have problems. I think it's going to be simple.

PATRICK KERR: I agree with what you just said but it has nothing to do when what we're talking about. That's something that the engineer is going to have to put in the OM manual. Or switching to a different generator. Those are issues I think need to be dealt with one-on-one with John and other in the department as you make changes to a new generator or add chlorine dioxide.

But for the purposes of our discussion today, I'd like to know is there anything objectionable in the language today about design that you would like us to consider before we approve this language? Because I don't see anything objectionable based on all that has just been said in the last 3 minutes.

BEN BRIDGES: Page 31. You have chlorite, which is a chlorate byproduct. Chlorate is not being regulated, so --

PATRICK KERR: Great, where are you?

BEN BRIDGES: Page 31, at the very bottom. 4.4.8. Keep chlorate.

JOSEPH YOUNG: That needs to come out. Strike chlorate, good.

(multiple people talking at once)

BEN BRIDGES: And then on 4.4.8.1, you have got 3 or 5 percent, of the stoichiometric concentration required. Because I know we took out pre chlorate, on purpose, for other issues. And what is your beef with that?

JOHN: I know some generators are run with a higher free chlorine amount. That's why we added that second sentence "which is intended to operate outside of this criteria...on a case by case basis." The problem with running excess free chlorine with these generators is you end up losing some byproducts in the process, not just DBPs. But with that said, it's recognized that some manufacturers will want to run more than or less than 95 percent.

BEN BRIDGES: We did that on some and the reason was to ensure it would convert whatever excess chlorite could still be out there, even though it's under 97 it can convert what is out there to help maintain your

part so you don't bust it.

JOSEPH YOUNG: I agree completely but it's saying you notify us and we are all on the same page we are doing this for a good reason. I have fit some systems for chlorine dioxide and they were running way in excess recording, to the point of chlorine dioxide generation for no good reason. And probably not achieving what they wanted in chlorine dioxide because of it.

BEN BRIDGES: So how will that factor into - it may not be in the design, but how will it factor into the efficiency test? Because you want it to be at this 95 percent and we are not going to be there.

JOSEPH YOUNG: The efficiency test is going to flush it out if you are doing it.

RANDY HOLLIS: John, we have a question.

JOSEPH YOUNG: It comes into the purity test but we are not (inaudible)

(Multiple people talking at once)

RANDY HOLLIS: (Inaudible)...this can go under B. Under what condition -- I've seen many of these at 10 parts per million at surface water and at for different times of the year. It varies, it's surface water. So under what condition are we setting this unit up for? The worst case? Another case?

And then Roy, I hate to tell you, as the expert witness you should never should say more than you should say. Because the attorneys just go wild.

You said something I have to ask about, and I know nothing about chlorine dioxide. You said the mode of watering affects the

efficiency of the generator dramatically.

SPEAKER: I said that wrong.

RANDY HOLLIS: If you are using the end water and surface work plants can vary in turbidity and POCs on a minute by minute basis, and you go nuts, I understand the efficiency could change on that unit. And we are only going to test it once a month. So are we ever going to see that?

SPEAKER: I agree you are right, it's going to affect the efficiency and the purity. And this is the deal. If an operator is out there every day and he's checking, I'm talking about a chlorite system. And he's checking the chlorine feed and comparing it to the chart and theoreticals, and he's running a solution strength every day. And writing it every shift as the water quality changes and he starts seeing a change, it's going to show in the solution strength. And he's going to know something is off.

Now, everything the same. If he sees a difference in that strength, then either the chlorine feed is not right or the chlorite as last prime or something. But those three checks right there. You are right, if we go to some areas where we run 3 parts per million of manganese we got to clean the site every day because it's oxidizing across the generator. That is an issue and what I'm saying, efficiency-wise, it's going to affect that particular generator. Does that mean we are going to be out of compliance? No. But we need to understand there are five or six checks already in place that if we are doing them we'll already be in compliance. But we can't put a

number on if it's five percent or --let's face it. If you could still put a number and it doesn't matter what the efficiency is, you could still bust it.

SPEAKER: What Roy is saying, concern about efficiency from a water treater perspective, we want to make sure we convert all that precursor chemical to chlorine dioxide to give the customer what they are paying for. Because chlorine dioxide is a much better oxidizer than chlorite or chlorate.

However, I would say probably the majority of all our generators for the State are not driven by the chlorine dioxide residual. They are flow pace. So the generator is running along at 99 percent efficiency and it's making x PPM of CO2. If suddenly the generator loses chlorine feed and the chlorine dioxide production cuts in half, the generator doesn't ramp up trying to make more chlorine dioxide. The point is, what Roy said, low efficiency doesn't necessarily mean a high chlorite or chlorine dioxide number because most are manually dialed in. The generator doesn't chance a chlorine dioxide without an operator going out there and turning a knob.

RANDY HOLLIS: Here is my. Point I'm trying to avoid an impasse between you guys and DDH three months from now. Under what decision are you designing for? Worst case? Best case? So is B really not design? Should we move B to a startup? So instead of submitting all this stuff during design, shouldn't B be more of a criteria required during start up?

CHRIS RICHARD: Would you want to have something, I'm like you, don't

know anything about chlorine dioxide, but you would have to size the generator and everything else you are going to put in. So if you reword it that you have to do some testing to size the equipment that you are going to purchase in place, in order to do the stuff down the line. What procedure do you follow to size that unit?

BEN BRIDGES: You size it based on the flow rate of the plant and you also size it based on the PPM a generation yield of 70 to 80 percent. So if you design it at 1.2 to 1.5 PPM of CO2, you are going to get back .7, .8 that would be your NCL and you are going to stop it at that point.

So when we design the chlorination system or the chlorite pump it's designed to inject and base it off that, we should not ever exceed to overfeed it. If you lose one or the other -- you can, but you size it based on that.

In some cases you can feed three or four or five parts -- Dr. Rickman, he can feed 3 or 4 parts on the Rio Grande River, because (inaudible) which would convert to chlorite back at his plant. We don't do that here. It's cost-ineffective to feed 3 5 PPM. So you back to 1.2. To 1.5 and you are assume you are going to get the .7 to .8 back as chlorite and you still have a tenth or two-tenths buffer.

RANDY HOLLIS: Let me ask this. What ratios do these run? 100 to one? What is it? I don't know. I don't design the system. When you size the unit you have to design for peak flow and worst condition. It's impossible to overfeed but if you are designing for peak flow, worst condition and you get to minimum flow, how can you not overfeed then?

BEN BRIDGES: You could temporarily overfeed and you can check it. You check your chlorine poundage per day, your chlorite parts per minute, you know how many pounds it takes to stoichiometrically create one pound of chlorine dioxide in a perfect situation. And you can figure at that and you can read on any hot instrument that's lab- approved, back out the calculations and see what your efficiency is. But if you test it like you are supposed to, then you don't exceed for more than a short window.

I understand the Tier one and the severity of that, but i think it goes back to it's the operator and not the process. You can take the test operating system and have someone lie about it and it's null and void. I'm afraid we are putting more scrutiny on CO2 than anything else because of the history we just went through. But if they are going to lie about it, it doesn't matter what you do. You can fix it where it may be fabricated. And that may be more, it may not be anything to do with design, like Pat is saying, but it's not concerned about it.

So you design as best you can to not exceed based on those flows; however, if you drop to 2 gallons a minute instead of 400, obviously you could. Normally you don't run as such a reduced rate on broad water pumpage that it's going to be that detrimental that quick before you can catch it.

RANDY HOLLIS: With trained operators.

DIRK BARRIOS: We have to assume that.

CHRIS RICHARD: Back to your point on design, because that is what we

are talking about, not operation. Does B not apply? To focus back on what we are here for, is B? --

RANDY HOLLIS: How do you replace it?

(Multiple people talking at once)

JOSEPH YOUNG: Very few of the plants actually use it for CT credit

BEN BRIDGES: Mine do, that's why I use it. I want CT credit and we can real quickly get a DC residual in a rapid mix and get away from free chlorine as much as possible if not altogether.

JOSEPH YOUNG: Most of the systems my experience is with is to meet the demand of the precursor organics that reduce DBPs.

BEN BRIDGES: That's value added.

SPEAKER: Just looking at that section B there, the key word "log in activation". To me that means CT credit which is what this gentlemen is talking about. And those created are built around free chlorine dioxide and time. Concentration and time. After demand has been met so much so that that whole section B to me, as a generator manufacturer, I need to know the dosage rate and the treatment objectives. And oftentimes that can be done by a simple demand test on the site.

But if I'm working with a design engineering firm designing a plant that needs a certain number of CT credit (inaudible), they have to look at the whole disinfection process to come up with the CT credit that are going to be required for that plant and that is going to require, typically, a bench scale (inaudible) because all that, concentration times time and the free residual, comes into play in the

CT credit. CT credits, as you know, are additive. So it can be from chlorine dioxide plus chlorites in the back end plus chlorine in the middle, or some combination of all those things.

But the design engineer that's going to submit for purposes to the DHH to build the plant and utilize that process, they got to run a bench scale study at some time to come up with CT credit.

SPEAKER: I would just like to say -- Jared again. I would like to say Mr. Kerr's comments, if the committee commits to being a design only standard I think it would clear up a lot of confusion we have as we read through it. So if you guys can commit to that, I think the implications would change completely. That's my thoughts.

Because the way I read it, to be honest. I need not tell if it's for design or operation. I couldn't do it. And if you read through it, you will see there are some things, just to point one out, and there is many, it talks about having a residual monitoring action plan and having annual training. And that's something that would apply to us.

PATRICK KERR: Part of the time.

SPEAKER: Sure. But to us existing systems, we have to implement that.

PATRICK KERR: You would not.

SPEAKER: So if that was clarified that would change the whole complexion to what the beef is to all the this. I'm not opposed to having an action plan, it's just the fact I'm trying to make is that, it seems not everything in here is for design only.

BEN BRIDGES: If that goes back to your Tier one, would not that fall under retroactive? If it's that important, would it not require grandfathering to make sure they are in compliance such as that? If it affects public health that drastically.

AMANDA LAUGHLIN: If it's a significant deficiency. That's why we established significant deficiencies where, if we do a design and go in and do a survey and there is a significant deficiency, you may have to change something.

BEN BRIDGES: So it would go back to what Jared was speaking about.

AMANDA LAUGHLIN: If it's an issue of a significant deficiency or if you were under an order. We have an enforcement process for that already.

CHRIS RICHARD: If he's not doing it right, then he's got to fix it. If he's written ur because he didn't know what he's doing, he's going to have to take care of it. But if he's doing it right and not cited on in any violation he continues doing what he's doing.

UNIDENTIFIED SPEAKER: So my understanding on this committee is what we are working on is design criteria for new equipment and new processes going forward. What we have information here about operating those things it means forever you have to operate it in accordance with this design. If you have a process in place that's meeting the primary standards and the State's regulations, then we don't look back to this design. But if you fail to meet those primates, you have a significant deficiency and your fix has to comply

with the design criteria. So if you are changing the process and changing the treatment technique, then you have to comply with the design. That's how I thought the committee has been working the whole time. We did in the beginning of the process have some arguments about it, we stopped talking grandfathering and waivers. We said what is in the ground will operate as it's installed provided it meets the drinking water standards and whatever else Dr. Guidry and the rest of the say on it in Louisiana. And this will apply to new stuff.

CHRIS RICHARD: And as I mentioned earlier significant deficiencies were used significantly, from 400-something to 22. And a lot of these things were straight out of here, listed as a significant deficiency which they no longer are. There's 22 significant deficiencies. That's it.

AMANDA LAUGHLIN: Right.

PATRICK KERR: I think we've made a lot of progress and one of the problems we've had, and I think they are all historical now, there is no record of how something was permitted so you get into an argument with the sanitary engineer about how they should be operating because you don't have the original documents and they are going to continue to have problems like that. That's part of another set of eyes rooking at the process. We are not here for that. We are here to talking about design standards.

RANDY HOLLIS: Under 4.4.8.2. The first thing it says that all feed and storage facilities shall comply -- I'm in the wrong -- I made a mess. No 4.4.8.3 A. Design shall comply with all applicable

portions. I just read it, it's good enough. We're good. Never mind. I was just going to put where applicable.

JIMMY GUIDRY: I agree.

PATRICK KERR: He just wanted to complain.

JIMMY GUIDRY: Before we finish the chlorine dioxide, because obviously there is some heartburn, to me, we want to make sure we don't put chemicals that are going to cause trouble. I think training is important but I think how we are going to provide more training when I can't find enough money to do my job. We definitely need to look at that. We do need the folks out there to engage in more training, we need the help. Most of it's around new construction, but it would also be around if the water isn't safe, if there is a replacement that would have to be looked at. If you are changing the process that would have to be looked at. We are changing the process, but we are not going to go out there with every system working well and start citing you need this.

We made this point over a year ago. But some of you haven't been at the meetings. If you feel better if we clarify it's for new construction but it's the new construction part of the code. It's almost not necessary unless you need the assurance. What I hear is in the beginning, everybody here (inaudible) If you have any suggestions on how to make it better, I see some hands going up, but we are going to move on. Let's hear from the audience.

UNIDENTIFIED SPEAKER: Just really quick, the first 2 paragraphs of 4.8.1, that at least ought to be clarified to state that is for the

manufacturers or suppliers to do. It's not going to be something routine that's going to be needed by the systems, because I'll say what I said earlier. Some of the tests are not within the capabilities of most water systems. I think that should be for the manufacturers or suppliers to provide upon installation. Or prior to installation. And not to be interpreted for routine monitoring by a system.

PATRICK KERR: Which specific?

SPEAKER: I'm sorry. The generated yield statement, which is the second paragraph. And then B. The bench scale testing. Especially the one with the efficiency yield, talking about EPA chlorite and chlorate testing. I looked at it and I don't think that's something we can even do. In a laboratory, yes. In a water system, no.

PATRICK KERR: This is the design engineer selecting equipment and getting the affirmative from the department. And that information should be available to him. This is the the equipment.

Now B, I agree with you. I think there is a concern what exactly should be tested in sizing and selecting the equipment. I do think there is some work to be done on B, that can mean every minute we put watering through a system we got to recheck it. I think we need the convergence if once it's on-line.

PATRICK KERR: Keith, my point is it says bench scale testing should be determined for specific water being treated. So which specific water are we going to test? If the change is continuous as Randy points astutely, what are we going to test? What is the design

engineer need to use to demonstrate this is the right equipment? Some will have CT requirements to meet and some will be primary chlorine demand to meet. So what exactly are we doing with the bench scale?

UNIDENTIFIED SPEAKER: Once again, we are still talking about design. That's in this purview to determine what water, what quality, quantity, that they want to design this system for. He's going to have to look at the variation in quality and if it's pick in the median so you don't exceed a limit but for a short period of time, fine. If it's picking the maximum for the chlorine demand, that's his judgment to make in conjunction with the manufacturer.

CHRIS RICHARD: We don't say who does the testing so it doesn't matter. We don't say it's the lab. We are just saying it needs to be done. That's it.

SPEAKER: On B, one of the things I have to ask when you say at minimal, what does that mean? What does at minimal mean? Do we do the jar test or the bench test and come? Up and who has the discretion to say can you do this another way. Does that mean you have to look at other options? Is the intent of B just to size the generator?

JOSEPH YOUNG: There is a design engineer that's going to be looking at the water chemistry and looking at the dose for chlorine dioxide and we are going to set the design size of the generator.

SPEAKER: That minimum is open.

JOSEPH YOUNG: The minimum, I guess they could always choose to do more with we are not requiring, hold on a second...

RANDY HOLLIS: Why not take out the minimum and the bench scale testing (inaudible) done.

SPEAKER: Can I make a comment on -- I understand paragraph B. To me that's a consulting engineer that's going to monitor and organize the bench scale test. If you look at paragraph A, just that first paragraph 4.4.8.1. My experience is that 99 percent, maybe 95 percent of the engineering design specification for new chlorine dioxide systems in new plants, plant extension projects, have that specific language in the design specs. It's imposed on the manufacturer of that piece of equipment to prove at start up of that equipment is going to deliver 95 percent minimum conversion efficiency and that language about free excess chlorine is also in that language where it's chlorine or a chlorite system. That's the language that most of the time design engineers are going to use. Across the country. And there is a lot of reasons for that. As a municipality, the municipality wants to be assured, as is the contractor, that piece of equipment is going to be designed correctly and it meets the specification and that's the key parameter of acceptance. I know in most start ups, we have to prove to the end user, contractor, design engineer that piece of equipment on start up operates at 95 percent minimum efficiency, that particular language across the full range of the production . So if it's a 500 pounds per day unit that's designed to use from 50 to 500, we have to demonstrate at start up, or EPA standard methods, that equipment is going to deliver 95 percent. We don't get paid unless we prove that.

RANDY HOLLIS: I got a question. It's great we tested the day (inaudible) in and you certified it works. And it's perfect for that day. What happens 2,4,6, months later? That's the void we have here. And if that's not part of the committee, not a design, then okay. But it's the operation of the units that's causing the major problem in the State. It's not the design or the 95 percent. The question becomes what do you do 6 months later? What I'm hearing from the operators back here is that the 95 percent is so elaborate they don't do on site.

SPEAKER: I can't answer for everybody. Typically, start up and training is part of that manufacturer package, they will typically quote ongoing service. And that's meaning either quarterly or every other month or biannually or annually. They come in and optimize the efficiency of the generator. They are going to retrain the operators but obviously, as a manufacturer, be it my needs over here or over here, we can't be at the plant every day. And it's really important that the plant staff, laboratory people, the operators understand have to run these tests on a particular frequency. If they don't things are going to fall apart and things are not going to be right. So there are a lot of states outs there, Texas is one of those, they are requiring service programs that are part of the chlorine dioxide program. To commit to the plant typically once a month test the generator optimize the generator. Do what is necessary. As manufacturers, we typically have to charge for that kind of a program buts that's part of the program.

RANDY HOLLIS: What I'm going to lead to where does this committee go? Are we design only, 95 percent we test if, we're done. Or do we get into operation and maintenance.

PATRICK KERR: That's in the OEM manual. There is not a cookie cutter OM manual. The department has to sit down with the design engineer and approve the manual. And those conversations should happen between the design engineer and the permit office. And then you have to to live by what that says. What's what gets us in a crack. The operator fails to heed the advice of the OEM manual. If they choose not to operate that way, you know, that's not the design engineer's fault. It will probably get found by the department and they will do as a violation of your operating manual.

RANDY HOLLIS: Here is my question. Among many others. Is this the time we ask the supplier, right now, as we are developing the standard under the OEM manual one of you, will you submit to us what you recommend as testing and the methods.

So in this section, is this where we put this in now, so DHH doesn't have to fight with every supplier down the road? If we put in now DHH has a rule. Otherwise, you have everybody fighting individually for different tests. So should they submit to us the test, frequency, type of test, what they are looking for, we put it in that section because we all agree to it, and then DHH says, guys, we agreed as a committee and you had input. Otherwise you have individual battles about methods, frequency everything. Is now it the time we should be setting that?

CHRIS RICHARD: Just a question. The committee is design, operations, and maintenance. And the committee does not go away. Is there a better place than here to address that? I'm not saying don't address it, but is an operational issue something the committee will take up in a different part of the code, not in the design portion? Is there is better place y'all would use?

KAREN: I think it's mixed. But if y'all want to separate it out. Other sections of the code has standards as well as premise and design standards in it. Usually chapter 3 does have both.

JOSEPH YOUNG: To Randy's question about what test would be approved, I would add that for the chlorite and chlorine dioxide component for point of entry and the distribution system testing. Any EPA approved method would be appropriate but I think where the contention lies is on a manual where a efficiency test that might be done monthly is specified.

I think that's where the problem lies. Where in this here we reference empiric titration recognized for yield whereas there are other methods, industry methods, that are not barometric used for efficiency. I think that's where the heartburn is. Is that correct?

SPEAKER: I think the bottom line is the efficiency -- as long as the water is compliant, whether the generator is 88 or 100 percent efficient, according to the DHH, APA and everyone else who is servicing the system, as long as the numbers are in compliance, I don't think there should be a fight over whether the generator is 82 percent, 88 percent efficient, or 110 percent efficient. We have laws

to follow and shows are the laws that matter. That's it. Chlorite, chlorine dioxide, DBPs.

KAREN: That would be fine if we monitored DBP daily or monthly but we monitor once a quarter, and that's just a snapshot.

SPEAKER: Change to monitor monthly.

PATRICK KERR: No.

SPEAKER: You want complaint water? Let's do what we need to do.

KAREN: Why react after there is an issue? Be preventative.

SPEAKER: I don't think Mike is saying efficiency doesn't matter. The point he is trying to make, efficiency is not going to cause a Tier one. It's not going to happen.

AMANDA LAUGHLIN: It may not cause it, but if you have a Tier one and -- it goes both ways. You see what I'm saying?

SPEAKER: If you go back over the history of Louisiana and the outside contact we have had over the last 10 to 12 years we have had certified. Since 2004, if I look it up correctly, there has been 11 violations related to chlorine dioxide. Three of these were Tier one, 2 of those Tier ones were due to monitoring, not going out and doing the follow-up test. I think only one was where there was a high CO2 residual going out.

Point is, the focus needs to be on education and training. And adding these tests I don't feel a typical operator can run, I see that being a problem.

RANDY HOLLIS: I go back to this is, I'm sorry to beat a dead horse. What if a manufacturer comes in and says you can test once every 5

years. But wait, we have no teeth here. It's the OEM's manufacturer. I'm saying, as the manufacturer should you give us the minimum?

PATRICK KERR: It doesn't say by the manufacturer. It's the OEM manufacturer and it's by a design engineer and it's a negotiation between the design engineer and the department.

RANDY HOLLIS: Under what basis? There is no teeth.

CHRIS RICHARD: I think it's open. They can reject it.

PATRICK KERR: I'm sorry, but we can't get into the weeds but what objection?

SPEAKER: I'm sorry to keep interrupting here. You know, it's a consulting engineer that's going to submit a package for permit. Typically, the consulting engineer is going to be required to submit a monitoring plan to meet the EPA requirements, federal and state, on chlorite, chlorine dioxide, and maybe other things such as THMs . My comment about generator conversion efficiency, I would agree what is a critical element is that the MC elements not be exceeded at distribution. But I will also argue that the conversion efficiency of that piece of equipment producing chlorine dioxide from starting raw materials, be it sulfuric acid, or mercurate, or chloride, bleach, and acid, or chlorite and chlorine gas, that efficiency is really critical. And the reason that's critical is yes we are producing chlorine dioxide, but there is a chance there if things are out of kilter, such as conversion efficiency, excess feed of acid or that or this or that you can end up with perchlorate, various different things here. So you got to put some kind of standard in place.

I'll tell you that federal EPA standards for the last 15 or 20 years now has been minimum 95 percent conversion efficiency in yield and it's not only EPA but also the FDA standards. But if you want to put chlorine dioxide in the food plant or bottled water, you will see the same regulation and that 95 percent number is there. I don't know what else to say about it. I feel like it's a really important point. And I want to know if I'm the end user of this equipment I want to know its operating maximum possible efficiency. If it's not, there are other byproducts that can come through. Maybe good, maybe bad, but we have to put some sort of control over them.

JIMMY GUIDRY: I think that's enough discussion unless somebody has gut a burning desire. I think we've heard from plenty of experts and nonexperts. This is a bad day for me. It's literally what makes it doable. I don't totally disagree what makes a difference in monitoring and I think we are talking about design. I do agree that probably most, maybe I should not stay host, the majority of the operators would not know how to do these calculations. They want not have these numbers. I don't disagree with that statement how do we get around that piece. We know we are going to ask for something we might not get. How are we going to do that? Is it just going to be the design engineer is going to do the calculations? If you are telling me the operators are going to do the calculations, tell me how is that going to happen. It's a requirement, some are saying, that's impossible to meet by the plant operators. Is that an issue?

PATRICK KERR: This language specifically says that certified operators will conduct chlorine dioxide and chlorite testing. Nothing else. That's what they are responsible for and that's what we are asking them to do. We are expecting them to have a training plan and to document those operators doing those 2 tests are certified, are trained. Above the operations manual, there are specifics here and there is an addendum here there are specific things that have to be in the OEM manual. Others are things I think are all important to have.

And then -- so, then it's the dialogue between the permitting, reviewing engineer and the design engineer about whether that OM manual meets the requirements that's spelled out in the design. And if it does, it's like so many other things. If there is some subjectivity, you have a conversation with the permit engineer and you work it out. And then whatever you agree to is how you operate going forward. But the 95 percent efficiency, if I'm reading it correctly, when you are buying this piece of equipment, the manufacturer certified it's capable of providing that efficiency. And down the road you maintain it in accordance to the manufacturer's recommendation. We not saying you have to maintain it 95 percent efficiency 24/7. We are saying you buy a piece of equipment that's designed properly, again we are going down to the treated water, we're testing just for the chlorine dioxide and chlorite. Again, having said that, is there anything in this language that's objectionable to anybody in the audience? If there is not, I move we accept it as written and move on.

SPEAKER: If that is clarified. But you understand it like that. But when I read it, I didn't.

PATRICK KERR: Okay, if what is clarified?

SPEAKER: What you just said. Explain what you just said.

PATRICK KERR: It's it what says. Okay?

SPEAKER: When you explain it to me, I understand it.

PATRICK KERR: Wonderful.

SPEAKER: Five years from now, when we have a sanitarian coming around with this information, it's not going to be the case.

PATRICK KERR: It says what it says. There is a lot of emotion not about the language, but about chlorine dioxide. And we are not here to talk about the emotional side of it. We are here to talk about the language for permitting and design. I think what I heard is acceptable to everyone. So can we just say well done and --

JIMMY GUIDRY: We have a motion. Do we have a second? Anyone oppose?

KAREN: Are we taking out the strike through or--

PATRICK KERR: Yes. Just leave it in the middle. And again, there is some negotiation going on between the design engineer, he is going to choose the range and the department may very well say, Well, what about a 6 inch event? Did you take that in account? And you work through it. So with that taken the only way is they have to do a bench scale test. Not a pilot.

SPEAKER: As long as we are clear it's the only way.

(Multiple people talking at once)

If you take it out it's going to say bench scale testing shall be conducted.

PATRICK KERR: You have to do bench scale testing. Right.

JIMMY GUIDRY: What I'll say is to those who have a lot of concerns, if it has unintended consequences you have a right to come back to committee and say it has unintended consequences. In the past something happened that people weren't happy with and we didn't know about until it blew up. When I'm gone I want business to continue. Not that I'm planning on leaving but we have need to have the conversation. We just moved that section and we are going to the last section.

CHRIS RICHARD: We have to vote.

JIMMY GUIDRY: No one was opposed, right?

All right. Last section.

KAREN: Are we going to vote on that?

JIMMY GUIDRY: It was seconded and no one opposed.

BEN BRIDGES: Do we need to take a short break?

JIMMY GUIDRY: 5 minute break.

All right. 5 minutes are up. This what I thought about doing to expedite things. We'd go through and fix things you want to adjust and get it finished, as opposed to trying to read line by line go through what we have issues. Aaron will help us finalize it.

SPEAKER: You promise not to go back over it when we all leave?

PATRICK KERR: Last comment was on page 45. Anything before that?

CHRIS RICHARD: On page 45. Anything before that?

PATRICK KERR: Unless anybody has anything I want to talk about 4. 8.1.2. A couple of things. Under subparagraph A. The tension time of 30 minutes. I have done some research and I'd love to hear what y'all think. I've read 5 to 30 minutes is effective based on the process and I'd love to see the language say 5 to 30 minutes.

And then we're calling for the pilot plant study, and I think we need to stay away from pilot plant studies. We talked about that earlier. How about a study acceptable from the state health of officer. It could be a pilot scale study, it could be just a demonstration, chemically.

JIMMY GUIDRY: So just take the word pilot out?

PATRICK KERR: Yes, take pilot plant out. The study. Yes. It can be a chemical theoretical analysis, water quality

JIMMY GUIDRY: It's only if you can asking (inaudible).

PATRICK KERR: If you are asking for 5 to 30 minutes so manufacturer of that reactor whether it's pressure filter or between sand, whatever, is going to tell you what action time you need and some say 5 minutes and others 30. So what I'd like to see is detection time of 5 to 30 minutes following aeration.

CHRIS RICHARD: Take away the minimum.

RANDY HOLLIS: Detection time of 5 to 30 minutes.

PATRICK KERR: Whatever. 30 minutes is no longer necessary. 5 to 30 is.

ROBERT BROU: Would there we a be a greater than? Put a minimum of 5?

PATRICK KERR: That's fine. I don't know if 5 is necessary but

basically what we are saying is whatever it is we are using as an oxidant, the reaction can take some period of time. And what this does is specify is it could take 30 minutes before filtration and I don't think that's necessary.

JIMMY GUIDRY: So leave that as 5 and take out the 30?

BEN BRIDGES: Why even put --

PATRICK KERR: You tell me. Is there an immediate reaction now --

BEN BRIDGES: The process you're implementing, your design analysis, you want to do it in 5 minutes and if I'm taking 25 minutes. Then you want to design it around what you want to install. So why put anything in there at all.

PATRICK KERR: What I'm saying is the minimum I've found looking ar different processes is 5. But if you think it's less than that if if you think in the future it's something that's going to be immediate reaction and you don't need any detection time?

DR. DAVID CONSTANT: But the detection is goings to go based on what the reaction is. Therefore you should say complete as

(Multiple people talking at once)

AMANDA LAUGHLIN: I agree with that too. I prefer not to put a number

DR. DAVID CONSTANT: You don't have numbers so that's a detention time should be provided following aeration da, da, da, da, da

BEN BRIDGES: Sounds good

CHRIS RICHARD: Then you delete the next sentence. Take out the

entire second sentence.

PATRICK KERR: And then under sedimentation, what is high? Treating water with high iron? You want to go with putting 2 milligrams per liter? What number do you want to put in there?

AMANDA LAUGHLIN: I think over the secondary MCL would be high.

PATRICK KERR: No.

CHRIS RICHARD: Y'all proposed rule is three times the secondary MCL.

AMANDA LAUGHLIN: You have to remove it if it's greater than three times.

CHRIS RICHARD: But you can sequester less than three times. So if you remove it you are applying treatment, so if you are applying treatment it needs to be 3 times the secondary element as being high.

PATRICK KERR: That's fine as long as we define it.

RANDY HOLLIS: Before we get there this is sedimentation basis, not direct filtration. So direct filtration can handle higher than that. So really sedimentation should be even higher than direct filtration. So I'm scared to put a low limit in here.

BEN BRIDGES: How about a bunch, instead of high? Like you can cut it.

RANDY HOLLIS: I'm playing around with 2 PPM iron and. 35 manganese, which is 7 times the amount. So 2 iron and 35 manganese. So you would have to have sedimentation first.

PATRICK KERR: So what do we want?

RANDY HOLLIS: I don't have a special case. Yeah I do. Wait a minute. Tell me what I should be thinking about, Karen?

PATRICK KERR: 7 times, awesome. Anybody else? I have something on page 45 also.

RANDY HOLLIS: Let's go back to previous. Under A reaction. Reaction can take place in a closed conduit. It doesn't have to be an open basin. It should be designed to prevent sort circuiting, no problem. But should be overflow access hatch. If a reaction tent basin is provided, it shall be...

PATRICK KERR: Okay.

DIRK BARRIOS: I'm so used to using acid.

PATRICK KERR: My next comment is on 4.6. Unless anybody got anything before that. So we are talking about polyphosphates and under subparagraph B, can we talk out the word shipping? Where are you?

KAREN: I don't know, where am I?

PATRICK KERR: 4.8.6.B. The penultimate sentence. Shipping container, can we just put as covered container because we tend to use bulk storage for the phosphate solution. Can we just put covered container?

What's above that I think is more important. I talked to several of the manufacturers we use, CKPP for the polyphosphates. There is no base to monitor chlorine residual. There is some concern about free chlorines at these levels. May cause some reversion and may form some monophosphates. And I guess the question is what they told me is that polyphosphates are not a good medium for cellular activity and they think is unnecessary. What is the department rationale for telling us we need toto chlorinate it?

CHRIS RICHARD: (Inaudible).

PATRICK KERR: Yeah, but it does support some minimal growth.. anyone using polyphosphates for treatment in the state? Any issue that is causing us to put the language in? If not I'd love to strip it. The only ones I know requiring this is New York City. But what's the motivation for this?

BEN BRIDGES: I never heard of that.

PATRICK KERR: We are hearing it now. So you didn't read it before the meeting is what what you're telling me? If the department is indifferent I move to strike the language in the polyphosphate solution. This would be introduced to water prior to distribution, obviously, so even if there were some minimal bacterial activity in it, chlorine should be effective against it. I'd love to strike the whole thing about free chlorine if we can. It's B. Stock phosphate solution.

CHRIS RICHARD: That's not what I read. If you don't cover it, then you have to disinfect.

PATRICK KERR: Cover and disinfect it.

JIMMY GUIDRY: It says it has to be both. And I don't see any reason to add three-quarters of the polyphosphate solution.

JIMMY GUIDRY: How about and/or?

PATRICK KERR: Well, we say it has to be in a covered container so we don't have to have it twice.

AMANDA LAUGHLIN: I've never looked at that.

PATRICK KERR: So can we strike it?

AMANDA LAUGHLIN: I'm okay with it. I don't think any of us have ever looked at that particular requirement.

JOSEPH YOUNG: I'd say it hadn't been looked at in the field either.

PATRICK KERR: But we are moving the bacterial sampling down stream so if there is,minor bacterial growth in the system in the system, we are treating it. If we can strike that. I suggest we strike B.

And then here we go again with with the question what is as far ahead of the oxidant feed point as possible in subparagraph D? In the well? So let's pick a point. We don't want it in the well. Can we just say prior to the oxidant feed point?

AMANDA LAUGHLIN: I think I used to do 5 feet.

PATRICK KERR: Pick one as far as possible.

BEN BRIDGES: At well discharge.

PATRICK KERR: I don't want to go back that far. You just want the mixing to occur before the oxidant.

CHRIS RICHARD: If you put it here before the well, you have to feed it.

PATRICK KERR: That's perfect, thank you.

CHRIS RICHARD: Before we he leave this, with your new rules with the sequestering and the secondary MCL. Your new rule that says sequester 3 times MCL. This says it needs to be used at least (inaudible) can we take that out of here?

PATRICK KERR: It's not recommended.

CHRIS RICHARD: With that code, they are going to come out with something that says you can do it up to 3 times, which is .9. I'm

saying .9.

PATRICK KERR: If that's in the code why don't we take it out.

CHRIS RICHARD: That's what I'm saying. Take it out because it will be addressed else where.

AMANDA LAUGHLIN: That's just recommended anyway.

ROBERT BROU: It says shall not be used.

AMANDA LAUGHLIN: Ours is combined as one well. Wasn't our combined one? (Inaudible) so that's the same.

CHRIS RICHARD: I would just strike it here.

AMANDA LAUGHLIN: You can we are going to address it later.

KAREN: Strike the first sentence?

JIMMY GUIDRY: More suggestions for the language in the rest of the section? Going once?

KAREN: We need to make sure we address all our DHH comments. Hang on.

AMANDA LAUGHLIN: That was one thing, for, and that's under aeration, right? Page 44. Am under E, it was removed. And if you are having to utilize that treatment for any primary contaminant you might need to have that in there. We can have language that says when used as a primary contaminant.

RANDY HOLLIS: This section is under another feature that must be supplied should be provided. And it's talking about the design of the unit it's talking about ports, cleaning, talking about towers.

AMANDA LAUGHLIN: Taking it out of service I think is what that refers to.

RANDY HOLLIS: Acceptable alternative method of supply. Of air? Of

water?

AMANDA LAUGHLIN: I think it's more about the bypass. If you need that unit processed to maintain with some primary contaminant it should be a bypass.

RANDY HOLLIS: But it says no bypass shall be provided.

CHRIS RICHARD: Should it say alternative treatment? Because I don't know what supply means, so it wouldn't be supply, it would be alternative treatment.

RANDY HOLLIS: That's fine, I just didn't know what it meant. That's good.

AMANDA LAUGHLIN: The next comment on page 46 was under 4.8.3.D. It just states normal filtration rate is three gallons per square foot for a manganese coated media filter. So our comment was that it should be based on the manufacturer performance studies. It just matches the rest.

PATRICK KERR: So take out the normal filtration rate should be based on -- there you go.

AMANDA LAUGHLIN: Right. Normal filtration rate shall be based on manufacturer performance studies.

The next comment we already talked about which was polyphosphates, why we need to remove it.

PATRICK KERR: We didn't talk about it but --

AMANDA LAUGHLIN: Shall not be applied to iron manganese removal treatment.

PATRICK KERR: Just the first sentence comes out. The other is --

CHRIS RICHARD: (Inaudible) The first set stays, right?

AMANDA LAUGHLIN: Right. The others are really part -- that's fine.

I think that was -- oh. We had under powder activated carbon on page 51. The comment was just to discuss it. It basically states it should be added as early as possible in the treatment process for maximum contact time. Activated carbon should not be applied at the point of chlorine.

DIRK BARRIOS: (Inaudible)

AMANDA LAUGHLIN: I know it says should, but should we add something in replacement of that?

DIRK BARRIOS: If you find yeah.

AMANDA LAUGHLIN: you add yours --

DIRK BARRIOS: The earlier you find the better results you get.

SPEAKER: Sore it could say the point of disinfection. The last same is (inaudible).

DIRK BARRIOS: If you read it correctly we said it doesn't shallow must for the most part how to handle it. And I think that's fine. This was a year and a half ago? So that's why. (Inaudible) we don't have a problem with it

AMANDA LAUGHLIN: We managed to go through and some of the stuff that said should, we made it shall. We added language similar.

DIRK BARRIOS: According to whatever treatment facility handles best. I might put it here and it works really good but it doesn't mean other people put it on here. The plant (inaudible) this is the a system and how you apply it. You might have a long run of pipe (inaudible) we

don't have that flexibility at the north plant we might south plant we don't. Should is not a problem.

CHRIS RICHARD: Shall is not a problem either because it says as early as possible which is very vague.

DIRK BARRIOS: I think that's the only reason it was taken out.

RANDY HOLLIS: You are saying it's okay to feed it with chlorine?

CHRIS RICHARD: We are finding out that chlorine dioxide, I am not going to tell you chlorine, but chlorine dioxide is not really affected when you add (inaudible).

RANDY HOLLIS: Chlorine dioxide.

SPEAKER: Neither one of these are effective and it depends on the process you're using. So I can't see that for everything.

DIRK BARRIOS: You have to remember we have a service treatment system and carbon attachment first and then they make it attached on the molecules. We do a product test and we get results.

RANDY HOLLIS: Did you see a big drop in the residual where the product is being fed? It's not creating a demand?

SPEAKER: You kind of have a unique situation with activating carbon feed. It's not typical. It's with a polychromide mixture, isn't it?

DIRK BARRIOS: We are trying, Jared is more involved in that(inaudible) and just to see where we can get a more efficient result with our factory and we are finding out that by using a different kind of we can achieve -- the water quality is better, to be honest. (Inaudible)

JOSEPH YOUNG: Isn't the activated carbon now blended with polymer?

SPEAKER: No.

PATRICK KERR: Is this just to tell engineers they may want to think about putting it in early? If that's the case. Just leave it out.

JOSEPH YOUNG: They are doing things with it that are different and they are getting good results.

DIRK BARRIOS: The assumption you put carbon close to your disinfectants, it kills it. I'm not saying it's going to be every carbon but it's not really effective. And we're actually getting, from a chemistry standpoint there better quality the (inaudible) that's why we are looking to do an it's the waste water (inaudible) . And stuff like that. We are done. The laptop battery died.

RANDY HOLLIS: We have to start over. Did you save it first?

PATRICK KERR: That was the last thing I had.

AMANDA LAUGHLIN: I guess you know y'all are doing it differently than the.

DIRK BARRIOS: It's reflective of the type of system and the type of water and where. It works better for us in our location but Robbie might be using the exact same products and the exact same water. You have Mississippi River water, it isn't quite the same but it's not that much different. It just depends on the pack. I think the pack is we are finding that out it really is (inaudible) so many different ways.

AMANDA LAUGHLIN: Your case, I just kind of shows it can be different. It doesn't have to be.

DIRK BARRIOS: That's why I'm saying the reason it was taken out is we

kind of -- we talked about getting rid of the should because it's not a regulation.

AMANDA LAUGHLIN: When an engineer goes to design something, they go to the books. It's good to bring attention to certain things.

DIRK BARRIOS: We are not against it.

JIMMY GUIDRY: At this point, everything is dying. If we agree we are going to leave it in? And so that's the end of our part.

PATRICK KERR: Other than the vote.

JIMMY GUIDRY: That's where I'm going. You are reading my mind. Do I hear a motion to accept the change that suggested and seconded anybody?

Well, folks I never thought we would get here. I didn't think I would live to be old enough.

RANDY HOLLIS: I have a question. I really do. What now? In other words, some of the things we passed in here do affect current operations. We changed from 15 to 20 PSI. We are getting ready to go through a couple of freezes. If the water measure dropped below 20 PSI this Thursday night but above 15 are they in violation now?

ROBERT BROU: We still have to go through the whole problem.

AMANDA LAUGHLIN: It's going to take time to get all of this into LOC format. Some if it was done but a lot of it still needs to be done, and that will take time. And the rule making process itself is a minimum of 6 months. And if there is any public comment that needs to be addressed or additional changes. You are looking at several months down the road before it's finalized.

PATRICK KERR: Can we do this, what we did with the plumbing? A few years ago there was a notice that said you all have the opportunity to make public comment, you should have come to the meetings. I think it short circuits the rule making process.

AMANDA LAUGHLIN: I don't know about short circuits.

CHRIS RICHARD: My question is on this point moving forward, before the rules take effect, say it takes a year, and when you are reviewing plans, how are you going to review a plan that will change when allowing higher rates? Are you going to approve the rate

AMANDA LAUGHLIN: If things have been voted on by the committee and we know it's going to be effective within a year or so, we are going to considering that review.

CHRIS RICHARD: I think the potpourri notice it gives, it's actually a, when you do the regular rule making you have to do a notice of intent comment and public rear I think the potpourri notice gives warning before that of us making the regulation and it may allow us to set the effective date to an earlier date. But it's still, be still have to go through the process. I don't know if it's short circuiting but it can allow us to be more effective.

RANDY HOLLIS: Thank you for the clarifications. Yall have worked I appreciate it. I know some instances with getting into a freeze, is it 20 or 15? Where are we? That's the only thing we think, think of we have not enforced it, that's one thing we haven't enforced was the 20. We told people it was 15 until this is finalized.

JIMMY GUIDRY: Appreciate everyone have some happy holidays. Hauler

days and be proud of the work you've done. One thing is be patient. So thank y'all, it's worth the investment.

Have a Merry Christmas and Happy New Year and go see your families.