Water Meeting

3/17/15

J.T. LANE: If everyone could start taking a seat we will get started. Laurie, if you'll start with the roll call please.

LAURIE JEWELL: Dirk Barrios, Vern Breland (absent), Ben Bridges (absent), Robert Brou, Jeffrey Duplantis (absent), Greg Gordon, Dr. Guidry, Jimmy Hagan, Randy Hollis, Pat Kerr, J.T. Lane, Rick Nowlin, Rusty Reeves, Chris Richard, Keith Shackelford, Cheryl Slavant (absent), Joe Young (absent), and David Constant (absent).

J.T. LANE: We have a quorum. Welcome everyone. We'll go ahead and get I know some people indicated they have some other pressing matters so I thought we would just jump right in. With that everyone should have received a copy of the last meeting's minutes. Are there any questions about the minutes from last meeting? With that do I have a motion to approve them?

JIMMY HAGAN: So moved.

JIMMY GUIDRY: Second.

J.T. LANE: Any objections? Minutes from the last month are approved. Pat submitted on old business I think some amendments via email to part 10 that we received. I thought we might want to go over those and review them.

PATRICK KERR: All I tried to do was incorporate the comments from the meeting into the minutes. What I told Sheree that I needed to leave early today that if we were going to talk about part 10 and DHH's comments.

J.T. LANE: Thank you for doing that. Was there anything in particular you thought we should re-circle on before we?

PATRICK KERR: No sir.

J.T. LANE: All right. With that we will begin work on the side by side and have that for the next

meeting. With that we'll go through the part 5 comments from DHH. And I guess Jake will you take us through that please.

JAKE CAUSEY: So for the part 5 for the side by side slash DHH comments you have the standard format that we have been using. Comments on the side and then some of these things they will reference attachments which was the purpose of the second little power point handout. I guess we can sort of have as much information with us at the time as possible. So I'll get started. So comment 1 was just to note that for ANSI accredited testing agency or I guess or eventually exactly what term I guess is used maybe testing organization or whatever the most commonly used term to describe that is what would we want to define as a definition. We currently actually do that I think in the plumbing code for one specific thing. It relates back to like an ISO standard guide 65. Anyway, I think that's pretty straight forward. By the way it's sort of clear what that means. I think it's actually kind of to Dirk's question he had about UL certified for product to meet NSF 60 is that acceptable and it is. UL is an ANSI accredited listing agency for yada, yada, yada. And so that's what that definition will address so it's clear. I think that resolves that. So the next comment DHH comment 2. 5.1.2 B control. Chemical feed rates shall be proportional to the flow stream being dosed. I guess the subcommittee comment was to add unless the flow stream is constant then manual dosage of the chemical shall be deemed acceptable. I guess our thought was that maybe it was just a misunderstanding of what A above means and then what B actually means. Cause A above says feeders may be manually or automatically controlled and then automatic control shall be designed so as to allow override by manual controls. Typically dosage rates are proportional to flow regardless of whether it's manually or automatically controlled. I guess our comment was I don't think that the sort of the add-on to that sentence is necessary because I think the above it addresses that. I think we're on the same page there, but I'm not sure if anybody has different thoughts or thought that that meant something differently than what we understand it to mean.

JIMMY GUIDRY: So Jake, is the proposal to leave the addition of the red or strike out the whole

sentence?

JAKE CAUSEY: Just to leave the original language there that what's proposed to be added in the red doesn't need to be added. It would be redundant.

RANDY HOLLIS: I think as a comment on that Dr. Guidry if they will allow manual feeders then manual means manual so you can't be proportionally to flow because it's a manual dosage so your flow would have to be constant for the manual feeder to work. We're on the record, it's in the minutes. As long as manual is allowed it's okay. I'm okay with it.

DIRK BARRIOS: When it speaks about spare parts of each type question comes in are we talking about commonly worn parts? There's so many parts today for some of this equipment. In most cases I know the smaller systems may not, but we have duplicate or redundant systems where you have one that we run for a while and after we run it then we'll swap it out and run another for a while. If one feed pump goes out we have a spare feed pump right there online and we can just swap it out. I guess avoid having to be a spare part's depot at your water system if we have redundant systems you're going to still carry spare parts that normally wear out, but where do you draw the line?

JAKE CAUSEY: If you have a redundant system then my view would be that meets or exceeds the spare parts requirement. I think really the change here was that you didn't have to have a set of spare parts for each individual feeder, just each type of feeder such that if you had two LMI model pumps you can have one set of gaskets for either pump if there is a leak or an issue. I mean if you have a primary then sort of a backup I think that addresses that concern that you'll be able to maintain continuity of operation.

RANDY HOLLIS: I guess Dirk one comment I have on that is as you look at spare parts we can't address everything. It has to be case by case, but if you've got a stator for a progressive cavity pump and it's your backup and your primary one fails and it takes six weeks to get a replacement in you're down now to one pump for six weeks. That's not a redundant backup. So I think in that case you need at least one spare stator pump. But that's a case by case.

JAKE CAUSEY: DHH comment 3. Basically all we're proposing is to reword the sentence to just follow the structure or format with 1,2,3,4 and above it. I think content wise we agree so there's not any sort of substantive changes, just perhaps the sentence itself. Comment 4 so in 5.1.4 C I guess the original language read calibration tubes or mass flow monitors which allow for direct physical measurement of actual feed rates should be provided and the new language devices utilized to measure feed rates in the pumped liquid shall be designed to handle the liquid being measured which I think it's a little more, it's not specific to two certain types which I don't really have a problem with. But our comment was we wanted to clarify that and shall be provided maybe should be added to the end of that.

DIRK BARRIOS: There are other ways that you can check your feed rate. You can catch a grab sample and you can run the analysis or weight on the side. If it's a liquid feed rate you can catch it through a graduated cylinder. There's ways of doing it. You're saying device, and I'm just asking, would it be better to put the ability to instead of a device? When you're saying a device has to be something that's there that's readily measuring as it's going on when you can manually do the same thing. Just give you an option, it's all I'm saying. In some cases I understand.

JAKE CAUSEY: I guess what you're talking about is you would actually be taking sort of the pump out of service in a sense to measure the feed rate using a graduated cylinder?

DIRK BARRIOS: In the case of chloride, there's two or three chemicals that we feed directly into our flash mixer and it's just a direct feed and we have an airgap right there that we can actually go out there and catch a sample and you can check it right there.

PATRICK KERR: Are we talking about comment 4 still?

DIRK BARRIOS: Yeah.

PATRICK KERR: Okay, so graduated cylinder is a device it just has to be compatible with the chemical you're testing.

DIRK BARRIOS: That's what I'm saying. I'm asking when you say device it almost puts you in a position

where you have to have something there that's reading, that's what I interpret.

RANDY HOLLIS: I think you can take a small bucket, collect a sample, transfer that to a graduated cylinder that's more precise. That would be a device. Timed over a period of time would be--

DIRK BARRIOS: So when the system gets written up in the future because they didn't have a device out there, but the device was a graduated cylinder we could come back and say if you go on March, what we are today, the 17th 2015 at 1:00 meeting.

PATRICK KERR: It's a device.

DIRK BARRIOS: Just trying to clarify.

JAKE CAUSEY: The point is is that you have a method that sort of accurately informs you of what your liquid feed rate is. And to do so you're not compromising water quality at the same time. I'm not sure as far as the pump is supposed to be pumping in the flash mixer and you grab what was supposed to be pumped in there that might not be the best way to go about it unless you, I guess, dump it back in there. I hadn't really looked at those methods that closely. That would be one question I would have if what's supposed to be dumping in the flash mixer you grabbing a graduated cylinder it's not going in the water. That might not be the best way to go about it.

DIRK BARRIOS: That's going into raw water supposed to be diluted at such a rate (inaudible).

JAKE CAUSEY: Overall it might be a 100th of a percent. It has no significant impact. I think this is written vague enough that if you say that you have a good argument. We might just want to make sure whatever method or device you're using is not interrupting the flow of chemicals into the water supply at a significant rate that impacts water quality.

DIRK BARRIOS: We don't turn off the feed rate at all or interrupt it.

JAKE CAUSEY: DHH comment 5. Storage and chemical space. I think sort of the way that this section sort of a change had taken form so we proposed to reword it to make it more accurate. Supply and store chemicals. There was a lot of discussion during the subcommittee report last meeting on how many days chemical supply has to be on site at all times to ensure basically continuous chemical feed

between deliveries. We looked at it, 15 days was thrown around, 30 days was what it was originally. So we recommended maybe going with a 10 day timeframe which basically meant if you only maintain, if you were looking at 30 days I guess every 20 you'd be ordering chemicals to make sure you had a 10 day supply on hand in case there were hiccups in delivery that may cause it to be extended. I think we maybe tried to split the difference between 7 and 15. Maybe 10 will work. So that's where that came from. Then the other discussion was a similar issue I guess as far as truckloads. And if you have a chemical that you order by the truckload lot having some commodity of more than one was the heart of the discussion. Whether it's 1.1 or 1.5 I don't think is really the issue. It's just having more than one.

DIRK BARRIOS: What determined the truckload lot? Best we can tell was about 4,450 gallons. Okay and if that's the case and I'm just going to give you some examples. Can we have polymer 4200 gallon capacity?

JAKE CAUSEY: Do you order it by the truckload?

DIRK BARRIOS: Well, you have to order a truckload for them to deliver it. We have two plants so what they do is if it's something more than what we need we split the load and they go deliver half to the north plant and half to the south plant. And what I'm trying to get at is number one.

JAKE CAUSEY: Are you talking about liquid chemicals?

DIRK BARRIOS: Liquid chemicals, fluoride, permanganate, phosphate, polymer, sulfuric acid, alum. The only one out of anyone of them that I just named that we order more than nine times a year normally is alum which means that most of our capacity that we have is in excess of a month to a month and half, but probably a month and a half of capacity. And we don't have what I would consider would be considered a truckload one and a half times truckload lot volume cause we're looking at around 6700 gallons give or take a few. When you're feeding these chemicals at 14 gallons a day, 56 gallons a day, 24 gallons a day and you have to have 6700 gallons on site originally at least. I got a year's worth of chemicals and some cases I might have two years' worth of chemicals on hand.

We far exceed the ten day. What I asked before is that one and half truckload lot I can see where it should be considered, but to make us do it then I would have to go and construct an entire new chemical feed system because I don't have enough place where we're at. And I'm sure I'm not the only water system in the state that's going to be in the same predicament. You just don't use enough certain chemicals.

JAKE CAUSEY: Other things they only deliver a truckload at a time.

PATRICK KERR: I would argue that you could buy any of those chemicals in carloads if you wanted to and so the ten day you do it for your convince, for economics, buy it by truckload, but it's only things that can only come by truckload that they want you to store a truckload and a half of. You're doing it for economic reasons, not for operational reasons and so it shouldn't apply to you. The fact is we could buy anything by truckload. I could buy truckloads, and some people do, tank cars of chlorine but we choose not to. That doesn't mean I have to keep a truckload on hand.

DIRK BARRIOS: What chemical can only be delivered by truckload lots?

PATRICK KERR: I don't know that there are any. That's why this sentence, I don't think, needs to be in here. There's nothing in a pinch we couldn't go out and buy and get it brought in on flatbed trucks. That minimum storage you might say where purchase may only be made by truckload. And then if there is something that comes up like that. Worse case, I hate to say it, well I don't hate to say it, we go out and buy concrete. It's cheaper to buy more than a short load sometimes. It's crated so you just let them take it back to the plant. 4,000 gallons you got 200 to take home. Sorry, we don't need it. If it can only be purchased by a truckload.

JAKE CAUSEY: Yeah, just put can only be made by truckload. That will work.

ROBERT BROU: Can you go back to comment number 6. Right above it.

JAKE CAUSEY: I think that's pointing to A space. Just going to delete the term space right there.

ROBERT BROU: It needs to be replaced by something or you're changing the formatting for the entire paragraph. Re-title it.

JAKE CAUSEY: Yeah, maybe there will be just A,B,C,D instead of 1,2,3,4. We were re-titling it to say supply storage of chemicals and then just have, maybe it won't be 1,2,3,4 just A,B,C,D whatever, right.

RANDY HOLLIS: On comment number 1 a minimum of seven days. I just want everyone to know that if we're changing that to ten days that is the maximum average day demand that we defined earlier. So that is a ten days of a max day. It's not ten days of an average day. So you will probably have at least 15 days of storage sitting there during average conditions. Okay.

JAKE CAUSEY: Comment 9. Add the word readily. Have the means to readily determine the volume of liquid retained in the storage tank. You don't have to break out tape measures and do calculations and all that stuff. Comment 10. 5.1.10 B bulk liquid storage tanks. So instead of means to assure continuity of chemical supply while servicing a liquid tank shall be provided was originally there. And then it was proposed to be revised to say a means to assure continuity of chemicals to treat the water to comply with primary drinking water standards shall be provided while servicing a liquid storage tank. Really our comments was primary drinking water standards is one set group. The state may have other standards as well that have to be met. Wouldn't want to limit that to just primary drinking water standards. It would need to meet both state and federal regulations, not just federal. I guess just rewording that to say state and federal drinking water standards or what have you to make sure that all water quality standards are included.

PATRICK KERR: The secondary standards are not enforced by the state. I think that's why primary is used.

JAKE CAUSEY: If and when the state sets any standards then they would need to be met while servicing a bulk storage tank.

PATRICK KERR: Right, we can't say all standards because there are secondary standards that are aesthetic.

JAKE CAUSEY: I was going to say state and federal drinking water standards.

PATRICK KERR: Secondary standards exist at the federal level. We do not need to comply with them.

JAKE CAUSEY: I think I see what you're saying. I don't think I'm saying it the way maybe you think I'm saying it. Maybe it's not standards. The secondary standards that are published by EPA are specifically identified as a set of non-enforceable guidelines. So I don't think by saying state and federal standards that what EPA has as secondary non enforceable standards become sort of enforceable by virtue of saying state and federal.

PATRICK KERR: So you want to say enforceable drinking water standards?

JAKE CAUSEY: Just say federal, primary, and state. Yeah, we can do that. It will say with federal, primary, and state drinking water standards. All right.

DIRK BARRIOS: On A it says continuous agitation shall be provided to maintain slurries in suspension. Am I understanding they are only talking about when you have a slurry in suspension?

JAKE CAUSEY: Right. Yeah, I think that's pretty specific. Comment 11 C. Same thing just add the word readily in there. Readily determine the volume of water.

ROBERT BROU: Of liquid.

JAKE CAUSEY: Water, yeah. It's not water in the tank. That was the other change. DHH comment 12. So this was about valved drains. The proposal was to change it from shall to should. That bulk storage tanks have valved drains. We look at valved drains as a method to flush, clean, or otherwise maintain storage tanks. Without a valved drain it would be not impossible, but much more difficult to do so we would prefer to see those there. When it's more difficult for an operator to do it may be less likely to do it or not do it as well. We propose leave it as a shall.

RANDY HOLLIS: Is there any comment from those that operate water plants? Do you see a problem with a drain on every tank?

DIRK BARRIOS: Every bulk storage tank, no.

JAKE CAUSEY: Comment 13. This was the day tank discussion. We felt like day tanks are used for monitoring of chemical usage and help prevent overfeeds, especially feeding of an entire bulk

storage tank. So in the attachment I did have, I guess the first page, thought it was helpful to have pictures. Just so use as a point of reference if we needed. Proposing we can have an exception to allow some other, call it innovative approach to ensuring proper chemical usage and preventing overfeeds, not absolutely, but overfeeds of an entire bulk storage tank. That would remain as an option in lieu of using day tanks. But if there's no other text provided then we feel like day tanks should be required. All the projects we're seeing frankly coming in are proposing day tanks. Aren't really seeing any issues there. That was our comment on day tanks was to have them mandatory, but allow an exception if some other equal level of protection can be provided. And then of course the whole exception if you're pumping from tanks that are 55 gallons or less no day tank needed at that point.

DIRK BARRIOS: And I understand what you're saying, just keep in mind like proprietary systems such as chlorine dioxide feed systems they use their own makeup. Like the one we use uses purine and sulfuric acid. I think 78 percent strength sulfuric acid which is very aggressive. They do not recommend day tanks because of the double handling of the product. And the issue is is that it exposes your employees to extreme bad burns.

JAKE CAUSEY: I think fluorosilicic acid is probably as bad as it gets. I think the expectation is that staff are there trained and they got to work with it every day. There's an expectation they know how to do so and protect themselves. The purpose of the day tank is to protect the water supply system and the customer certify the system from a very large overfeed and given the ability for the operator to monitor chemical usage a lot more effectively. I don't know that operator safety plays into...

DIRK BARRIOS: I can assure you they don't recommend us doing it. They don't want us to do it.

PATRICK KERR: I think this is a much bigger issue than you make it out to be Jake. Basically we're saying we're going to tell people that design chemical feed systems regardless of what they think that we need to have a day tank. I think you're kind of hijacking an issue here if it's designed correctly this shouldn't happen. And I'll give you a for instance and you talk about could that acid be overfed

into your system and would a day tank solve that problem. If the answer is no then a day tank is a redundancy that we don't need. It doesn't do anything. If mechanically you cannot overfeed a chemical, and you know obviously you can always overfeed a chemical, but overfeed a chemical to an extent that would cause damage to people it wouldn't need a day tank.

RANDY HOLLIS: For example, aqueous ammonia. We use small LMI pumps on aqueous ammonia. They have limited capacity with stroke and with the pulse. And so if you've got it already set at 85 percent you can't overfeed that much more to hurt anything. I think the pump itself is the limiting factor that would prevent an overfeed.

PATRICK KERR: I think you should be more concerned about the design of a feed system and if a day tank is required for that chemical to protect public health then we put in a day thank. But to just say all chemical feeds should have day tanks it doesn't work for us. And I'm thinking about mechanically our facilities and what we would have to do to add day tanks for anhydrous ammonia. Or correction, not anhydrous, well anhydrous would be a great example. There's lots of folks that are using anhydrous ammonia.

JAKE CAUSEY: Well, this talks about liquid chemical.

PATRICK KERR: Anhydrous ammonia is liquid too, right. It's fed as a gas. But aqueous ammonia, or TKPP, sequestering agents as long as mechanically it can't be overfed to the detriment of public health. A day tank is another handling requirement. It's another place that you're going to get a failure. There's no need to have it. The fact that we buy 800 gallons at a time of TKPP or phosphoric acid and feed it through a metering pump we shouldn't have to put a day tank in that. There's a lot of facilities that are not manned that run without human intervention. We go out there and check it three times a week. By definition we have to go out there every day to every one of these facilities.

JAKE CAUSEY: So one example is fluoride. I know New Orleans had an overfeed incident that had they had a day tank would not have been as severe. They hit right at the 4.0 MCL. Didn't exceed, but they were at it. Had they had a day tank--

PATRICK KERR: So we're going to change the whole state for one example.

JAKE CAUSEY: This is an example of the purpose that a day tank serves. And also I'll go back and do some more research my understanding is fundamentally dang near every state they're following these design standards for those protections. But we can certainly do some more research on day tanks and see if there are exceptions for certain chemicals, or based on certain pumps, or some other things. We can look at it closer and get more information.

PATRICK KERR: Okay, so I don't have to put a 55 gallon drum. So in Crowley Louisiana we buy fluoride in 55 gallon drums. So I don't have to have a day tank, but that's probably three months' worth of supply for me. We could over feed the heck out of it for a week. Day tank doesn't fix that problem either. If that specific chemical has an issue we need to figure out a way to measure it and not allow it to be overfed. Day tank doesn't fix it. So all of sudden I buy 180 gallon (inaudible) and I have to have a day tank?

JAKE CAUSEY: I agree, these standards are not going to ensure that operators run systems appropriately, do everything they are supposed to do. These are just standards that are best practices and gives us the best chance of succeeding, but certainly people can circumvent good standards and have things fail.

PATRICK KERR: I'm taking exactly the opposite view. I think a properly designed system is the better way to go. If a day tank is required the design engineer should know that. And you guys can fight about it, but yeah just to say everything has to have a day tank doesn't make sense to me. And I'm thinking specifically about chemicals we use.

JAKE CAUSEY: Maybe that's why we had the exception there.

PATRICK KERR: So who is going to make that decision? Is it going to be Dr. Guidry? Is it going to be a waiver? Cause he's already said we don't do that.

JAKE CAUSEY: Well, it says an approved alternative means. So that would mean you would get some sort of approval from the health department in writing that it's acceptable.

PATRICK KERR: I think if we're writing these I would like to know what that acceptable, appropriate cause you're telling me in this regulation we have to have day tanks. If there's an approved alternate that's acceptable I would love to put that in here too. Can we talk about mechanical feed?

JAKE CAUSEY: Yeah, you guys are telling us there's certainty that provides the same level of protection or more perhaps. I think if you present that it's something we will consider and incorporate.

RANDY HOLLIS: I think, for example, mechanical pumps. If we can prove that even if the pump goes to a 100 percent that it won't exceed the MCL then the pump itself is limiting how much you can feed. Day tank serves no purpose there. The pump is the limiting factor.

PATRICK KERR: Could you come up with some language to insert that would say that since you're so eloquent?

RANDY HOLLIS: Sure. I'll read the minutes.

JAKE CAUSEY: So moving along. Some of the other comments were just about day tanks if installed, and we don't have to, we'll revisit the day tank stuff. Comment 15. So a liquid level limit switch was proposed to be deleted and just add generally a means to prevent an overflow shall be provided. Our comment was a means to prevent an overflow is quite vague. If there are specific methods in mind such as or in addition to a liquid level limit switch then I would be good with expanding this to add those things. But just a means to prevent an overflow I think people will have different thoughts and ideas what that may or may not be. That was our comment there.

RANDY HOLLIS: I think one of the comments was in some solutions a liquid level limit switch may not work because it becomes coated with lime and no longer functions. So we were trying to provide an option to say if you have something else such as load cells or something then why not do that as opposed to literally just naming a liquid level limit switch. That was the intent.

JAKE CAUSEY: I'm definitely good with that. I guess wanted to get the language more specific in that nature. Means I think it's really vague.

RANDY HOLLIS: What you're really looking for is an automated means to prevent an overflow.

JAKE CAUSEY: Yeah, that probably would get it. That would probably address the issue. Put that in there for now and if something better comes we can look at it again. Comment 16. I think this goes back Dirk had asked this question earlier about continuous agitation shall be provided to maintain chemical slurries in suspension. I think it was left in one place and then struck here. This is specific to, it's a true slurry. Definitely would need continuous agitation to maintain suspension. So DHH comment 17. So this was operator safety ventilation for chlorine feed and storage rooms. I guess it was proposed to add if rooms are provided as deemed necessary et cetera. Our comment was that this particular section it's really saying you got to have ventilation in chlorine feed and storage rooms. I don't believe this section is specifically saying they are required, the room itself. Our view was that an add-on in that location wasn't necessary. If you have a room you have to have ventilation. You don't have a room then it's just not going to be applicable. Pretty straight forward.

RANDY HOLLIS: And that's why that language was there. Because this is the first place in the entire section the terminology rooms even shows up. That's why since it shows up here for the first time then we're saying if you have rooms then you need ventilation since rooms has never been mentioned before. If this had appeared afterwards it wouldn't be a problem.

JAKE CAUSEY: That's fine. I think we're on the same page.

DIRK BARRIOS: Under respiratory protection equipment last time about the 30 minute supply capacity and having the compatibility with the exact same with the units of the fire department. First of all our fire departments aren't our first responders, we are.

JAKE CAUSEY: I remember this conversation.

DIRK BARRIOS: Secondly, we have better equipment than they have. They bought our old equipment. So you're telling me I have to buy my old equipment back? Our fire department who we don't want on our site to come in and take care of our problems they're not trained to do. This is an issue.

JAKE CAUSEY: It's a conversation we had here, it just didn't get noted or we didn't look at it. My recollection we had this conversation in this committee before and sort of agreed we needed some

better language in that regard. If you had better equipment we want you to have better equipment to go do what you need to do.

PATRICK KERR: The fact is responders, in my experience, will not when they roll into a situation like that barrow other people's equipment. They're going to use their own equipment. They don't know how you maintain it or anything else, the compatibility issues.

JAKE CAUSEY: We can just delete be compatible with or exactly the same units as used by the fire department.

PATRICK KERR: If they are qualified to respond they will have their own equipment.

DIRK BARRIOS: Another one on that page, just a clarification really. Where it says other protected equipment question was asked of me at work says at least one pair of gloves, a dust respirator of a type blah, blah, blah and it goes on shall be provided for each operator as required by the reviewing authority. Does that mean that everybody that works there has to have their own, or you have enough to cover the people that are on duty at the time?

JAKE CAUSEY: I would say that you only need equipment for who is there working, frankly. If they're not there working they don't need a dust mask.

DIRK BARRIOS: You understand what I'm getting at? They were asking me, and I couldn't give them a definitive answer, so I said I'm going to ask. Employees that are available at the time or whoever gets called in.

RANDY HOLLIS: Dirk, let me ask you this. For operators that are fit tested, and they have to be clean shaven and all that fit tested, you just can't take anybody's mask and use it. So if you have five operators and two masks you can't say it's good for five people. So should each person have their dedicated mask?

DIRK BARRIOS: They don't have dedicated, but we have enough extra ones to go around to where if you have multiple people cause we know how many people are on duty at the most at the time. I think we have at least one extra to boot to cover in case someone happens to come by that's helping

them out that may be on call to respond. We don't say if there are three guys on call there's only three masks. We might have three mediums, two or three smalls, two or three larges. Enough to cover everybody. I understand what you're saying cause you might think you can fit a certain size mask, but it doesn't fit till you get a fit test.

JAKE CAUSEY: If we delete as required by the reviewing authority and just say for each operator on duty period.

PATRICK KERR: Responder.

JAKE CAUSEY: I think this was for handling materials, not necessarily just response. Like if they're mixing powders and solutions and working around the plant.

PATRICK KERR: Okay, that's fine.

JAKE CAUSEY: DHH comment 18. So this first comment this is chlorine gas feed and storage areas. The first comment was about feed equipment specifically. I guess the first comment noted a proposed change was that feed equipment could be stored outside and I don't think we hardly have any system with feed equipment and maybe that was just inadvertently included. But that feed equipment should be located inside, protected from the elements et cetera. DHH comment 19. I'm not sure where per a decision made by the owner is coming from. Generally licensed professional engineers are responsible for design of systems. It's their seal, signature, liability that's on the designs. Owners I guess rarely get to just sort of pick and choose critical things that are needed. And then I guess question was if this was intended to be a decision made by the owner was there going to be an affidavit process or something that was intended so the owner declares he's made this decision? We really feel like we don't want to see something like that in here per decision made by the owner, but I guess if it was determined to be absolutely necessary we would sort of need a formal process to document. Going in to DHH 20 about storage of chlorine gas cylinders in a room. So we did some homework and I know we had discussion before about grandfathering in systems with one ton cylinder instillations that are not enclosed but protected from sunlight. We feel like that

is a good approach. Chlorine is certainly sensitive to heat, cylinders themselves. Has a fairly rapid expansion ratio. Talking to rooms provide elements of safety, security, and resiliency of the system. And then also emailed both Arkansas and Mississippi recently, just last week frankly, and they're taking the same approach on new permits, substantial renovations they require chlorine gas to be stored inside a room. They both acknowledge they had some existing systems, one ton cylinders that were outside of a room, but had to be protected by sunlight. We're recommending the same approach. And really that's sort of the essence of what we're proposing for chlorine gas.

RANDY HOLLIS: Let me comment on the first one here, the feed and storage facilities. Vacuum chlorinators now the regulator is located on the cylinder be it a ton cylinder or a 150 pound. If we don't consider the vacuum regulator part of the feed equipment then okay, the cylinders can be outside and then the rotameter which is really your feed equipment could be inside a room. I think if the delineation that I've just described of a ton cylinder with a vacuum regulator is not considered feed equipment then I'm okay with saying that storage facilities outside and feed equipment inside. If somebody walks up and sees a vacuum regulator that has to be inside a room therefore your cylinder has to be inside a room.

JAKE CAUSEY: We were thinking in the delineation as you just described.

PATRICK KERR: So I'm sorry, clarify that for me. So you're not suggesting that chlorine needs to be stored indoors?

JAKE CAUSEY: No, no, no.

RANDY HOLLIS: Only the feed equipment required to be indoors and the cylinders could be outdoors under a cover.

PATRICK KERR: I don't think he's hearing you.

RANDY HOLLIS: I'm saying the ton cylinders are okay to be outside protected from sunlight and strapped down. The feed equipment which is the rotameter and your booster pump would be inside. That's what I'm suggesting.

JAKE CAUSEY: And that's what we're agreeing to or agreeing with for existing systems.

RANDY HOLLIS: I am promoting that for future systems because I think you're under a misnomer thinking a chlorine room is airtight. Actually a chlorine room has one ventilation per minute. An operator that has a leak is not going to walk out the door and go oh, let me cut the vent fan off. Instead he's running out the door, especially if he didn't carry a respirator with him, he is running as fast as he can to get away from there leaving the vent fan going on which is simply dissipating it a one air change per minute into the environment.

JAKE CAUSEY: There's no misnomer. We certainly know they are not air tight, that they have to be ventilated one air change per minute so that when the operator's in there that change is occurring if the leak occurs. If a leak occurs while he's in there he will run, he probably won't turn the vent fan off. I think typically leaks occur when they are not inside the room with the fan running. They are still not air tight, but generally speaking, at least initially, the gas is contained in the room and there's a good response time. Then yes, eventually it will be exhausted out the room, but sort of in the proper fashion. I guess what we're looking at is there are elements of safety, especially chlorine that's stored inside a water plant, for operators as well as in residential neighborhoods. Also, there's security aspects with having hard structures. Resiliency aspects with having hard structures protected from the elements, wind, rain, snow, ice, whatever, flood. The flood issue is addressed already. But rooms provide shelter and security and some elements of safety. And what we're looking at like I said looking at other states and even surrounding states Mississippi and Arkansas new construction they are looking for better protection, but accepting especially for one tons existing systems to maintain them outside as long as they are protected from sunlight. That's what we would want to see. We feel like systems will be more resilient.

RANDY HOLLIS: Let me ask this Jake. I've attempted to get in touch with Chemtrec and several people. I would like to find out from an emergency response not in theory, but the guys that have actually dealt with this. And I'm trying to get somebody here, couldn't come today, maybe the next meeting.

To sit down with us and say if you have an event, a leaking cylinder, would you rather deal with it inside the confines of a room where you're exposing that person to full 100 percent chlorine or is it better and can you stop an incident faster if it's located outside. I would like from an expert, Dr. Guidry wanted experts here, and I think we need an expert, not just us talking, but an expert that deals with this on a daily basis to come tell us here's their recommendation for handling an emergency like this.

JAKE CAUSEY: I would probably readily say without having spoken to a responder that the fewer obstacles they have in their way the better and easier it is to respond. To me that's a fairly straight forward concept. I wouldn't disagree with that concept. My view is that these cylinders are stored inside a water plant inside neighbors where they are also going to be exposed to elements and other things and it's more about the continued operation of the water supply, protecting the cylinders, protecting things. That's what's driving the design more so than how easy is it for this guy to come respond if there's a leak. If that was the case we wouldn't put anything in a building. It would just all be outside so they can just fly right into it.

RANDY HOLLIS: I go back to my comment the chlorine room is not airtight. The one thing I noticed from the information you gave us and I'd like to point this out. Number 1 on page 5 the Eunice Sewer System that had a leak, not the Eunice Water System. Not that I don't work for that company. It was the sewer system. And talking to the President he said we've tried to get that corrected, but it's showing up as water. It was the sewer system. But secondly, over here on the information you gave me from chlorine. I guess this is on page, I think it's on 20.1.1. And I'll read it. It says in the absence of a scrubber a chlorine storage room may include a secondary containment chamber for each container and these chambers occupy additional floor space. If we're looking at this really carefully and some people have installed a coffin. Which I understand even though they went to the expense of installing the coffins because the room didn't meet 10 state standards y'all didn't approve. And so I would like to at least consider that as an option to a chlorine room if we could put in coffins because

that is secondary containment and it's a very good containment around the cylinder.

JAKE CAUSEY: I think we had looked at the coffin just as they described in here was an alternative to scrubbers for secondary containment for the gas itself. It wasn't something that was contingent upon how the storage room itself was designed. If you intended to provide a coffin in lieu of a scrubber you might need some extra space.

RANDY HOLLIS: I would promote coffins in lieu of a room to have them protected from sunlight because you have coffins installed in an outside enclosure so it's easily accessible and you don't need all the other precautions.

JAKE CAUSEY: And you're talking one tons only?

RANDY HOLLIS: They make them for one tons or 150. As we continue this discussion I would like for that to at least be an option that we could put in a coffin in lieu of a room.

JAKE CAUSEY: And I hadn't really looked at or considered that. It's something we can look into. I've heard of a few systems using them, but I hadn't really looked at them. Do you know somebody who has one?

RANDY HOLLIS: Morgan City put them in and they went to the cost of putting in the coffins and dual systems. After they put them in apparently there was a sanitary survey and they were written up because they did not meet 10 state standards with the entire room. Went through the cost of installing secondary containment and then they were still dinged because of specific parts of the room that didn't meet 10 state standards.

CHRIS RICHARD: On the rooms and the scrubbers have y'all done any research on any requirements by the state fire marshal and building codes that require chlorine scrubbers if you contain chlorine storing it inside? Cause that's an additional cost whether you require it or not there is other considerations that go into it. On some of your examples there's scattered by hurricanes, chlorine. In the coastal regions the code requires the rooms, the buildings to be constructed with the first floor with breakaway construction. You can build a chlorine room that has to be designed to breakaway

during a hurricane or in a storm surge, or you have to build it to resist the waves which would be tremendously expensive. So you're talking coastal regions they could comply with you and build a room and then the hurricane comes and you got the exact same thing so you've not accomplished.

JAKE CAUSEY: One interesting approach, I think this was a system in Cameron, they bought sort of the freight trailers that's kind of portable.

RUSTY REEVES: It's a little 6 by 10 trailer.

JAKE CAUSEY: It's metal. You know the ones they stack up, cargo containers.

RUSTY REEVES: Those 6 by 10. They got their chlorinators in there and they hook it behind a truck and get it out of dodge.

JAKE CAUSEY: I guess they got some quick connects on the power.

RUSTY REEVES: You know when your chlorine buildings and your cylinders blow away two times in about three years you start thinking of other ideas.

JAKE CAUSEY: The chlorinator room and everything up on a trailer and skedaddle.

RANDY HOLLIS: But they can't meet their drinking water standards if it's gone. I think they just fell below .5.

RUSTY REEVES: The reason they turned everything on and said run baby run till we get back. The chlorine cylinders and the buildings were down in the marsh and a lot of the cylinders when we found them we shut the valve off and pulled the regulator off and put a cap on it and a hood and drug it up there where they could get to them. But the little buildings and everything were gone so they set up now for when they do get back, which after Gustav they were back in there like in 24 hours and had the well running with the generator and the chlorine equipment right there.

JAKE CAUSEY: They can get back up and going a whole lot faster that way instead of just letting it all be destroyed and trying to buy new equipment. It was an interesting approach.

RUSTY REEVES: It was cheaper than building it 17 foot off the ground.

JAKE CAUSEY: That too. The chlorine gas in a room I don't know that there are any building code

requirements that require scrubbers at all.

CHRIS RICHARD: One of the codes at one time did. If you stored chlorine within a building you had to put a chlorine scrubber according to the code. I haven't looked at the IVC which the state has now.

RANDY HOLLIS: Was that a local building code?

CHRIS RICHARD: People call it The Southern Building Code Council. I forgot the one after that. There's three or four building, but after the hurricanes in 05 they went to the International Building Code, the state did. I'm just asking if it was reviewed because there's always consequences. You require one thing and all these other unintended consequences happen that drive up the cost.

JAKE CAUSEY: I know that we've had quite a few rooms built recently that went through building permits and I don't know that any of them are required to have gas scrubbers. That doesn't mean the building code guy did a great job. And I think actually the scrubber is something we had a comment later that, oh actually it's on the same page. That was the next comment 22. May should consider establishing some criteria about when a scrubber needs to be provided.

DIRK BARRIOS: We have scrubbers at both of our plants. It talks about the ventilation fan. The scrubbers are on automatic mode at all times, but you have the ability to go manual with the fan and also manual with the pump for a scrubber. You can put one on auto and one on manual, vice versa. So we propose doing instead of having the vent fan is use the vent fan in the scrubber at all times when someone enters the room. Just have a remote switch to better turn it on and off. Use the vent fan in the scrubber as a vent fan and it takes the air through the scrubber and out through the stack.

JAKE CAUSEY: Where is that fan located?

DIRK BARRIOS: Located inside the scrubber system.

JAKE CAUSEY: Top of the wall, bottom of the wall? The system is designed to remove all the contents in the room.

DIRK BARRIOS: That would be the way for us to go right now because we do do that, but put that switch by the door. Do the same thing. And the pumping system would stay in the automatic mode

so your vent fan would already be running and if it detects a leak it would kick on.

JAKE CAUSEY: Sounds fairly reasonable. The ventilation is one air change per minute and operators have the ability to turn the fan on and achieve that. Fundamentally that's it. What you're proposing as long as it accomplishes that would be sufficient. It would meet the requirements. Randy, I don't know if anybody sees anything differently.

RANDY HOLLIS: As I understand what Dirk's saying is as long as you're not running the caustic you're not consuming the caustic. If you're just running the ventilation fan then okay. The problem I have with that is you have no redundancy of your fan. The scrubber is a single pump, a single fan, single everything. If you lose any component of that you've lost the entire scrubber. That's what I don't like about scrubbers. It's single point failure. If you're using that as your ventilation fan for every time you go in the room you're really using that fan a lot. And so when you need the scrubber have you worn out your fan? That's something you got to consider because you have no backup to it.

JAKE CAUSEY: But it wouldn't be a code issue. And I guess I said scrubbers, but 11 chemically neutralized gas, the coffins I think they do the same thing. Secondary containment. May not chemically neutralize it, but they close off and prevent the release. But yeah, again this was talking about near residential or developed areas. It sounds like in some cases systems, or engineers, or perhaps both being mindful of where the chlorine is located near schools or residential areas installing scrubbers. But the comment is if there's a criteria out there we might could use that identifies those areas then it's definitely something we should look at.

RANDY HOLLIS: And that goes back to the question you asked about the owner. Why should the owner make the decision? Normally these owners are municipalities. They are making a decision do they put in a stop light or do they put in stop signs. What's the safest thing. They're making calls every day on liability. And so it was to put it onto the owner and say you have chlorine facilities here. Yes, there's a chance of a chlorine leak. Do you want to spend the money on a scrubber or take the liability? That's the reason the decision was taken out of the engineer's hands and put onto the

owner to make that decision of liability what do you want. You have people 50 feet from a chlorine room you need to make that call of liability.

DIRK BARRIOS: Your liability insurance should reflect because one of the questions they ask you when you apply for insurance they'll ask do you have any kind of protection. What type of protection do you have? You have chlorine scrubbers I'm sure they give you some kind of a credit towards protection chlorine being stored inside.

RANDY HOLLIS: Almost any municipality has a pollution protection plan. You've already got that covered. That to me was an economic decision. That's what was driving the comment.

JAKE CAUSEY: The next one, positions. This was eliminating the term rooms there. I guess our comment was if we made it positions well changing positions was addressed right above it in number 3. Just clean up that.

DIRK BARRIOS: If you can store chlorine, if you can have chlorine underneath a cover in an open area why do you have to have it stored in locked rooms? It says right here full and empty cylinders of chlorine gas shall meet the following requirements. Four, stored in locked rooms. Why would they have to be stored in locked rooms? Where the word locked comes in? Are you telling me cylinders have to be locked?

JAKE CAUSEY: Stored in locked and secure rooms. Earlier they said you have to have it in a room, here they're saying those rooms have to be locked and secure. We're talking about an exemption for existing systems to be outside. But yeah, I think basically saying if you're storing in a room and the room should be locked and secure.

DIRK BARRIOS: Even on site manned 24 hours a day?

JAKE CAUSEY: We can clean the language up a little bit. Don't want anybody to come in and out of the room.

DIRK BARRIOS: Anybody first of all has to cross a 6 foot fence with barbed wire on it. I'm not saying they can't do that either. Where do we draw the line? If it would be away from where it would be

manned 24 hours a day, yeah lock the room. But if you tell me I have to lock my chlorine room on site then I need to go make sure my locks work and I have to find the keys for them.

JAKE CAUSEY: I don't know that I have as much heartburn when you're talking about--

DIRK BARRIOS: Again, my argument is if you're going to allow them to leave the chlorine outside as long as it's covered and protected from the sunlight a locked room, I'm more protected in a room at least.

JAKE CAUSEY: I think that's a valid point. Maybe when we get to the end of this. I don't disagree with any of your points. That will be factored in. Just make sure it makes sense based on whatever we end up with. I think that's a good point. So comment 25. This goes back to the same room. Comment 26. DHH recommends rewording instead of deleting. So the last part of 5, 5.4 a 5. It said reusable sodium hypochlorite storage containers shall be reserved for use with sodium hypochlorite only. And the language that was proposed to be deleted said and shall not be rinsed out or otherwise exposed to internal contamination. I think there were comments about using them and rinsing them out. We suggest to say it shall not be exposed to contamination. So if you need to rinse them just don't contaminate them. Twenty-seven, so deleted the term positive displacement pumps with then insert just pumps with compatible materials. Our concern was that there was no identification or report of other pumps should be permitted. If we don't put anything there then our concern is that any pump could be, we would have to permit for this purpose as long as materials were compatible. I don't know that any type of pump could be relied upon to readily and accurately dose sodium hypochlorite regardless if the materials are compatible or not. Our concern was the pump is not just based on materials being compatible, but the reliability and accuracy of the pump delivering that chemical. There are multiple types of positive displacement pumps that can be used. And again, this is for feeders. Now we have seen where like a centrifugal pump for example was used as a transfer pump from bulk tank to a day tank or just moving a chemical, but not used as an actual feeder into the water supply. We just really need some more information to understand what maybe some of the

scope and context was there. If we leave it as positive displacement pumps we'll go with that. If there's some specific example of some other type that we need to include we can do that, but right now we weren't aware of anything else and we wanted to make sure not only were the materials compatible with the pump itself.

RANDY HOLLIS: New Iberia at one time we were feeding almost 2,000 pounds of chlorine a day at the frontend of the plant. Fortunately, we moved and it's down from that, but had we changed to sodium hypochlorite trying to feed the equivalent of 2000 pounds of liquid chlorine, sodium hypochlorite, we couldn't find positive displacement pumps big enough for that amount of chlorine. The limiting thing was stating you could only use a positive displacement pump. Trying to provide at least options. Some large surface water plants may require more than that.

JAKE CAUSEY: I know New Orleans Sewage and Water Board is feeding a tremendous amount of sodium hypochlorite.

RANDY HOLLIS: There are magnetic drive pipe pumps that can be used.

JAKE CAUSEY: I'm 99 percent positive it was a positive displacement type pump that they were using to feed that amount. We'll just note it as a follow up to sort of confirm. I don't think I wrote it in here.

RANDY HOLLIS: I don't doubt you can get a positive displacement pump to provide that much, but the problem we run into is economics and the hoses fail about every two or three months and they are quite expensive.

JAKE CAUSEY: So DHH comment 29. One initial comment I guess I had made was about liquid ammonium sulfate. Just initially noticing that the three different forms of ammonia were covered here. Ammonium sulfate, aqueous ammonia, and anhydrous. Most of our systems I believe are actually using liquid ammonium sulfate. And ammonium sulfate here seems to be specifically referring to the you buy in the powder and mix in the tank. I guess effectively make your own liquid ammonium sulfate at that point. Just noticed that buying in the liquid form initially wasn't really addressed in this particular section. But I guess by virtue of that it would just fall under the general

chemicals for bulk storage and day tanks and what have you. I did have some numbers I wanted to share with everybody on ammonia. We have I'll just say right at a 100 systems in the state that use chloramines. And so the breakdown, I don't know if this is right at a 100 or not, but basically the breakdown is 47 water systems that use ammonium sulfate. Which I guess would either be buying it as a liquid or making a liquid when they get it. Which for reference is roughly a 10 percent ammonia concentration. Twenty-one systems using anhydrous ammonia which is a 100 percent concentration. Five systems using aqua ammonia which is ammonium hydroxide. It's a 20 percent concentration. Then we got about another 19 systems that use a TMB 461 product that has varying amounts of ammonia depending on which system you are and which blend you buy. But I think generally a fairly lower concentration. That was just a little background on ammonia. On that pump for New Orleans Sewage and Water Board it's a progressive cavity pump. Was the type. So on DHH 30 so this is on aqua ammonia. Basically 10 state standards originally said closed in a room separated from other operating areas. So similar change proposed here as far as protected from the elements and separated from other areas, but I guess not necessarily in a room. Aqua ammonia, because it does have the 20 percent concentration, I think as noted earlier the tanks are typically actually pressurized, usually about 4 PSI I think is what I had read in the tank based on atmospheric conditions. So there are sort of temperature and pressure concerns. Referred to one of these attachments as far as some additional information. It's attachment 3 on page 10 of this little slide show thing. Some exerts that I grabbed from American Society of Engineers and American Water Works Association, Water Treatment Plant Design Manual. Two things it talks about here in the manual and this is specific to aqua ammonia. Tanks normally vented to the outdoors unless operated under pressure e.g. aqua ammonia. That was sort of the example acknowledging that particular anything with aqua ammonia. And then an exception I guess sort of section in that same chapter talking about aqua ammonia is commonly purchased concentration 19 percent. Due to regulatory and safety concerns with higher concentrations ammonia vapor pressure is approximately 4 PSI,

absolute is 70 degrees Fahrenheit. Stored in a pressure rated storage vessels with a maximum gauge pressure rating of 30 PSI. This talks about a drum scrubber I guess where they vent off the tank. Terminated to address that issue. I guess overall for aqua ammonia there are some concerns with that form of ammonia verses sort of weaker concentrations such as liquid ammonium sulfate. So generally that's the reason the storage in a room for safety and maybe some temperature related issues there. But I think some of the same comments as far as the owner approach making a decision. And then really for the aqua ammonia we were recommending to stick with the original language, have these things in a room where they are separated and protected from other areas. I guess it's the same comment as far as conversations with Arkansas and Mississippi serving permits. What did I say like five systems using aqua ammonia? I know Baton Rouge Water is one example. One system, but I know they have probably 25 or 30, somewhere in that neighborhood, locations, treatment plants, 50 treatment plants. Where they have it stored. I think the other case it's only one or two. They are definitely the extreme example there. I don't think any of those installations are currently in our, or maybe some of them are.

RANDY HOLLIS: Maybe one, but most of them are the converted anhydrous ammonia tanks converted to aqueous ammonia because the theft of anhydrous ammonia.

JAKE CAUSEY: That was our recommendation there. The next comment was on the day tank issue. I kind of remember previous discussions on aqua ammonia. We didn't talk about grandfathering here. That's certainly a conversation we can have. Again, talking with Mississippi and Arkansas definitely on new permits and new construction requiring a room for containment. And then the next is anhydrous which is DHH comment 35. I know initially in the subcommittee report talking about anhydrous ammonia there was some talk and concerns regarding the LP Gas Commission and they had a prohibition against enclosing or storing anhydrous ammonia inside a building. And we previously had a conversation with them a year or two ago, or at least over the past year or two, and the fact is that they adopt the standard CGA 2.1 Compressed Gas Association. Attachment 4 in the

handout. It's also an ANSI standard, a co-published standard. ANSI K61.1 1999 addition. That's the standard per adopted in the rules. Page 13 has the table and the red text on it where it says within that standard section 5.3.1 location of containers. So this is a language in the standard itself. It says selection of a location or a storage container shall be made considering the potential physiological and environmental effects of ammonia on the surroundings of proposed site. Containers shall be located outside a building and then it says except in buildings or sections there of specially approved for the purpose. In reading an OSHA standard on anhydrous ammonia it has the exact verbiage except in buildings or sections there of approved for the purpose. I guess kind of going through the attachments I think the next exert from the website with some of the information about anhydrous ammonia a colorless nonflammable liquefied gas.

RANDY HOLLIS: Stop. Here's an MSDS from Valero on anhydrous ammonia liquefied and if you look on page 3 what you'll see on page 3, and I'm no chemist, at the bottom, but it says flammability limits in air upper is 28 percent flammability limits in the air lower is 15 percent. It's my understanding between 15 and 28 percent anhydrous ammonia is flammable. So if we have a leak inside a building that we just created a bomb. Does that mean that everything inside this building, the ventilation fan, you can have a heater, everything has to be perfectly safe to create an explosion when you have a leak.

JAKE CAUSEY: I don't know that's the case, but--

RANDY HOLLIS: We're requiring it to be in a room and if we have a leak did we just create a bomb for these operators? Anybody else familiar with that?

DIRK BARRIOS: I don't think it needs to be a room.

RANDY HOLLIS: My concern is are we forcing it in a room and now we've created a bad situation cause nobody else does it. I want to be very cautious before we require something like that dictating it has to go in a room and then we're creating an even worse situation. These operators may not be familiar with that.

JAKE CAUSEY: I would not anticipate that being the scenario, but we will absolutely do diligence in getting some better answers, I guess, frankly to that question.

ROBERT BROU: The standard you referenced talks about that it shall be located outside is the first statement. So they allow it. If you go further and look at the chart St. Charles we have two 1,000 gallon tanks, one on each side of the river. So that's in that first over 500 and less than 2,000. So double our capacity you still only have to be a 100 feet from a railroad, 25 feet from a property line, 115 feet from a public assembly, or 250 to an institutional occupancy. Would a 1,000 gallon tank which is half the capacity they allow at those distances I still have over a three month supply of anhydrous ammonia. It is absolutely safe for those areas at that distance a 1,000 25 feet from a property line.

JAKE CAUSEY: I would say these are general standards. I don't think we can comment that it's absolutely safe at that distance. I think wind conditions and other things can be a game changer if it's a release. Just as a standard, right.

ROBERT BROU: But this is what they reference as safe distances.

JAKE CAUSEY: It references a minimum distance. I didn't see the word this is an absolute safe distance. This is just a minimum.

ROBERT BROU: It can be overridden by local jurisdictions that want to dictate something more stringent, but it's saying they wouldn't put this out if they didn't feel that was a reasonably safe thing.

JAKE CAUSEY: I think going back to the standard or building designed for that purpose. If we're building a bomb it wouldn't say that.

ROBERT BROU: I do agree it should be allowed. I had this argument during the subcommittee meeting. I think prohibiting it would be just as bad as mandating it. I don't think we should be mandating that it be stored indoors. We should not be mandating that it can't be stored indoors when other people who do regulate it have already weighed in on that.

JAKE CAUSEY: I guess some other comments on the ammonia, the anhydrous, certainly relies on latent

heat and vaporization. It is temperature dependent and so getting down to near freezing conditions especially near 10 degrees Celsius. I think that was on page 15 can disrupt the flow of anhydrous ammonia into the system. I know there's one picture I know we have I don't know if it's Jefferson or Sewage and Water Board. Algiers they had installed this water bath on top of their anhydrous ammonia tank outside. Reportedly they flow when it gets cold to maintain latent heat. That's what they do and reportedly that's why they do it. Regarding the enclosure on page 16 is some pictures of City of Gonzales three different water wells. They have anhydrous ammonia certainly installed in a room and has been for quite a while. These are some smaller cylinders probably than what some of you guys use. Next page East Jefferson this is their anhydrous ammonia in a room, page 17. Page 18 on the back is West Jefferson the plant on the other side of the bank. Again, anhydrous ammonia tanks inside a room. Then we got Dirk.

DIRK BARRIOS: Not anymore.

JAKE CAUSEY: Lafourche. This was one of the Lafourche plants and the next page was the other plant.

DIRK BARRIOS: They refuse to deliver it.

JAKE CAUSEY: Previously the local inspector I guess had sort of written Dirk an order.

DIRK BARRIOS: Wrote us up and told us that if we didn't comply we wouldn't get any chemical.

JAKE CAUSEY: They didn't want it inside a room. Wanted you to get it out of the room. But did they agree to make deliveries, I think there was maybe had to take the doors off?

DIRK BARRIOS: Yeah. For the time being right now they comply as long as we have the front doors completely removed, not open, completely removed, they would deliver. Is it going to go any further than that I don't know.

JAKE CAUSEY: What's interesting the last slide is the St. Bernard plant which is a brand new permit they just issued St. Bernard on page 21 to install anhydrous ammonia inside a building.

DIRK BARRIOS: Jake talked to me about it and trying to get a permit. But the issue is still if it's not necessary we think in times of cold weather which is not an extreme case that happens this part of

the world, but it does occasionally happen at some type of cover does help protect with the anhydrous ammonia. Only reason why we put it in a building is because we had sanitary survey and we were written up for not having it in a building.

JAKE CAUSEY: My opinion would be treating you one way and their codes say one thing and just issued a permit for St. Bernard. From what I can tell somebody kind of got worked up about it and acted one way. I know they had attorneys look at things and consider things. These new installations are going in and actually read their code they have since agreed they can permit installations inside a building and they permitted St. Bernard. I can only presume it was something that they just kind of got blindsided on and now they're getting slowly up to speed.

J.T. LANE: Can you clarify the people?

JAKE CAUSEY: So the Liquefied Petroleum Gas Commission under The Department of Public Safety. John Alario I think is the executive director. They have a couple of inspectors in different regions and that's about they oversee liquefied petroleum gasses, but they took over anhydrous ammonia from The Department of Ag. It was some authority and over site that was transferred from The Department of Ag to the LPG commission five maybe ten years ago, I don't know. Fairly recently, I guess. I guess my prospective they were treating ammonia like it was butane or propane and other things. Their standards are pretty clear. These are national standards and OSHA standards as far as storing anhydrous ammonia in a building designed for that.

J.T. LANE: And they require what with regards to ammonia?

JAKE CAUSEY: Liquefied Petroleum Gas Commission? Generally they follow the standards, but their issue, cause the standard addresses some other citing issues as far as distances from places.

J.T. LANE: What standard do they follow?

JAKE CAUSEY: The CGA, Compressed Gas Association 2. whatever which is also ANSI, it's in the handout. That's the standard that's referenced in the rules specifically.

J.T. LANE: But they require indoor?

RANDY HOLLIS: They do not require indoor. They are trying to find an exception to allow it to be indoors. DHH requires it indoors. LP Gas Commission wants it outdoors. They don't want it indoors. You've got two state agencies butting heads. I could not get them to come to one of these meetings because they would not confront another state agency in this meeting. They don't want it indoors, but they're trying to work with DHH on exceptions. Is that pretty clear?

JAKE CAUSEY: Yeah. So they made that statement upfront. They stated, they made a statement it cannot be located indoors and that violates their code and then brought the standard they referenced and showed it doesn't violate your code. And like I said since then they permitted a brand new installation indoors so I think it's been an educational and a learning thing. They didn't even know all these locations that were installed indoors. I sent them pictures of all these locations and they said oh, we didn't know that. It's really all I can say.

RANDY HOLLIS: Exceptions because they didn't know about it.

JAKE CAUSEY: But a brand new permit that was issued six months ago would be an indicator of where they stand.

J.T. LANE: Well, Randy what we can do is, I can't obviously comment on why they didn't come, we'll try to get a meeting with them before the next meeting to see if there is some decision we can have to clean that up.

RANDY HOLLIS: I would love for you to contact the State Police Hazmat also because I contacted them and they refused to come because of a state agency. Hazmat as well as LP Gas Commission. I would like for both of them to come to talk to us. You wanted experts, I did my best and could not get either one of those agencies to come.

J.T. LANE: We need to be on the same page. It's not fair to all of you outside the state bureaucracy.

JIMMY GUIDRY: I really appreciate your efforts. I think what you're seeing, just from my experience and I'm not an expert, my experience, knowing the potential for a bomb in a cylinder that is not maintained that is open to the elements whether it's heat, or ice, or snow, or whatever, we all know

that metal containers deteriorate more outside than they do indoors. Right now, and I hate to even go there, we have storage of things up in North Louisiana that can explode. They weren't well stored, they were exposed to the elements and it's a time bomb waiting to go off. When I listen to both sides of the argument I think it falls down to one how these tanks are made. The risk is according to the potential for this to blow up. Potential for this to blow up has to do with the container and maintenance of the container and how much. What I'm seeing is huge tanks. If I had a huge tank like that that could go off I'd not only want it in a room where I can control the elements I would want to control the temperature. Because in Louisiana 105 degree temperature in a room that sucker is heating up. But to say that it's been a problem to say that we've had problems either way outside or inside I can't honestly say all my years that I've heard that we've had a problem. I think the requirement is a feeling that especially up in northern states hey they're not going to leave it outside. I think it's other states begs the question. It's the maintenance. Changing them out often enough, making sure we're not wearing out the metal, making sure it's contained. I don't know how often these tanks get changed. The ones I'm seeing indoors seem well painted, seem well maintained. I've not seen pictures outdoors so I don't know what those look like. To me the risk is when it deteriorates and it can't maintain the pressure, can't contain because when you release one of these chemicals the more concentrated it is the more deadly it is. If you're in that room bad news for you. But not bad news for the school outside the gate.

JAKE CAUSEY: On that note I met with St. Bernard Parish President, their drinking water staff, engineer for the new plant, as well as John Alario, and an attorney in St. Bernard having this discussion. And frankly the one thing that both DHH and LP Gas Commission agreed on was St. Bernard why don't you just use a liquid. And we tried to push them hard, but they were just resistant to change, frankly. With the liquid, especially ammonium sulfate you don't have all these same issues. Especially with response. In this particular plant St. Bernard plant is located there is a school that is adjacent to their property and during our meeting we brought up the fact that where these tanks would be located

was below the minimum distance required in the standard. They didn't even realize until we had that meeting. There are lots of forms of ammonia. You don't have to use anhydrous, it's just an option. There are other options that are not as hazardous, don't have as much risk and other things that frankly I would try to push those things first.

JIMMY GUIDRY: I think we should minimize the risk. When I hear that we let owners decide the risk and liability we can't even agree and we're the experts. To say an owner who knows nothing about chemistry making decisions makes me scared. I do think promoting lower risk. When I listen to both sides I'm not sure lower risk is indoor or outdoor. Really depends on how you maintain these tanks and what the deterioration is. I think being in a room I don't think it's a bomb I think it's a deadly gas. Whoever is nearest that room is in big trouble. But if it dissipates quickly in the air that's a lower risk. If it's a liquid that's a lower risk. You don't have to worry about all this. I guess we should be promoting safer activities. I don't know if it's a cost decision that liquid is more expensive than gas, I don't know. Maybe we should be promoting a better way of doing it without having to build a building. I don't know the answer. I'm open to experts coming tell me what they think because I'm not even sure the experts are going to agree. I think weather makes a difference that's why you see a difference in 10 state standards, but I don't know that for a fact.

JAKE CAUSEY: With ammonia temperature is an issue, cold weather near freezing conditions. Vaporized, other things to install. Those aren't required. That's why you see in 10 state standards when it talks about anhydrous ammonia stored in a room it says with heaters where necessary because if it's below freezing then you aren't going to get any anhydrous ammonia flowing out of that tank without latent heat whether that's a vaporizer or a room itself. I think anhydrous ammonia comes with a lot of complex issues and safety concerns and risks. I don't think we're going to see an increase in systems converting to chloramines hopefully. We got a few systems getting away from chloramines. I don't know we're going to have that many permits for new installations of ammonia, especially anhydrous. That was one of my comments. We could consider using liquid forms of

ammonia. We don't have to battle that for new permits, what have you.

JIMMY GUIDRY: Before things are built and if you tell me it's not a difference in cost then I think we should be asking for the least risk. If it's not a difference in cost and building it from scratch why would we say you have to build it because this is the least risk.

JAKE CAUSEY: Especially in a populated area.

RANDY HOLLIS: Cost can be a factor with liquid chlorine. It comes in in ton cylinders verses sodium hypochlorite. Cost of chlorine would triple. It is a significant amount.

JAKE CAUSEY: As Randy pointed out earlier Baton Rouge used anhydrous previously, but there was a lot of theft issues for the methamphetamine production and so that was creating a lot of risks. I think they were very active monitoring video surveillance. Frankly, caught a lot of folks doing it, but tinkering with the system, opening valves was a risk.

JIMMY GUIDRY: Why we want a locked area. Certainly don't want people who don't know what they're doing in the area where these things exist.

RUSTY REEVES: A lot of the discussion comes down to I think that lead to for this committee being formed was not so much they was against putting it in a building because several of them have it in a building, but the biggest problem was they put it in a building and the people filling the tank up said can't fill that because it's in a building it's against the gas authorities regulations. And I think that's still the hick up if the gas authority agreed for the building looked at about six examples that's inside buildings. I think the biggest thing is getting the two regulatory agencies to sit down and say my card trumps your card and you're going to go on home and leave them alone.

JIMMY GUIDRY: To be honest with you we did have that meeting way before this started and we had to educate them. They really had no idea what we were talking about. Seen them change their minds on new installations so I think they've bought into some of the stuff we said, I'm not sure. Their argument at the time it wasn't a scientific argument. It was just what they had been doing for years.

RANDY HOLLIS: The subcommittee meetings that we held were over a year ago, right at a year ago and

that was with Mr. Alario, all of them, attempted to contact them to talk to them. Over the past year you've had St. Bernard so I'd be anxious to talk to them again to see what their position is.

JIMMY GUIDRY: I agree, we need to revisit.

JAKE CAUSEY: The only other comment on there was again about this was talking about a gas scrubber to address leaks in a room, anhydrous ammonia. But there was similar criteria we used for chlorine gas. It might be appropriate there as well. I think that's all of part 5.

J.T. LANE: Any other questions on part 5? Would y'all like to take a 5 minute break? We will reconvene at 3:09.

CHRIS RICHARD: This is going to take a while so. I'll start with the subcommittee report. Meeting discussions, the main discussion points were all items listed for design should only apply to review for plants for new construction not apply for sanitary surveys except for those plants permitted under these requirements. The recommendation should which I referenced was should or may are not included in the code. If it's important enough we would change it to a requirement. And occupy a lot of time was the grandfathering and redundancy requirements. We didn't list all ten cause we had a lot. The top ten the code should only contain requirements related to water quality. Recommendations are available from 10 state standards as well as numerous other sources which are available to the design professional. Recommendations containing codes tend to become requirements over time. Words struck through or deletions from existing, it says law, but rule words in red bold are additions and comments are italicized. How do we want to handle this, just go through and read comments?

J.T. LANE: I would say I think the comments are good. When did we distribute this? A week ago. So I would probably stick to the comments. If anybody is specific as we go through, any specific things about the comments or the changes made to the document y'all were sent then let's talk about them. Is everyone okay with that? All right.

CHRIS RICHARD: On the first paragraph we had delete the design of a water treatment plant shall

consider the worst condition that may exist during the life of a facility. Felt that was too nebulous. The engineer in consultation with the owner should set parameters for design based on anticipated conditions and design life, things like that. And plants can be upgraded as needed based on changing situations. 4.2 clarification design. Second paragraph plants designed to treat surface water, groundwater under the direct influence of a surface water or the removal of a primary drinking water contaminate shall have the ability to meet the plants average daily design flow with one unit out of service. Deleted the minimum of two units for coagulation, flocculation, and solids removal. It's covered on the first sentence. In addition it's recommended that plants designed solely for aesthetic purposes also have a minimum of two units each. We also recommend that be deleted. Design clarification process shall recommend delete A permit operation of units either in series or parallel where softening is performed and should permit series of parallel operation and other circumstances where clarification is performed. That's not necessary in all situations. I won't repeat this one. We just changed reviewing authority to state health official. I guess that should be lower cases. Delete the section on started manually following shut down. Next page item B. Inlet, incoming water shall be dispersed across the full width of the line travel as quickly as possible to prevent sort circuiting. Delete a detention time of three hours is the minimum period recommended; greater tension time may be required. 4.2.2 C just change possible to practical. And delete D and E. If the flow is split between basins it is recommended that a means of measuring and modifying the flow to each train or unit be provided. If the flow is split it is recommended that a means of modifying the flow to each unit or train be provided. 4.2.3 flocculation on basin design. Delete the sentence series compartments are recommended to further minimize short circuiting and to provide decreasing mixing energy with time. Delete B. Again, tension time. C equipment agitators shall be designed to provide variable peripheral speed of paddles and took out variable speed drives. External, non-submerged motors are preferred was also deleted. Section D deleted other designs. Many plants find baffling to be more cost effective and variations or alternate designs can be submitted to the state

health officer at any time. Superstructure, delete the section requiring it or that may be covered. A superstructure over the flocculation basins may be required. Delete that section. F piping, change possible to practical. Delete G if flow is split is recommended without a means of measuring and modifying the flow to each train or unit be provided. And delete H consideration should be given to the need for additional chemical feed in the future. Under sedimentation the following criteria apply we added to the design of conventional gravity sedimentation units. 4.2.4 B inlet devices. Delete the requirement for open ports, submerged ports, and similar entrance arrangements are required. Didn't want to get too descriptive to achieve it and not allow alternatives. D velocity. Just must to shall. We tried to be consistent, but it's a long section. Try to change must to shall when we could. Under F we deleted two submerged orifices should not be located lower than 3 feet below the flow line. G overflow, we added the discharge shall be equipped with monitoring equipment to, well first we changed should to shall. It was felt it was important so change to shall. And then added the discharge shall be equipped with monitoring equipment to annunciate the overflow or be installed at a location where the discharge can be observed. Delete section H superstructure over the sedimentation basins. Delete the section basin bottoms should slope toward the drain not less than 1 foot and 12 where mechanical sludge collection equipment is not required. Flushing lines just change must to shall. Deleted the section on safety for permanent ladders or handholds should be provided. That's a recommendation. We talked about that previously. Under I three valves shall be located outside the tank for accessibility. Delete that. Many plants use mud valves in the basins. Sludge disposal we deleted that. Solids contact units. We deleted a lot of sections many solids contact clarifiers as with most plants do not operate continuously. All plans require approval from the reviewing authority. The way we have it reading would be plants designed to treat surface water or groundwater under the direct influence of surface water or are required to meet primary drinking water standards using solids contact shall have a minimum of two units. The clarifiers shall be designed such that the plant's design capacity can be met with one unit out of service. Insulation

equipment. We deleted supervision of the representative for the manufacturer. Operating equipment. Delete adequate piping with suitable sample taps located to permit the collection of samples from various depths of the units shall be provided. Other means to sample sludge available without installing piping which typically ends up clogging and is of no use shortly after installation especially for lime softening units. Under chemical feed we just deleted that section. I think it's covered elsewhere. Mixing we changed must to shall in flocculation. Deleted 4.2.5.6 under sludge concentrators. Felt it was too vague. The equipment should be provided by the internal external concentrators to minimize the amount of waste water sludge. Large basins should have at least two sumps. We felt that was too vague. What constitutes large? They have other means to remove sludge without slumps such as vacuum systems. Under water losses comment was where it says units shall be provided with controls to allow for adjusting the rate or frequently of sludge withdrawal. Some plants may recycle and/or thicken sludge prior to disposal. Not necessary to state with the desired water losses are so we deleted those sections. We just inserted the word for general criteria general design criteria. And deleted the section on protection from freezing for the units. And placement I'm not going to go through all those. High rate clarification we deleted the section reductions in detention times and/or increases in weir loading rates shall be justified. Examples of such processes may include dissolved air flotation, ballasted flocculation, contact flocculation/clarification, and helical up flow, solids contact units. We just deleted those examples. We just deleted the section on types of filters and discovered elsewhere in the section, in subsequent sections. Rapid rate gravity filters. One of the biggest issues we had was on the redundancy on filters and other types of units so hopefully this addressed everybody's concerns. The rate of filtration shall be determined through consideration of such factors as raw water quality, degree of pretreatment provided, filter media, water quality control parameters, competency of operating personnel. And we deleted other factors as required by the reviewing authority. Typical filtration rates. We added this range from 2 to 4 gallons per square foot. Maximum filtration rates for

plants treating surface waters or groundwaters under the influence of surface waters shall be 3 gallons a unit per square foot. Data from pilot testing shall be submitted to the state health officer for surface water treatment plants with proposed filtration rates above three. Delete any case it shouldn't be above. We added that because we didn't feel it's necessary to get approval to use typical filtration rates especially in light of the fact that the filters are listed in the following sections. Number, plants employing rapid gravity filters shall provide at least two filters. And then the filter shall be capable of meeting the plant design capacity at the plants design average daily filtration rate with one filter unit removed from service. To kind of handle the redundancy on the filters. The filter structure shall be deleted covered by superstructure. Prevention of floor drainage in the filter with a minimum 4 inch curb around the filters. We just added not necessary between adjacent filters with common walls or other areas not adjacent to walking or flat surfaces that where drainage could be introduced into the filter. This is one of the ones I think we discussed was important on existing filters as well and not just new construction. And we deleted the safety handrails and that because it's covered by OSHA and we didn't want to address that in the drinking water code because we may have a conflict at some time when they change their regulation. Wash water troughs. Two inch freeboard we added at the main wash water gullet at the maximum wash water rate. And added F a means to exclude the loss of media when providing concurrent air/high rate water backwashing. Under filter media we added the granular filter media shall be and we deleted all the descriptions and just said in accordance with AWWA B100. The items that are deleted I don't want to go through this all, but covered by B100. We didn't want to have something that could be in conflict so we deleted those sections which were already covered in B100. Down that bottom granular activated carbon shall be in accordance with AWWA C604. And item D provisions shall be made for frequent replacement or regeneration. Regeneration of GAC shall be in accordance with AWWA B605. Anybody have any questions? Under 4.3.1.7 filter bottoms and strainer systems. We deleted minimized loss of head through manifold and laterals. Too subjective and not really enforceable.

Surface wash or subsurface wash we just changed that heading to media washing. Change to say filter media wash facilities are required except for filters used exclusively for iron, radionuclides, arsenic or manganese removal and may be accomplished by a system of fixed nozzles or revolving type apparatus. Wash water systems shall be designed with will be required as required to operate and should not be in the code is water pressure. And delete item D where air wash can be considered based on experimental data and operating experience. And added a section for air scouring is provided. So all this would have to be reformatted. Air scour change must to shall. On B we added when employing concurrent air scour and water backwash a method for avoiding excessive loss of the filter media during backwash must be provided. Deleted section H and K. Then appurtenances we added means of sampling influent and effluent water into sampling taps. A meter indicating the instantaneous we added effluent rate of flow. Paragraph 5 we just deleted with three or more filters. And 6 we deleted B 1,2, and 3 under rate of flow control. We just said rate of flow controller capable gradual rate increases when placing the filters back in operation and took off the recommendations on the wall sleeves and pressure hose and all that. Under backwash we deleted the, reword the paragraph to say minimum rate to provide for 50 percent expansion of the filter media shall be provided with minimum 15 gallons a minimum per square foot. B rewrote that to say filtered water shall be used for backwashing filters. Didn't say how it has to be delivered. Deleted the minimum time for backwashing filters. 4.3.2 rapid rate pressure filters. Under general we added at least two filters shall be provided. The filters shall be capable of meeting the plant design capacity with one filter unit removed from service. 4.3.2.2 rate of filtration. Change it to say that the rate shall not exceed 6 gallons per minute per square foot of filter area except where pilot testing as approved by the reviewing authority has demonstrated satisfactory results at higher rates. Consideration shall be given to backwash frequency and deteriorating water quality when selecting filtration rate. On B delete a flow indicator is recommended. And on C delete with an arrangement of piping as simple as possible to accomplish the purposes. Item I we deleted the handholds required in the manuals. Not

practiced too much anymore. Page 16 4.3.3.10 appurtenances. We just added means of sampling for raw water instead of sampling taps. Page 17 4.3.4.1 just change must to shall and deleted references about protection from freezing and provide a cover. Under filter media B 4.3.4.6 we deleted a pilot study may be required after larger sizes may be considered by the reviewing authority. 4.3.4.9 control appurtenances. Again, just took out sampling taps and put a means of sampling influent and effluent water shall be provided. Paragraph C an indicating rate of flow controller. A means of controlling the rate of filtration and limiting the rate of filtration to a maximum rate shall be provided in lieu of the requirements. We deleted an orifice, Venturi meter, or other suitable means of discharge measurement for each filter to control the rate of filtration. 4.3.5.4 on page 20 paragraph 5 we deleted it is recommended that turbidimeters meters be placed in a location that also allows measurement of turbidity during filter to waste. And deleted rate of flow controller and put measures for providing gradual rate increases when placing the filters back into operation shall be provided. Deleted the following section, it is recommended the following be provided for every filter. Wall sleeves to provide access to the filter interior. Paragraph 2 a 1 to 1.5 inch pressure hose and storage rack operating for filter walls. Also delete 4.3.5.6 on citing requirements. And then disinfection. We try to use the wording from existing sanitary code. Reference shall be included to the appropriate section of the existing sanitary code for disinfection requirements. This section will cover design of the feed system. And we added chloramines to the list of disinfectants that were covered. We added on disinfection. Disinfection is required for all water systems. Didn't list all the different types. Then we added the heading for chlorination. Tried to separate them by the different types. Chlorination 4.4.1.2 under capacity. The chlorinator capacity shall be such that a free chlorine residual sufficient to comply with the minimum chlorine residuals required in chapter 3. I don't know if that's a correct reference or not. Spare parts that was already covered under part 5 shall be readily available to replace parts subject to wear. I guess whatever we come up with on that we should put here or delete this section here. Automatic proportioning chlorinators shall be required where the

rate of flow or chlorine demand is not reasonably constant. And then delete the center of a pipeline is the preferred application point. Paragraph A delete additional baffling can be added to new or existing basins to minimize short circuiting and increase contact time. And B, you want me to read each one of these or just recommend B was deleted C and D. Already covered elsewhere in the sanitary code. So a lot of these sections we deleted from here because they are already covered elsewhere. Under 4.4.5 chlorinator piping. Under cross-connection we just added in accordance with backflow prevention requirements set forth in whatever section, I guess part 10. Piping materials. Pipes that carry elemental liquid or dry gaseous chlorine under pressure shall be scheduled 80 seamless steel tubing. Vacuum piping for gaseous chlorine shall be polyethylene tubing or PVC pipe. Rubber, PVC, polyethylene shall be used for chlorine solution piping and fittings. Deleted the housing. It's covered in 4. Chlorination, the definition for chlorination is the application of ammonia and chlorine with ammonia addition usually downstream of the application of chlorine at a proper mass ratio of chlorine to ammonia to produce a combined chlorine residual predominantly in the form of mono chloramine. Proper chlorine to ammonia ratio shall be maintained to prevent the formation of dichloramine and trichloramine which create taste and odor in drinking water type. The chlorine system shall comply with applicable requirements of 4.4.1. Ammonia systems shall supply either anhydrous ammonia or aqueous ammonia in compliance with the requirements of part 5. Capacity, the ammonia supply system shall have a capacity as required such that total chlorine residuals sufficient to comply with minimum disinfectant residuals required in chapter 3 is provided. The equipment shall be such design that it will operate accurately over the desired feeding range. Standby equipment. Standby equipment shall be available to replace the largest unit. Spare parts shall be made available to replace parts subject to wear and breakage. Automatic proportioning. Automatic proportioning shall be provided where the rate of flow is not reasonably constant. Injector/diffuser. The ammonia injector/diffuser must be compatible with the point of application to provide a rapid and thorough mix of all the water being treated because of the high solubility of

ammonia in water. Injectors are not required. If injectors are used provisions for scale formation shall be considered. Aqueous ammonia solution shall be fed through stainless steel diffusers installed horizontally for even distribution of the solution. And materials containing copper shall not be used in contact with ammonia. Cross connection protection. The aqueous ammonia water supply piping shall be designed to prevent contamination of the treated water supply in accordance with the backflow prevention requirements set forth in section, whatever it is, 10. Pipe material. The pipes carrying anhydrous ammonia shall be black iron. Aqueous ammonia piping shall be stainless steel. Stainless steel, rubber, or PVC shall be used for aqueous ammonia solution piping and fittings. Under ozone deleted a lot of the commentary, just stick to the requirements. Page 26 deleted under C a refrigeration dryer capable of reducing air inlet temperature to 40 degrees Fahrenheit shall be provided for low pressure air preparation. We deleted the dryer can be of the compressed refrigerant type or chilled water type. On page 27 for backflow prevention we just referenced whatever the section is on backflow prevention. On page 28 number 5 we put the contactor must be kept under negative pressure and sufficient ozone monitors shall be provided to protect worker safety. Contactors shall be open to the atmosphere. And deleted section 6. Suitable materials of construction are based on engineering design. ACI 350 covers concrete design for sanitary structures and has a minimum cover of 2 inches, 3 inches where cast against the earth. So it's covered by other codes. Item 11, the diffusion system should work on a countercurrent basis such that the ozone is fed at the bottom of the vessel and water is fed at the top of the vessel. And we deleted that section and 12. On 4.4.7.5 ozone destruction unit. Deleted section B. Under 4.4.7.7 joints and construction we deleted screwed fittings shall not be used because of their tendency to leak. Under 4.4.7.9 alarms. We deleted all of it. Safety we deleted the noise requirements. Noise requirements are usually dictated by local ordinances and those would have to be complied with. Deleted section C high voltage and high frequency electrical equipment must meet current electrical and fire codes. Compliance with other codes is always necessary and doesn't need to be stated. Deleted 4.7.11

construction considerations. These were just considerations stating should and not shalls. 4.4.8 chlorine dioxide. Deleted the commentary. 4.4.8.2 feed and storage units. Chlorine gas and sodium chlorite feed and storage facilities shall comply with 5.4.1 and 5.4.3 respectively. Sodium hypochlorite feed and storage facilities shall comply with section 5.4.4. The comment we had was need to accommodate other types of chlorine dioxide units. 4.4.8.3 other design requirements delete B. And 4.4.8.4 delete public notification. 4.4.9 delete that section. Ultraviolet it's a policy statement. Other disinfection agents. Use of disinfecting agents other than those listed shall be approved by the state health officer. Under softening we deleted the description upfront. Under aeration deleted that entire--

JIMMY GUIDRY: What was the figure behind 4.4.8.4 public notification? It's required so why are we deleting it?

CHRIS RICHARD: This is a design section so it would be covered elsewhere in the code. We were trying not to be overlapping if it's already covered somewhere else. Public notification is required then it's required. It doesn't need to be in a section on how to design a facility.

JIMMY GUIDRY: Doesn't belong in this section.

CHRIS RICHARD: Correct.

JAKE CAUSEY: I don't think that's covered elsewhere.

J.T. LANE: But it makes sense to put it wherever, since this is our code, wherever we have notification requirements it should go.

JAKE CAUSEY: Most of our notification requirements are centered around violations. This is a notification requirement we're making a disinfectant change. I don't know that we have any similar notification requirements elsewhere like that in the code. Based on what I know now this would be the best place to have it.

JIMMY GUIDRY: What I'm thinking is these are plans, these are designs. They are not the people that would be notifying. It's going to be whoever is operating the system.

JAKE CAUSEY: Then maybe so.

J.T. LANE: Even if we create a public notification section somewhere just so it's clear. If I were running a water system I would want it really clear. I know when we are reading the code our eyes are glazing over and you're trying to make sense of it and have it clear. It makes sense it be in one place. Like all notifications, you know what I'm saying. Looking from an operating prospective. Even if we have to, I know we're trying to avoid duplication because that's really important as we're rebuilding and rewriting it it makes sense to group them together.

JAKE CAUSEY: I guess thinking even further because this wasn't resigned maybe to change, but also when we tell systems, chloramine systems to the free chlorine burn do that same notice. So maybe in that sense it might be good to put it elsewhere. But it doesn't exist anywhere. It needs to be in the code. Maybe it's part of the upfront kind of administrative thing on the front end. All the notification requirements are tied to a lot of those are in the federal code we just adopted by reference. I don't think there's a public notification section that you would be able to plug this in with putting it upfront in the code, not buried in design requirements.

CHRIS RICHARD: This is done real early on, maybe way before you would notify the public and it also doesn't contain the requirements of the notification what it has to contain, who it has to be to, how often, those kind of things.

JAKE CAUSEY: Those changes might happen outside of a permit like chlorine burn. I agree, just make a note to move to a more appropriate section on the code.

CHRIS RICHARD: On aeration deleted the determinations for carbon dioxide in the water and the requirements for aeration, when it's going to be used. On sludge collection deleted sludge should be recycled to the point of rapid mix. If it is recycled to a different location the reviewing authority must approve the point of recycle. Deleted the section on didn't need to say the use of excess lime shall not be considered an acceptable substitute for disinfection. Deleted plants start up require a manual start up after shutdown. Cation exchange process, deleted the first sentence. Deleted 4.5.2 on

pretreatment requirements. Design, deleted automatic regeneration based on water volume of water softened should be used unless manual regeneration is justified. Exchange capacity, deleted the requirements of the resin. Flow rates, the flow rate shall not exceed 7 gallons per minute per square foot of that area and the backwash rate shall between 6 and 8 gallons a minute per square foot of that area. Rate of flow controllers shall be installed for the above purposes. Free board, just stated adequate freeboard shall be provided to prevent loss of media during backwash. Top of page on 34 deleted the last sentence of the first paragraph. Additional limitations 4.5.2.11. Deleted the first sentence silica gel resins should not be used for waters having a PH above 8.4 or containing less than 6 milligrams per liter and should not be used when iron is present. And the last sentence phenolic resin should not be used. Sampling taps we put instead of sampling taps a means of collecting samples shall be provided for the collection of representative samples. If sample taps are provided they shall be smooth nose type. And the sampling locations shall be located to provide for sampling of the softener influent, effluent, and blended water. And change taps to locations. On B brine and salt storage tanks the make-up water inlet shall be protected from back-siphonage. And deleted water for filling tanks should be distributed over the entire surface of the pipes evenly above the maximum brine level in the tank. Deleted section E requiring two wet source tanks and G alternative designs which are conducive to frequent cleaning of the wet may be considered. Deleted 4.5.2.14 salt and brine storage capacity. And 4.5.2.15 brine pump or eductor. On stabilization deleted second sentence on 4.5.2.7 where the volume of spent brine must be reduced consideration may be given to using a part of the spent brine for subsequent regeneration. Deleted the plastic and red brass are acceptable piping materials. 4.5.3 we deleted because testing is covered elsewhere. Under design under B we changed it to took out nitrate and just put contaminate covered everything. That may be used for exchange capacity. We took out the first sentence, it seemed too specific. Doesn't address other situations. We need different language to cover various options. I don't think we had anybody that was on the committee that was familiar with it. The number of

units, at least two units shall be provided. The treatment capacity shall be capable of producing the water as a design capacity of the plant at a level below the nitrate/nitrite or we just put at a level below the MCL contaminate being removed with one unit out of service. Types of media we deleted the first one and put the anion exchange media shall be of the type required. Should be for the contaminant being removed. Freeboard, adequate freeboard shall be provided to accommodate the backwash flow rate of the unit. And then deleted the second sentence. Under waste disposal we took out the water quality testing. Natural draft aeration on 4.7.1 delete item G. And on H change it to protection from insects by 24 mesh screen when used in applications where the water is not, will not be subject to open vessels and downstream treatment processes. On forced or induced draft aeration devices shall be designed to include a blower with a weatherproof motor in a tight housing and screened enclosure. Sometimes a blower is located below the building so the motor wouldn't need to be weatherproof. Item D covers the screening of the intake and the outlet. L provide for continuous disinfection feed after aeration. We took that out. Disinfection will be provided as required elsewhere in the code. This suggests it must immediately follow aeration. Under 4.7.3 spray aeration we deleted for continuous disinfection feed after aeration. 4.7.4 pressure aeration, deleted the sentence this process is not applicable for removal of dissolved gases. And then packed tower aeration we deleted the last sentence or the last couple sentences on applicability. That would be part of the design process. Process design 4.7.5.1 we deleted paragraph A in its entirety. And B we deleted to the lowest practical level. Under E we deleted the last sentence, it may be necessary to provide pretreatment. And deleted paragraph F. Materials of construction 4.7.5.2. Paragraph A we deleted the first couple of sentences and substitute tower shall be constructed of a material that is suitable for contact with the water being treated or something else along those lines. 4.7.5.3 we deleted the last sentence for multi-point injection one injection point every 30 square inches of tower cross sectional area is recommended. Delete item G on freezing. And H didn't see the need to meter the water to the units themselves. J butterfly valves may be used in the water effluent line for

better flow control, as well minimize air entrainment. Good for control, but if you need isolation you don't want to dictate the type of valves for isolation purposes when you're going to take a unit down. 4.7.5.4 air flow systems. Deleted the last sentence of A is recommended that a 4 mesh screen also be installed prior to the 24 mesh screen on the air inlet system. C air flow meters shall be provided on the influent air line or alternative method to determine the air flow shall be provided. We felt it wasn't necessary in situations where you have a well pumping a constant amount to a blower that blows a constant amount. Additionally, if you do not have a need or ability to vary the air flow rate then you don't need to meter. Delete item D and put a positive means of ensuring that air is being provided when water is being delivered to the air strippers shall be provided. Delete E. Under 4.7.5.5 paragraph C tower effluent collection and pumping wells constructed to clear well standards we deleted that. Towers can be installed on platforms to allow the discharge by gravity to a ground storage tank. Don't dictate how to design effluent structures. Delete item D provisions for extending tower height without major reconstruction is too broad. Item E an acceptable or alternative supply shall be available during periods of maintenance and operation. Delete that section. G disinfection after contact, that's covered elsewhere. I we felt that was covered elsewhere. Delete J also. Delete K, L and M. Design issues that do not need to be included in the water code and are addressed by other agencies/regulations/codes. We deleted the environmental regulations on noise and air. Again, deleted the disinfection portion of it. Corrosion control and quality control.

J.T. LANE: I have a question. As we look at, just kind of going with the same comment earlier about trying to organize it a little better, especially since so much of what y'all do may be impacted by multiple agencies, isn't it more helpful to include a statement, I'm not saying these specific words that y'all struck out, but where we should be, I mean is it more helpful to say go to this place to ensure, for instance, the appropriate air quality office is contacted and what not. Isn't that more helpful?

CHRIS RICHARD: I guess it can be. As an engineer you're supposed to know what applies and what

doesn't. You're doing an airstrip you might have to do an air permit. If you do engines you might have to do diesel engines or a certain size you have to have an air permit. You might have a wetlands permit. You might leave something off that gives a sense that we have everything covered in this code. If you're designing a water plant you don't need to go any further. We got it covered. Instead of this is water quality, you need to make sure you have to cover all your bases on everything you need to do. If you're going over here you might need a wetlands permit. You're in a coastal region you might need a coastal permit. Go to the fire marshal, comply with OSHA, if you're private, a municipality. That was the thought process we had. Trying to be more this is a requirement not a recommendation.

RANDY HOLLIS: I had the same problem when we started going through this thing ripping out all this stuff. 10 state standards that this comes from is still available to the engineer and he still needs to have that side by side cause he's going to have every bit of this language. If he's going by 10 state standards he will see this. What we're trying to write are only the solid in concrete codes that will be applicable. I agree, I hate to take it out because it's helped to nudge the engineer to say hey did you look at this. He'll still have 10 state standards available.

CHRIS RICHARD: As other resources like you mentioned the ASC book, the AWWA manuals. A lot of different resources an engineer might use. Iron and manganese control. 4.8.3 under B we deleted that section and don't need to say what can be done, just what needs to be done. Delete item D the filtration rate for removing non primary constituents shall be left up to the discretion of the engineer and may be based on things like budget, available space, required backwash frequency, et cetera. The code should dictate how to remove contaminants that are not, should not dictate how to remove contaminants that are not required to be moved. They may be left and may be sequestered. Item E and delete that section and delete F, depends on the application. And paragraph 4. 4.8.5 biological removal. We didn't know anyone using it for iron and manganese removal. I don't know if that's the only one it's supposed to cover. Jake, do y'all have any?

JAKE CAUSEY: Well, it's kind of the new thing. A lot of talk about biologically active filters for iron and manganese, ammonium nitrates, for multiple contaminants. Design parameter, operational parameter around biologically active filters generally don't exist. It's sort of I guess it's new, but it's not new, right. A lot of folks are really looking at it also from a cost prospective. It's definitely something that we're willing to look at and consider it. A lot of those things just like everything it's pilot based, pilot studies. And the biggest concern I think really is making sure you maintain the sort of biota in that filter such that if you don't have anything to die off and here comes all the iron and manganese. It definitely takes some intense monitoring and know the right parameters to monitor and make sure you maintain that biota. But everywhere I go I'm seeing a lot of presentations, a lot of research. It's been implemented in a lot of places. I think it's coming.

CHRIS RICHARD: But if somebody wants to do it they would pilot test it or just like with any other technology that's not covered I think they would get directly with DHH whether it's in the code or not.

JAKE CAUSEY: I don't think we could really spell out any design criteria other than a pilot test and DHH doing it's homework to make sure what he's proposing feels like the system can do it and monitor and be reliable. It's definitely out there, a lot of folks doing it.

CHRIS RICHARD: I know they're doing it for ammonia.

JAKE CAUSEY: Iron and manganese as well.

CHRIS RICHARD: Items sequestration by polyphosphates deleted C shouldn't apply before you try, shouldn't sequester before you try to remove it. Sampling taps. Again, we just put a means of collecting samples shall be provided. 4.9 stabilization. I think we took out the whole thing because it was more a narrative than a code. 4.9.3 under phosphates. Delete 4.9.4 split treatment because it was more of an FYI not a requirement or a code. Again, like Randy said all this stuff is still available in 10 state standards so we didn't put it in regulation. We deleted all these sections that were more for informational purposes. Powder activated carbon we deleted A and B and left C continuous agitation

or resuspension shall be provided to keep the carbon from depositing in the storage tanks. Deleted the last sentence of F. It should be stored in a building or compartment as nearly fireproof as possible. Other chemicals should not be stored in the same compartment. Carbon feeders should be equipped with explosion proof electrical outlets. That came from somebody who had it or not. Copper Sulfate, deleted the last sentence. Necessary approval and/or permits shall be obtained prior to application if required. Deleted that section. 4.10.8 potassium permanganate, deleted that section. And 4.10.10 other methods, deleted that as well. That's it.

JIMMY GUIDRY: It seemed like there was a lot of additional language added to the chlorine section. Is that lacking before or it just wasn't there?

CHRIS RICHARD: There was none.

RANDY HOLLIS: One of the things that we talked about earlier design and everything was average daily flow, verses plant design flow, verses max daily flow and a lot of sections in here it talks about if you've got one out of service you only have two. Then if we design that to only meet average daily flow then there will be times that we can't meet the flow. Do we revise this to the standard that we set up earlier to say one component out of service to the plant shall be able to meet the max yearly, the max design flow, average day max design flow.

CHRIS RICHARD: I guess we need to decide how the capacity of the plants. Typically I've always seen you design the plant for the average daily flow and you handle the other issues with storage so you don't have to over design your plant. With that in mind that's how this was the plant would be designed to meet the average daily flow and if you take a unit out of service you still have to be able to maintain that production. I guess it comes down to the definitions of what max day average day.

RANDY HOLLIS: Average flow would be divided by 365 or whatever and I think we tried to say well let's design for the max month average flow.

CHRIS RICHARD: That was in booster pumps and that was a little different application than actually treating the water so I stuck with what I'm more familiar with is designing it for the average daily

flow. Then when you get out the storage you have the different requirements that you meet your peak hour with your storage and your pumping capacity. In other words you can make water in 18 hours you don't have to work all 24, but you make an average amount of water. Store to meet the peak demands during the day and replenish at night or whenever.

RANDY HOLLIS: You're only operating the plant 18 hours you're operating it, you're above average flow.

CHRIS RICHARD: That's because your plant might be, you might have a plant that could currently because you designed for the future you design a plant that you're producing 5 million gallons a day right now so you don't have to run 24 hours a day.

RANDY HOLLIS: Today I agree, but when you hit that design year.

CHRIS RICHARD: Then you better start looking to add on your plant. Not too many plants operate at a 100 percent 24 hours a day at 100 percent capacity.

RANDY HOLLIS: I would just like it to be consistent with what we looked at earlier. Should we put the language in here that we should meet with one component out of service the max month average flow?

CHRIS RICHARD: You're going to increase cost of the plants.

ROBERT BROU: Do need to go with the more conservative because what you're referring to is taking it out maybe to backwash it and putting it back in service. Storage will help that, but what about refurbishing a plant, taking it out and sandblasting it, repainting it you've got to go for months on end. The more conservative is going to be more reasonable.

CHRIS RICHARD: The systems can make it during those periods of time. I think you're increasing the cost a lot by making the plants bigger in the design. I don't know how everybody else feels.

JAKE CAUSEY: I definitely agree with the concept of consistency. Start mixing up average day max month divided by seven it gets a little bit confusing. I think typically when you design a plant you are looking at future growth so you're already going to exceed whatever criteria really you use initially.

It's just when you start reaching that capacity mark at what point is average max month or just daily average flow that you're having to look at it and say okay we're hitting our maximum here and we're going to have to find some more water. I don't know that it's going to have a huge impact initially on the front end. It's just you may have to upgrade your plant a little sooner than you might would otherwise. I guess is what I'm thinking.

CHRIS RICHARD: You're saying you can still design your plant for average flow, but check it against the max.

JAKE CAUSEY: Your average flow based on what you expect the demand to be 20 years from now I guess, which is not what it is today. Your plant will meet today's max anything, frankly. But when you start getting to that point of hitting that max month average flow that's when some upgrades may need to be happening. You could be in a bind at that point.

CHRIS RICHARD: Rather than building it initially 20 years ahead of time before you might not reach. You design plants that you build for 20 years and the city stops growing.

DIRK BARRIOS: Twenty year growth is what you usually look for as an engineer. You can only estimate. You're not expected to hit it right on the nail every time.

CHRIS RICHARD: But you're spending that money today. I'm just saying. I don't know if it's necessary that it all be the same on the system with the pumping station or storage tank verses the plant design itself, the main component. I understand what you're saying. However we want to do it we need to define it. I don't think you're going to be reaching that max month taking a unit out of service for most plants.

JAKE CAUSEY: We definitely had some systems get in a bind taking a clarifier out of service. Frankly they didn't have two units. I guess just trying to think about it a lot of times they are upgrading a plant here at a tank at a different time, but I don't know maybe just kind of thinking about what is the ideal scenario.

RANDY HOLLIS: I was just trying to be consistent. If we're going to say everything is designed on the

max month average flow we keep that throughout the entire code.

DIRK BARRIOS: Give us a definition on what that means cause y'all lost me.

RANDY HOLLIS: Take the max month to the year and use the days of the month and that's the average flow of the max month. Which may be 20 percent, 25 percent greater than your average. May and June is our drought season. We will see a significant increase in May and June when we have a drought.

ROBERT BROU: Staying in compliance it's a lot simpler just one definition no matter what unit you're talking about just a lot less confusion if you're having to follow one definition verses for tanks it's this, for a pump it's this, clarifier another definition, filter another definition. Get very confusing very easy.

J.T. LANE: Another section we'll add a glossary.

RANDY HOLLIS: But Chris is correct. It will drive up the cost of your plant initially if you have to design for max flow as opposed for average flow. That is a cost factor.

J.T. LANE: Any other comments?

DIRK BARRIOS: I got a lot of comments, but we ain't got time.

J.T. LANE: I look forward to next time. Are there any comments from any other attendees here today? All right.

JAKE CAUSEY: You missed the flood elevation discussion last week.

DIRK BARRIOS: I don't get anything built by federal grants.

J.T. LANE: We'll add it to the agenda for next time. With that any other questions or comments? All right, do I have a motion to adjourn?

ROBERT BROU: Motion.

DIRK BARRIOS: Second.

J.T. LANE: Any objections?