PUBLIC SERVICE COMMISSION
STATE OF MISSOURI

THE STAFF OF THE MISSOURI PUBLIC SERVICE COMMISSION,	)	
Complainant,	)	
vs.	)	Case No. WC-2008-0030
SUBURBAN WATER AND SEWER COMPANY AND GORDON BURNAM,	)	
Respondent.	)	

THE DEPOSITION OF CLYDE ZELCH,

produced, sworn, and examined on Thursday, December 6, 2007, at 9:00 a.m. of that day, pursuant to Notice to Take Deposition at Valco Company, LLC, 2992 County Line Road, in the City of Gerald, County of Franklin, State of Missouri, before Monnie S. VanZant, Certified Shorthand Reporter, Registered Professional Reporter, Certified Court Reporter #0538, and Notary Public, in a certain cause now pending before the Public Service Commission, State of Missouri, wherein the parties are as above set forth; taken on behalf of the Complainant.

Staff Exhibit No. 1
Case No(s). WC-2008-0030
Date 7-08-08 Rptr KF

A P P E A R A N C E S

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SIGNATURE INSTRUCTIONS: Signature waived.

EXHIBIT INSTRUCTIONS: Retained by Mr. Reed.

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(Exhibits were retained by Mr. Reed.)

CLYDE ZELCH,

being first duly sworn to testify the truth, the whole truth, and nothing but the truth, testified as follows:

DIRECT EXAMINATION

BY MR. REED:

Q I'm going to ask the questions here, and I think Erick will be involved after I ask some questions, Mr. Zelch.

MR. CREACH: I would like to just make a couple of quick statements before we start. The first is that we haven't officially identified Mr. Zelch as an expert yet. To the extent that we have an argument, that a deposition is inappropriate at this point since he hasn't been identified, we aren't waiving that objection, but are understanding that it's timely that this go on at this time.

The second thing is, from a standpoint of any testimony or products -- or reports that Mr. Zelch has, we're not going -- we're not waiving any attorney work product privilege or anything as far as anything else, any testimony from Mr. Zelch is not to be deemed a waiver of any other attorney work product privilege or any other objection that we may raise. So I just want that at the front.

Q (By Mr. Reed) Okay. Mr. Zelch --

A Explain to me what he said.

Q Well, it's -- it's some -- it's some legal things that we'll have to sort out at a later time. I think, unless, Eric tells me otherwise, we're going to go ahead and ask questions and ask you to answer them and finish the deposition. And then with regard to anything that Suburban Water Company may have an objection to, they'll -- they'll make those objections later in front of the Judge and the Judge will decide how to sort those things out, I think.

MR. CREACH: That's correct. Just --

A I understood what you said. You were, in a nice way, questioning my -- my credentials as --

MR. CREACH: No. I was just stating that from a procedural standpoint, we haven't identified you as our expert witness yet, just put -- to the other party.

A Okay.

MR. CREACH: We're not questioning your credentials on that at all, so -- and I'm sure we'll probably get into that here in a little bit anyway. So --

Q (By MR. Reed) Right. Sure. Mr. Zelch, state your full name for us.

A Clyde Henry Zelch.

Q Mr. Zelch, my name is Steve Reed. We met earlier, of course. Did you receive a subpoena to appear

here today?

A Yes.

Q Have you had your deposition taken before?

A Yes.

Q How long ago?

A Ten years, I guess.

Q All right. Do you remember -- well, have you testified in court before?

A Yes.

Q How long ago?

A Five years, maybe.

Q Okay.

A Six.

Q Just to refresh all of our recollections, I'm going to ask you questions. Please wait until I have finished the question to answer it. If you don't understand the question, please tell me because, if you answer it, I'll assume you understood the question.

After the deposition is taken and the court reporter has a chance to reduce all this to writing that all of us can read because, as you can see now, it's in some other language, you'll have a chance to read that deposition, check for any errors and an opportunity to sign the deposition, to make sure it's accurate. All right?

A (Witness nods head.) I understand that. Yes.
Q Whenever I ask questions, sometimes the answer may be yes or no, as simple as that. Please verbalize. In other words, say yes or no as opposed to uh-huh or -- do you see what I mean? We fall into that sometimes. So if you do that, I'll try to prompt you to give me a yes or no. Mr. Zelch, could you describe for us your employment at present?
A I work for -- own the company, Tomcat Consultants, Tap Company and Valco Company.
Q That's three companies, right?
A Yes.
Q Tomcat Consultants. And what do they do?
A Inspection of water towers, water storage facilities in general. We also rent temporary storage facilities to water systems.
Q So --
A Write repair specs, do inspection of new construction, work in progress.
Q And Tomcat is involved in the water industry?
A Drinking water.
Q Drinking water. All right. What was the second company?
A Tap Company, T-a-p. Tank accessory parts.
Q Okay. Describe that business for us.

A We manufacture and -- and market parts for water storage tanks. I hold the patent on two items, water quality related items to the water business, and we manufacture and sell those items and a few others.

Q And the third --

A Vents, pressure, manways, roof hatches, overflow, screens, flap gates, overflow discharge assemblies, Tap Company.

Q All right. And the third company was Valco?

A Valco.

Q And --

A Valco does the actual fabrication on some of the parts that are sold by Tap Company. They're made at one location, finished as far as grip blast and painting assembly and selling from another location.

And Valco also makes heavy steel plate parts for the cement industry.

Q Okay. You are the owner or an owner of all three companies?

A Yes.

Q Did you start all the companies?

A I started Tomcat and Tap and purchased Valco as a method of guaranteeing my supply of the parts that I needed because the man that owned it said he's going to retire, you know.

You know, he said -- he said he's going to retire and a couple local people are going to buy it and everything will go kind of like normal.

Q Yeah.

A And then about two months later, he says, They're changing their mind. They -- they're not going to buy it, but I'm still going to retire. That put me in a position of what happens to my supply of parts.

And I simply looked at the volume that -- the dollars that I was spending at that company, and his books were open. And I told my bank to look at it and tell me if that makes sense or not. And we bought it.

Q Good. When did you start Tomcat?

A September the 1st of 1989 was the first day of Tomcat Consultants. Tomcat is a strange-sounding name. But, in reality, it is tank operation, maintenance, consulting and training --

Q Okay.

A -- is what Tomcat is.

Q All right. Now, before you started -- did you -- you started Tomcat. You're an owner of that business. What did you do before you were involved with Tomcat?

A I ran my own welding, blasting, painting business. I was public Works Director for one town and worked for various blasting and painting companies

starting back as far as the early '60s.

1964, I started with Kessler Tank Company out of Fremont, Ohio, and worked for them and for Hartman & Walsh out of St. Louis and Bush & Latta and --

Q What are those companies?

A Painting.

Q Okay.

A We've painted approaches and Poplar Street bridge, and they did water towers. Bush & Latta did quite a few towers. Hartman did power plants, Labadie, Portage. Again, the Missouri approaches and the bridge, Bush & -- Bob Britz out of Illinois did the Illinois approaches. I worked through the late '60s into the early '70s. I worked for a variety of those companies.

Q Now, you yourself, your involvement in the businesses, what do you -- what do you do from day-to-day?

A That's all of -- whatever needs to be done.

Q You get it out --

A Yesterday morning, I was in the other shop doing some welding. And yesterday afternoon, I was up north of Odessa setting up a temporary water storage tank. And --

Q You inspect the tanks?

A Do actual inspections.

Q How often do you inspect them?

A How often do I inspect --

Q Yeah. How often do you yourself get out and do the inspections?

A Doing less and less and less actual inspections all the time. But still about every other week, I -- I'm intentionally doing less inspections.

Q Tell us what -- what area you cover, what region or state or states that you generally get to do inspections, for instance?

A Doing actual inspections, we've worked in Missouri and probably all surrounding states except Tennessee. I don't think I've done any in Tennessee.

Q Do you have somebody who works for you that does the same kind of thing, the inspections that you did?

A No.

Q Just you?

A I do them.

Q All right.

A A few others that work with me on it. But as far as the actual inspections, I do them. And that's why I'm doing less of them.

Q All right. How long have you been doing water tank inspections?

A Since '89. No. It goes back before that. '80.

Q Since '80?

A 1980.

Q Is there -- is there a license that -- or a certificate of some kind that's required to be an official tank inspector?

A I'm not aware that Missouri has such a thing. State DNR recognizes me as a tank inspector.

Q The Missouri State -- the Department of Natural Resources?

A Yes.

Q How do they -- how do they acknowledge or convey to you that you're -- you're qualified to do the water tank inspections?

A Oh, I worked pretty close with DNR for a good number of years. Back into the early '90s, '93, '94 -- you remember Gideon, Missouri?

Q Sure.

A Problems with Gideon, Missouri?

Q What were the problems?

A Fall of '93, salmonella bacteria in the water. That -- see, that started in mid November or somewhere late November and wasn't really solved until mid January.

And I'm actually the person that got finally called in there to look this over. That's -- you know, see what you can find. Nobody else has found anything. What can you find?

Q Who called you in?

A The mayor at the urging of the DNR, in fact.
Q Okay.
A But -- but finally the mayor -- the town had to -- DNR don't have the authority hardly to tell somebody, you -- you've got to get this guy or that or anybody, you know. But finally, the town called me in there and -- and I found what was wrong --
Q Uh-huh.
A -- what the real problem was here. And --
Q Would you --
A And I don't see that -- my expertise, let's say, on tank sanitations is pretty well recognized.
Q What -- do you have any -- other than your experience, which is obviously extensive, do you have any education, like any kind of formal training and classes or that sort of thing with regard to water distribution and tanks?
A I have a list right here of training classes that I have attended and taught.
Q Okay. Training classes that you've attended and --
A And/or taught. Yes.
Q Okay.
A I do some reasonable amount of both and have been for a good number of years. This year, I taught

classes at three different locations in Ohio, Galveston, Texas, South Carolina and Nebraska and -- I don't remember. There might be some other ones in there.

Q All right. What kind of classes have you been teaching recently?

A Water tower maintenance --

Q All right.

A -- sanitation.

Q Okay.

A That's -- tank sanitation is what I teach, along with some other things. But that's always the No. 1 issue.

Q This -- this stack of documents that you gave me is 14 pages. I'm going to ask the court reporter to mark this as Deposition Exhibit No. 13?

A That's fine.

(Exhibit No. 13 was marked for identification.)

A You can --

Q (By Mr. Reed) Can I keep that copy?

A Yeah.

Q Okay. I don't want to go through No. 13 with you right now, but we'll make that part of the deposition and we'll get a copy to all the parties.

MS. BAKER: Can I look at it now, please?

MR. REED: Yeah. Sure.

MS. BAKER: Thank you.

Q (By Mr. Reed) Are you a member of any professional organizations?

A American -- Missouri section of the American Water Works Association.

Q Is that a nation-wide organization?

A Yeah. Missouri Water Wastewater conference, Missouri Rural Water Association. Associate Member, I think, in several other states, Kansas, Ohio and a few other state rural water associations. I don't remember which ones or how many.

Q Okay. The -- the standards that apply to water tanks and water distribution systems, are you generally familiar with those in the State of Missouri?

A Reasonably familiar, I think.

Q Are they -- in terms of the -- the standards and where they come from, can you tell us who promulgates those kind of rules or standards?

A American Water Works Association has a rather thick book of standards that pertain to the water industry, parts, pieces, tanks, pipe, a lot of things.

Q Okay.

A The standard directly pertains to water storage tanks on new construction as D-100. And D-100 is revised like all the other AW -- WA standards.

They revise them every so often. It was last revised in '05. Prior to that was '96. Prior to that was '83. And I have copies of all of those -- those three standards. And I read it and reasonably offer -- I was looking in it for information for a guy just two nights ago. Aside from AWWA, you have ten state standards. Ten state standards covers Missouri, Iowa, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, New York, and Ontario, I believe.

Q Okay.

A And then have you Missouri DNR design guide.

Q Okay.

A Which is very close to, but not quite the same as ten state standards. All of these are pretty similar, and they're basically all kind of pushing or promoting the same thing. And that's quality in storage facilities.

Q Can you describe for us how a -- a water tank needs to function? Is there a general way that a water tank needs to function in order to provide safe drinking water?

A They have to be clean. You can't get clean water out of a dirty tank. That's the way I started the training program.

So, periodically, the tanks need to be drained, cleansed, and evaluated. There used to be no time

schedule that anybody wanted this done. But anymore, it's about once every five years. And that's pretty much a standard anymore, not just in Missouri, but over a big section of the country.

A few states want it off of there. But five years is a number that's generally commonly used.

Q In Missouri, too?

A Yes. So you drain them, clean them, inspect them. And then the inspection has to look at structure, sanitation, safety, coating conditions. Again, you can't really get good, clean, drinking water out of a tank that has coatings that are full of blisters, failed paint.

Once the interior coating blisters, you now have water behind the blister, which is trapped water, which even if your system is chlorinated, that -- that chlorination does not necessarily get to the trapped water behind the blister.

So the condition of the coating is directly tied to tank sanitation. And -- and all these things have to be looked at in an inspection. The fit of the roof hatch. How well does the roof hatch really fit? The standards say it has to have at least a 4-inch frame raise, 2-inch down lip, hinge lockable.

But the standard doesn't say how close the cover has to fit onto the frame. And if it does not fit nice

and tight and flat onto the frame, you really can't have a sanitary tank.

Maybe you can add a gasket to accomplish what needs to be done. And maybe it needs to be replaced. And I'll back up to Gideon, Missouri. There was at least five -- and it might have been seven, they're not quite 100 percent in agreement, as to how many people died from drinking the water that came out of Gideon and what caused it, the fit of the roof hatch.

Not a -- not a screen that was missing. Not that the birds got into the tank. The birds did not bodily get into the tank. But the wind blowing across the roof blew all that dry bird crap underneath the roof hatch that didn't fit good.

There's the salmonella bacteria in the water, and there's five, six, seven people in the graveyard. It has to fit. The vents have to fit. Missouri has a wording, Everett Baker with the DNR, and I actually worked with Everett a little on this, put together a real good information informational whatever they call them brochure of one time on tank inspection, what should it cover, what has to be looked at.

And in -- in that, it talks about the height of the vent, getting it up above the roof, away from this wind blowing dry bird crap that's up on top of every water

tank. Unless it just rained real hard, it's there.

Q We need -- we need -- I guess when you inspect a tank, you've got to go inside. You've got to drain it, get inside it.

A There are companies that do dive inspections. And there are some other methods of removing sediment without draining the tank.

Q Okay.

A But by in large, they should drain the tank, clean it and inspect it.

Q Is there a difference in -- in, I guess, the standards that apply to a stand pipe, which, as I understand it, is -- you know, a long, tall pipe that looks like a big cigarette, for instance, as opposed to one of the tanks that's like a big ball?

A The difference in inspection? The way you approach it, there's -- yeah. There's some differences merely due to the structural differences in the tank.

Q Okay.

A But -- but as far as the things that really need to be looked at and evaluated, it's pretty much all the same.

Q Do you -- do you make a determination about what kind of pressure is -- is being produced by the tank in the distribution system when you do an inspection?

A That is not something that I would normally, I think, put into an inspection report unless I saw, as part of an inspection, that there was something really wrong here, you know, that the way this is set up, it can't work right.

And if I go out to look at your tank or your tank and I'm -- I'm not there just to take the dirt out of it, I'm there to evaluate this thing, what's right, what's wrong, not just what's bad, but what's good. And -- and if I looked at your tank and, in looking at it, part of that's measurement, How tall is it? Okay. Well, it's X feet tall.

And I know how many pounds of pressure that's going to generate at the bottom. And if I really thought that was not going to meet your needs, I'd almost have to tell you that.

Q Whenever you -- I'm sorry. Go ahead.

A Part -- part an inspection, though, is to evaluate how tall is this tank.

Q Okay.

A Low -- low water level, high water level, which is overflow level. And -- And when you've identified that, you have -- you have told somebody, anybody that's knowledgeable as to what the pressure is down there.

Q Okay. I understand.

A Whether you say, Here's your pounds of pressure or not.

Q When you do an evaluation and inspection of a tank, do you -- do you look at the chlorination system in the tank to, I guess, determine whether it's effective or not?

A I don't. I make a note that it simply is or is not chlorinated.

Q Okay.

A It's not my job to decide if that chlorination system is really effective.

Q All right.

A Again, if I saw something that I believed was really long, I would point that out.

Q Have -- have you or your companies done any work at the Suburban Water & Sewer Company in Columbia, Missouri?

A That's Bongor Estates.

Q Bongor Estates, correct?

A Yes, I have.

Q Tell us when.

A The first -- I've done work there twice.

Q All right.

A The first time that I did work there was in the early '90s.

Q What did you do?
A I painted that water tank.
Q Just painted it?
A Painted it. I put a different screen on the overflow because what was the -- not the overflow. The vent. What was there when I painted that tank in the early '90s, '91, '92, somewhere right in there, I felt at that time that the screen on the vent system was not adequate, and I put a new screen on it. And I painted the tank.
Q That's it?
A That's all I did at that time.
Q Okay. And the -- you've been there -- you've done work there twice. What did you do the second time?
A Then I was called back in there in, it looks like, August the 29th of '07 to do a clean and inspect on the tank.
Q I've got a group of pictures here I want to show you. They're marked as Deposition Exhibits 1 through 12. Realizing that these are not your pictures, I think we talked about before the deposition started, tell me whether or not you recognize this, the stand pipe in these pictures, 1 through 12.
A It looks like the tank at Bongor Estates to me.
Q It appears to be the one that you cleaned in

August of 2007?

A Yes.

Q Did you take your own pictures?

A Yes.

Q Do you recall how many?

A Well, I should have it right here. 22.

Q Twenty-two pictures. Did you take them with a digital camera?

A No.

Q No? All right.

A An old 35-millimeter.

Q Okay. Do you have a copy of those pictures with you?

A I have a copy of the pictures.

Q Okay.

A Yes.

MR. REED: All right. Can we go off the record for just a second? Is that all right, Erick?

MR. CREACH: That's fine.

MR. REED: Okay. Let's take that just a minute.

(Discussion off the record.)

(Exhibit No. 14 was marked for identification.)

Q (By Mr. Reed) Okay. Mr. Zelch, while we were off the record there a second, we marked as Deposition Exhibit No. 14 a group of pictures that you had indicated

you had taken; is that correct?

A Yes.

Q Twenty-two pictures, I believe. How many pages of pictures are there when you count your pages of pictures, if you know what I mean.

A I believe eight.

Q Eight pages. Can I -- let's pass those around while we talk a little bit. Mr. Zelch, you indicated you cleaned and inspected the stand pipe at Bongor Estates in Columbia, Missouri. Could you describe for us what you -- what you mean by -- you know, sort of as a whole, what you did in cleaning and inspecting that stand pipe?

A The tank was shut off, isolated from the system, drained, all water removed. The ground level excess pressure manway unbolted, removed.

You get into -- into the tank. Sediment -- all sediment was pumped out, removed from the bottom. I climbed the tank, measured it in height, diameter. Looked at the ladder system, roof hatch, vent, overflow. Then got into a rope suspended vulsions chair, traveled down through the inside of the tank, through the bottom, come out the bottom.

Q Okay.

A Evaluate the tank inside and out from the ground up.

Q I guess you -- can you -- can you go inside the -- can you go inside the bottom of the tank, or do you have to -- do you have to go up to the top and come down inside?

A Unbolt the ground level access manway and climb in through it.

Q Okay.

A Tanks are all supposed to have at least one ground level access. I -- I say that because I was doing an inspection on one a couple weeks ago, and the son of a gun did not have --

Q Okay.

A -- which is absolutely against all the regulations. But -- and OSHA wants you to have two. And anymore, AWWA, D-100 standards says that one of them should be at least 30-inch diameter. So it was only a few years ago when we was trying hard to get them to go up to a 24-inch diameter. Now they're talking 30.

But you've got to bid. We get in at the ground and at the top.

Q Okay. You indicated that this tank would have been isolated for the -- from the rest of the system when you were doing your work, correct?

A (Witness nods head.)

Q Do you know how water was -- at that point in

time, how water was distributed to the ongoing community there?

A I really don't. I don't know if the system was still pressurized or not. There was a crew there doing some water line repairs the very same day. And that part of it, I was not directly involved in.

Q I can see that these pictures that you've -- we have a copy of, Exhibit No. 14, are numbered, one, two, three on first page, four, five, six on the second page and so on. I see there are pictures on the inside of the stand pipe, too, correct?

A Inside and out. Yes.

Q Did you prepare a written report of the cleaning and inspection of the stand pipe?

A Yes.

Q Do you have a copy of that with you today?

A I do.

Q Can we mark that as Deposition Exhibit No. 15, please?

A There are two parts to the written report. One is the actual written inspection report. And the other is a descriptive description of each picture that you're looking at. So I called it the descriptive picture list.

Q Right. Okay.

A And it's -- it is all part of your report. You

can't really separate one piece from another. So --

Q Okay.

A Take part of it away, you don't have the whole thing.

Q Right. Well, let's mark -- let's mark as number -- let's mark as No. 15 that part of the report that describes each of the pictures.

A That is this.

Q And then let's mark as No. 16 the report itself.

A That is this.

Q All right. And let's take just a moment and -- and get those marked.

(Exhibit Nos. 15 and 16 were marked for identification.)

Q (By Mr. Reed) Is the copy of the report that you have with you, is that a copy that we can take with us? Or can we -- can we make a copy today?

A I think you could have this one. Or we'll make another.

Q All right. Either way is fine. Sure.

A I -- I still have -- in my file, I have the pictures. I don't have the pictures. I have the negatives, and I have the copies of the pictures.

Q Okay.

A You have the original pictures.

Q All right.

A And I also have the descriptive picture list and the inspection report. So you could have this. And I've still got mine.

Q When you do the cleaning and inspection, Mr. Zelch, do you -- do you first inspect and then clean?

A No. You're -- you're doing both at the same time. But in general, you can't really inspect until after you've cleaned because you can't really see the coatings or the condition of the coatings and the steel until you get it clean, you know.

You can't look at something through a film or a deep accumulation of dirt. I don't have x-ray vision, you know.

Q Okay. Well, let's walk through the -- the inspection and cleaning a little bit so we can get some more details that may be in the report. We just haven't had a chance to look at it yet.

When you went into the stand pipe, you're going to clean and inspect. What's the first thing you do in there, I guess, to begin the process?

A On both the -- well, you get the tank empty on both the bottom -- that's the first thing. I want to see what, if anything, is floating on the water is the first thing I want to look at.

Q And see if anything's floating on the water?
A On the water.
Q Okay. And did you see anything?
A Not that I remember in this one.
Q Okay.
A No -- no big shock or anything. I'm looking for floating bogs and feathers and things like this is what I -- that I want to see first.
Q So if you don't see anything floating on top like -- like you described, that might suggest to you that the -- I guess the lid or the top is doing its job?
A Reasonably tight. Yes.
Q Okay.
A That -- that tells me we're reasonably tight up at top.
Q And in your inspection, did you make a determination with some measurements about whether the top was, in fact, adequate?
A I would have looked at overflow and fitted a roof hatch and the vent. And the vent still had the screen on it that I put on in the early '90s. It was still there. Had not changed. It was there.

And I don't remember exactly what it -- what I say in here about the fit of the roof hatch. But I can pretty quick look at that. Picture No. 4 says the

overflow is stubbed out at the top and it is screened. Overflows are required. And this is by Missouri State DNR design guide.

Ten state standards pretty much requires it, and AWWA D-100 also strongly suggests that overflows come to grade. And by coming to grade, that's within 1 or 2 feet above ground level. And this one don't. It's stubbed out up top. But it does have a screen on it.

Q Uh-huh.

A And it's a No. 4. Now, it is -- it's not saying that it is No 4. It's saying that -- that they should have a No. 4. I can't see by looking at the picture what size the screen is on this one. But it does not come to grade like it's supposed to.

Q Doesn't come to grade, meaning what?

A The overflow should extend down to 1 to 2 feet above ground level.

Q And how does that affect the -- the adequacy, I guess, of the water system?

A Because a stubbed out overflow up here means you cannot readily, quickly and easily replace a screen if the screen goes bad. It means you have to climb the tank to put a new screen on. And that's one of the No. 1 reasons why they should come to the ground because most of the operators don't climb and shouldn't climb. So simple

maintenance, like the replacement of a bad screen, can't be done by most of the operators.

Q Okay.

A They've got to call somebody in to put a new screen on that's wrong. It shouldn't be like that. Bring them to grade. That's one. If the tank runs over with the high stubbed out overflow, in winter, in cold weather, you've got ice froze up over whatever way the wind is blowing. You've got all kinds of damage to various properties, to electric, wires. So there's another good reason to bring it to grade.

Aside from that, with a stubbed out overflow up here and the screens on it and you run the tank over, you can't see what's inside of the screen. So you don't know what just ran off what was floating on your water.

So if you bring it to grade, now you not only have ready access to it, but if you run this tank over any time, summertime, and it runs over for a little bit, you can go look at the screen. What's inside the screen? Nothing. Wonderful. That means there wasn't any floating feathers or bugs or other stuff. So you just learned something here.

You're in pretty decent shape. And by running it over and looking at what's being caught in the screen, it's worth a lot. They should come to grade. This one

does not. It's just absolutely legitimate to require them to come to grade. And I've believed that for a lot of years.

Q I bet -- I bet if I ran through your report, if I could borrow these, I guess as I ask you the questions, it probably would refresh your recollection enough that we could -- we could get -- get through this a little easier. Because sometimes I'm not sure what to ask.

Let -- let's first go through Exhibit 14, the pictures as they're numbered, and tell us what each one is?

A Okay. No. 1, you're looking at the tank from some distance sitting behind -- when I say the tank, it's a stand pipe. Sitting behind it is the well house. No. 2 it is a picture taken from the well house.

You're looking at the tank, and it's intended to show the location of the valves in the ground and where another valve needs to be installed because there's a valve missing here.

Q Okay.

A And after looking at this picture, you could not isolate the tank and keep the system operating from this well.

Back to a question you asked, I didn't remember then, but from looking at it, I do. Because the way this

one is set up, the well pumps direct out toward the main, and you have a T with a valve and another T with a valve. But no valve on the line going direct to the tank, and that's marked with an X on Picture No. 2 --

Q Okay.

A -- where a valve needs to be installed in order to isolate the tank from the system.

Q All right.

A And still be able to supply water to the system from the well. Picture No. 3 is a close-up of the ground level access bolt on manway. It's marked 16 and a half inch ID, which is too small. You can't get in and out of it.

Not -- I got in and out of it, but it is too small. Anymore, 24-inch is pretty much a minimum, accepted. No. 4 is the stubbed out overflow up at the top. No. 5 is the roof access hatch as I found it. And shown on No. 5 is also the height of the tank at 8 feet, 8 inches.

No. 6 is the overflow. It's a little inverted J or we call them a goose neck overflow that is 3-inch diameter pipe that's marked on -- on the picture. And you can see by the -- on this picture that there is a fine mesh screen wrapped around the end of the -- of the -- what did I call it? The overflow? It's the vent.

No. 6 is the vent. I might have said that wrong. But the screen is in place. The overflow -- again, the vent stack is entirely too short. The air intake point is only a few inches, some like three or four, and possibly less than that since that's 3-inch pipe. The distance to the roof is about 3 inches. That does not meet sanitary requirements either.

The overflow needs at least a 12-inch clearance between the lowest point of air intake and the closest reasonably flat surface that the birds can sit on and crap on.

Q Uh-huh.

A No. 7, you're inside the tank and you're looking at the overflow intake, which is an open-ended pipe coming in through the wall. And that is marked at 79 feet, 10 inches, I believe. So there's your high water level.

Eight -- you're some few feet down in the tank and you're looking straight up at the roof. And to the upper right part, you can see a small, round circle, which is the vent stacks sitting into the roof, right here, and a little bit of red, little, little bit of discolored red showing on both 7 and 8, the red that is paint.

And below that area right there at the top of the tank, there is no paint. You've got this little bit in the upper few feet on the shelf and a little bit on the

roof. And from there down, there is no rust, no paint left.

Nine, Picture 9, you're looking down in the tank. You can actually see some water reflection down at the bottom. And you are looking at the these bands. These are reinforcement bands that are put into these tanks to help keep them round. And this upper band was basically cleaned, very little sediment on top of it.

As I went down further -- and you can see down here there's another band. I don't remember how many. But as I got down further, I then had to clean the bands off because they did have a significant accumulation of sediment on the top of them. I can't tell by looking at my pictures what number is which here.

But on this one, you're looking up again. You're looking out through the open roof access hatch.

Q That's the square deal where you can see the sky?

A Square opening. Yeah. Ropes here. That's what I'm on is those ropes.

Q Okay.

A No. 11, we're still in the upper half of the tank, but you're -- you're picking up a lot of corrosion pits. They're pointed out by arrows on the picture. This picture here, I can't tell you exactly what it is. It's

too dark in this copy. If I looked at the original, I might be able to.

No. 13, I'm merely holding my little pocket knife in the shape of a seven because that's what's it's indicating is that I am seven sections down in the tank. I had a magic marker with me, but you couldn't write nothing on the wall that you could see because there was no paint to write on. So here I'm seven sections down.

And serious pitting, solid corrosion. 14 is similar. You're looking at the bottom side of one of these reinforcing bands right there. And in Picture No. 15, that's a complete coat of barnacles, solid corrosion, rust.

16 -- 16, you can see a -- a patch where a watch has been welded onto the outside of the tank. That's visible. That starts showing up about 30 feet, maybe a little more where the -- the patches are welded on the outside storage show and help -- and from there down, it doesn't change.

17, solid rust. 18, solid rust, barnacles, pits. 19, I believe you're looking back up towards the top. 20, gone out from the bottom, went back up, took my ropes out, closed the roof hatch and put a small bolt in it to hold it closed, which it didn't have.

Back up to Picture No. 5 that shows the same

roof hatch as I found it. No ball, no lock, no wire. Nothing actually holding it closed. Again, back to state DNR, design guide, they pretty much require them to be locked.

But from a security standpoint, a bolt that is double-nutted with the nuts locked together is actually more secure than a lock.

This bolt, I just happened to have it with me in a tool box. And it's not long enough to double nut. But at least it's bolted closed.

Q That -- is that all of them?

A That had to be 20 -- 21, the tank is bolted up. I'm sure we're refilling. 21 and 22 pretty much show you the bottom of the tank and the various patch plates that have been put on it.

Q Is the foundation in -- the concrete foundation in decent shape?

A I'm not a concrete expert.

Q Okay.

A In my opinion, I think it is.

Q Okay. Are the -- are -- the bolts outside that hold the tank, did you check those, if they're loose or --

A Some of them are loose.

Q I didn't see anything visibly wrong with the foundation.

A Okay. Anchor bolts are loose. They have some corrosion. I didn't see anything there that I was concerned about.

Q The sed -- you indicated that you had moved some sediment off of these reinforcement rings inside?

A Yes.

Q Did you also take sediment out of the bottom of that tank?

A The bottom was pumped out clean, yeah. I don't have a picture of that in here, but that's -- but it was absolutely pumped out clean.

Q Okay. Well, describe the sediment that was in the bottom that you pumped out.

A It is superfine particles of dirt and limestone.

Q Okay.

A Is what's in -- this is a deep well system. Okay? So -- so the wells -- any well, the best of wells, there is something in the water. And when you pump it into storage, this becomes your first sediment base.

So anything that's suspended in the water is now going to have the chance to set here and gradually settle out. So you -- you get a -- accumulation of -- of superfine limestone and some little bit of dirt, discoloration in any tank. Every tank's got some in it.

Q You indicated that once you got inside the tank,

there's no coating, at least --

A There's no -- no visible paint left other than a little bit underneath the roof's steel and the very top section of the shell.

Q So where the water sits in the tank, should there be coating or paint on the walls of the tank?

A Yes.

Q What kind of coating or paint should there be there?

A Anymore, an epoxy. And that's National Sanitation Foundation. They approve all coating that's going to be used or -- or are legitimate to be used in a -- in a water storage facility, anything that's in contact with the drinking water.

NSF put their sample of approval on what's -- what's permissible to use. Should be a coating. Anymore, it should be an epoxy. Back when this tank was built, it was probably vinyl. Vinyls were good systems. They worked just fine, too.

But the Air Pollution people have done away with that because there's too much solvent escapes out of the paint. Vinyls are history. They're gone. But this red coating that is in this tank, what little areas up in the roof, would have been one of the colors that would have been used in the vinyl systems from back in the '60s and

'70s and up into the late '80s, even.

Q Is there any indication to you after inspecting this tank that -- that this tank has been recoated inside since it was built?

A I don't think so.

Q What does it mean when the -- I guess the -- when the water's in the tank, it's in contact with the rust on the wall of the tank, correct?

A Yeah. It's -- it's got to be in contact with whatever is inside of the tank.

Q So what -- what does that mean in terms of -- in your opinion, for the drinking water system there at Bongor? When the water is in contact with the rust on the side of that tank, how does it affect the water service?

A It -- it may or may not have a -- an effect on water quality. But that -- that tank needed a paint job in the worst way.

Q Well, is the tank itself -- I see in one of your descriptions of the pictures that you indicated that where there were blisters and pits you felt that if you scratched at it, you might just poke right through the side of the tank?

A I did not dig into the pits with my pocket knife --

Q Okay.

A -- which I normally do.

Q Okay.

A And I normally -- and I had it with me, a pit gauge, pit depth gauge, simple gauge made so you scratch the corrosion out of a pit. And you set this instrument on and you check the depth of the pit. Normally, I do that. On this tank, I already knew the outside was full of patches. And I didn't want to have to put another one on that day just to be able to put water back in it. So I did not dig in the pits.

It was 100 percent obvious there that the tank had already rusted through in 30 or more places. I counted them. I don't remember. I think I wrote it down. You could walk around the bottom, see how many patches are on the tank.

All right? So if I'd have went inside and really started scratching out pits to check them with my pit depth gauge, I'd have dug holes through it in a few more places. And I didn't want to have to weld the son of a guns up that day.

Q Does the -- does the rust -- the corrosion inside that tank affect the structural integrity of the stand pipe?

A Sure. But this type of rusting and pitting is a little different than the kind that really affects

structural integrity. This is basically all round pits. And they'll cause leaks. And that's exactly what this is doing. It's full of leaks.

Q Okay.

A The other type of pitting is what they call teardrop corrosion pits where it will run a long line right down the tank. And why one tank does this kind and another tank does a different kind, I can't tell you at all, but I know that some have had long teardrop type groove thing. That is real quick to become a structural issue, that kind.

This? No. It will get full of leaks and leaks and more leaks. But, structurally, it is normally not a serious thing.

Q Okay. Now, you indicated it didn't appear to you that the inside of the tank had been repainted or recoated. Can you -- when you do an inspection like this, can you determine whether there is -- there has been regular maintenance inside that tank or not?

A I knew the tank had been cleaned. Somebody had taken sediment off the bottom. And then I knew that because the sediment on these reinforcing bands that are inside the tank, once I was about like halfway down, there was more sediment on the bands than there are on the bottom. So it's pretty easy to see that somebody's taken

it off the bottom previously. But they had no access to these bands. So it's still there.

Q How would you take the sediment out of the bottom but not around the bands?

A Well, because they could get in the bottom --

Q Okay.

A -- and clean the bottom. But they did not come in the top and travel down through it as I did. And that -- and either bringing a long ladder in from the bottom, which you cannot do in a little narrow tank, a small opening, they had no way of getting to those bands on the side.

So the sediment was still there on the bands. And I was -- it was easy to see that there was more sediment on these reinforcing bands than there was on the bottom of the tank. So I knew somebody had done that.

Q Based on your experience and training, what's your opinion about whether this tank should still be in service?

A The tank needs to be replaced or done away with.

Q Can it be repaired?

A I wouldn't spend money repairing it. To me, that's a waste of money.

Q Because why?

A It is -- it's beyond the point of repair.

There's -- there's no, you know, every one of -- you know, there's -- there's a time to fix things, and then there's a time to just start over. This tank is not worth spending the money on.

Q You indicate in your report that -- or in the description of pictures, Exhibit No. 15, that this tank should be replaced, it's not worth spending the money on it. And then you mentioned that you could start over with a different tank, like a decent repairable 6-foot tank. What is that?

A Well, that's what this is, a six footer.

Q Okay.

A Six by 80 feet and whatever couple inches. There's other ones out there. There's used stand pipes. These little 6-inch stand pipes. There's got to be some standing out here in the country that are empty today. Some little town had it. They built the bigger tank. The town grew.

I know -- I don't know where, but I know if there is -- there's a -- a decent quality used stand pipe sitting out here somewhere that could be bought and moved in and sat on this same pad. The pad would be reusable.

Q Okay.

A Anchor bolts. Anchor bolts would be reusable.

Q Okay?

A Chairs on different tanks. That's all. That's anchor chairs.

Q Can you give us any indication about what it -- what kind of costs Suburban Water System might be looking at to put in a -- I guess a -- to put in a used one, a rehabilitated used tank?

A A tank that little, probably -- how many gallons -- did I have in there how many gallons this holds? You've got my report.

Q Uh-huh. I should probably give it to you. You could probably find it. 210 -- no. 210 per foot. Tank capacity is 16,850 gallons.

A Okay. It would probably cost in the neighborhood of four bucks or maybe better, probably four and a half maybe per gallon to put up a good tank.

Q Four, four and a half per gallon. If we took four, multiplied it by 16, 64,000.

A That would probably be a bargain. But it might not be impossible.

Q 64,000 plus, you might say?

A Yeah.

Q Yeah. Okay.

A But that really brings you back to pressure.

Q Yes.

A This tank's 80 feet tall, had a high water level

of seventy-nine ten, I believe. Yeah. We'll call it 80. 80 divided by 2.31. And that's the height per feet you need to get one pound of pressure. It only gives you 34.6 pounds right at the base of the tower. That's all you've got.

Q Yes.

A It's pretty damn minimal.

Q What does DNR require as a minimum?

A I don't know. I know if you fall below 20, you should be on an automatic borrower. So 20 certainly is an absolute minimum. And 20 is not functional for normal use.

This right here, 35, is kind of a -- kind of a bottom end of what's functional in water pressure.

Q Does the --

A The washing machines stuff don't work. You follow the load, it just ain't working right.

Q Does the -- the pressure you get at the bottom of the tank, like the 35, does that -- if -- does that -- does the pressure that goes out into the rest of the distribution system depend upon how big that distribution system is? Or -- or do you get that 35 throughout the system?

A The 35 would be what you have right at the base of the tank at that level at no flow. Okay? So if you --

if you went downhill from there, your pressure would increase. If you went uphill, pressure would be less.

Looking at the picture, there is a house, a building of some kind that is basically on the same level, and this is Picture No. 2. The bottom of that building is basically the same level as the bottom of the tank. So they would have a maximum absolute maximum when the tank is full to the top of 35 pounds at ground level in that building.

All you had to do was go up into the upper floor, and you've lost pressure. And then you've got flowing resistance in the piping. So the further part of your question was if you're off at a distance -- the further you get away from the tank and the further the water has to move through a pipe to get to where you are, the less available pressure you have.

Because if you go test pressure at 2:00 in the morning when nobody's using it, you'll get a different pressure reading than you will at 6:00 in the morning when everybody's using it because of friction loss of the water going through the pipe.

Q Do you know how old this tank is?

A No. I might have an estimate in there, something that somebody told me to --

Q Right.

A -- when they thought it was built. But I don't know.

Q What's the useful life on a tank like this, usually, if there's regular maintenance?

A Unlimited.

Q Unlimited?

A If you take care of them -- they're made out of steel. You take care of them, they will -- there are tanks out here a hundred years old right now.

Q As long as you get in there and clean them and maintain them and keep the coating on the inside, I guess?

A Yes. Yes. Unlimited life span if you'll just take care of them.

Q So if this tank -- let's just -- hypothetically, I'm not sure how old it is, but let's say it's 30 years old. If regularly maintained, could this tank have lasted longer than 30 years?

A Yes.

Q How often would you have to get inside that tank and make those repairs and cleaning to -- to keep the life going, to extend it?

A When the tank was built -- I don't know when it was built, and I don't know what coating was put in it. But I think it was a vinyl. Vinyl coatings were good. They were not very tolerant to -- to damage by ice.

That was one of the drawbacks of them because it's a soft coating. And if you had a decent amount of ice accumulation in the tank and then the tank is filling and withdraw and fill, you scrape -- scrape the vinyl off. The ice will tear the vinyl off.

The epoxies that are available now are much more resistant to abrasion. There are tanks -- Van Buren, Missouri, has a tank that was painted about 25 years ago with an epoxy. And it's not needed to be repainted for 25 years.

Now, you're not going to get 25 years out of most tanks interior coating systems. But 15 is completely reasonable to anticipate to do it, do it right, get 15 years, 20 years, yeah.

Q Why do you -- I guess this tank operating with just rust. And why do you have to have the coating? Why can't you just --

A To -- to prevent the rusting.

Q Which will affect the structural integrity and cause leaking, I guess, right?

A Cause leaking and it affects the water quality and -- yeah.

Q Okay.

A You -- the coating -- the coating prevents the corrosion of the steel. And if the steel is not

corroding, it will last unlimited life span. If it is corroding and rusting away, 20, 25 years, it's ate up.

Q Well, if you -- let's say you build a tank. It's got vinyl coating. It lasts, I don't know, five, ten years, but then you need to get in there and you need to recoat it.

When you -- when you -- when you do that, does it depend on the kind of coating you put on, how soon after that you have to put -- you have to get in there and recoat it again?

A It makes some difference as to -- to the kind of coating you used. Yeah.

Q Can you get in there and put a coating -- this is going to last a couple of years, I guess?

A I don't know why anybody would. The cost of labor to put a coating in a tank -- well, you put in the best one or the cheapest one, the labor costs hardly changed. And that's a big part of the costs.

So why would anybody want to spend the money to put a cheap coating in a tank so you can come back and spend that money again in just a few years? You want to -- you want to do it the best you can because that's the most economical way to maintain this thing.

Q Can -- Mr. Zelch, can you tell us how you got involved in this case, who contacted you?

A I think Bill Marshall called me.

Q Okay. And were you paid for your time cleaning and inspecting and preparing your report?

A Yes.

Q Who paid you?

A I'm not sure. I think it come from your company. But I -- I'm not even sure of that because I don't know what company you work with.

Q Okay.

A Was it -- it was -- I think it was a legal firm of some kind.

Q Oh, you think -- okay.

A I think that's -- that's who we were actually contracted with to do the work, if I remember right.

Q All right.

A Tina keeps track of that. I don't know.

Q Okay. In your -- in your opinion, can you give us a period of time -- can you tell us how much longer the stand pipe can stay in service without any repair or replacement?

A It will spring some more leaks probably this winter. Might have sprung another one since I was there. I don't know. This -- I -- I don't think the tank will structurally fail. I don't think it will fall down. I don't think it will split open.

I'm not saying it won't tomorrow, but I don't think it will. It -- it -- it should be replaced, but we've talked on that earlier. It is also too short. So merely replacing it with another tank of the same height ain't quite accomplishing things because the pressure is minimal right now, 35 pound maximum.

And there is -- there are some buildings in this development that sit at an elevation that is higher than the base of the tank. A little bit, not a lot. But there -- you're looking at 30 pounds, maybe. That's not enough pressure, not really. And that's only when the tank is full.

And then you've got to look at how do you regulate the water level in the tank. And the pressure switch that was on this system was a square D-2040 simple spring load pressure switch. They work fine on a hydropneumatic tank. That's the wrong switch for this system.

Q Uh-huh.

A The -- the narrowest -- the very narrowest that you can normally get out of these -- that type of a switch -- I have even a few that would get down to 10 pounds between on and off. Most, you're in the 12 to 15 pound range, even when you do your damndest to get them to a narrow margin.

They're normally always set at 20-pound range. All right. So with that 2040 switch in place, adjusted to the narrowest pressure band possible, I'll say that's about 15 pounds, look what happens to this system pressure?

If -- if the best you can get is 35 pounds and you're going to have a 15-pound pressure drop before it turns on, you're down to 20-pound boil water order every cycle.

Now, I put that in my note. That's the wrong switch. Maybe they put a different one on. I don't know. But that one had been there for I don't know how long either. And -- too long. I'll guarantee you that.

They could get a switch. They're available that will operate in a narrow band, like a 3-pound or something which would be helpful. But it would really be nice -- if they're going to do anything with this tank, put up something that's a little bit taller.

Q Okay.

A Get to that 35 pound that's kind of a turn-on point, you know, let's operate in the 35, 38, 40-pound range. It would be a big improvement.

MR. REED: Mr. Zelch, I don't have any more questions. I think Ms. Baker may have a few. Should we take a break or --

MS. BAKER: Let's go ahead and take a break That's fine.

MR. REED: Can we go ahead and take a few minutes?

MR. ZELCH: That's fine.

MR. REED: Thank you.

(Break in proceedings.)

CROSS-EXAMINATION

BY MS. BAKER:

Q I'm going to give you back the Exhibits 15 and 16 because you may want -- need to refer to those as I go through the questions.

A Okay.

Q The first question that I have is you stated that -- that you or your company had painted the tank there at Bongor Estates in the early 1990s. Is that correct?

A (Witness nods head.)

Q Okay.

A Painted the outside.

Q Okay. Did you do any inspection of the inside of the tank at that time?

A No.

Q Were any of the hatches either at the bottom or the top opened at that time?

A You know, that's a long time ago.

Q Uh-huh.

A I might have opened the top hatch and looked in, closed it up again.

Q Okay. Were there any reports that were given to the owners either before or after the painting was done by you or by your company?

A I told the owner then that painting the outside is chemical. It's visual. That's the obvious. That's what anybody can see. You need to clean it, see what it needs inside. I told somebody that then.

Whether it was the owner or -- I don't remember who, but I told somebody that then.

Q Okay. So on -- in your determination of -- of the need for painting, did they ask your advice ahead of time whether it needed to be painted, or were you hired to just come and paint?

A I was hired to come and paint the outside.

Q All right. Did you do any evaluation or write any reports of the type of paint that was necessary, given the -- the --

A Necessary for the outside?

Q Yes.

A What was necessary -- I don't know that I put anything in writing. But what was necessary for the

outside was basically what was on the outside at that time. And that was an oil base alka-aluminum paint.

That -- when you have that on a tank, put it back on the tank. Don't think you're going to take aluminum and put enamel on top of it because it ain't going to work. I don't care what the paint salesman tells you. It will peal off. It's just a matter of time.

So I put back on the tank basically what was on the tank. And you can look at the upper part of the tank today. It still looks pretty good, you know. Nothing wrong with it.

Q Did you evaluate any repairs that would be necessary before painting the outside of the tank?

A I was not hired to evaluate the tank at that time. They wanted a coat of paint. And I know I told them they should look inside, see what the inside needs. Nobody wanted to hear that.

Q So there was no -- no determination of whether any pitting needed to be repaired, any -- any leaks at that time that would need to be emptied?

A There were no -- there were no leaks. There were absolutely no leaks at that time.

Q Okay. Do you know if --

A There was no patches on the outside at that time.

Q All right.

A Now, you cannot evaluate pitting from the outside. You've got to go in.

Q All right. You had stated that in -- in the inspection that you just did this year that there were -- there was more sediment on the upper bands than on the bottom, and that led you to believe that sediment had been removed; isn't that correct?

A Right.

Q How much more sediment are we talking about?

A You take a narrow band and those bands are only like 3 inches or maybe 4 inches wide maximum. You can only file sediment up on there to approximately a 45-degree slope.

And beyond that, it won't stay. There's about five or six rings of bands in this tank. The upper ones had some reasonable sediment. This one had a little more. This one had a little more.

Okay? And by the time I was towards the lower bands, the sediment on the bands could not hold any more. They were full. And yet the sediment on the floor was nowhere near equal to what was on these bands. And I knew beyond a doubt someone had cleaned the bottom.

Q Okay. Do you have any estimation of how long ago that cleaning might have occurred?

A No.

Q All right. In order to clean the bottom sediment, would the hatch at the bottom of the tank have had to have been removed?

A Yes.

Q Would the hatch at the top of the tank have been removed?

A Would not have had to have been, no.

Q All right.

A Had it been, I don't know. But it wouldn't have had to have been.

Q Okay. I'm -- I'm going to take you through the dimensions of the stand pipe itself. All right. You had stated that the -- the stand pipe was how tall, from the pad to the top?

A I think it was listed at 80 feet and 8 inches. Yes.

Q All right. Where was the overflow located from the pad to the -- to the overflow?

A From the pad to the overflow intake is 79 feet, 10 inches.

Q All right. And is the vent located on the roof of the tank?

A The vent on this tank and on most tanks is located at roof center.

Q Okay. The fill line that -- that brings the water from the -- the well into the tank, where is it located from --

A Right --

Q -- from pad to the top?

A It's right in the bottom.

Q So it is at pad level or just above?

A Possibly a few inches above, but yeah.

Q Okay. All right. The piping that takes the water from the tank to the customers, so out of the tank, where it is that piping located from the pad to that piping?

A It is the same pipe.

Q It is the same pipe?

A Yes.

Q Explain.

A That is a single-piped tank. All water moves into the tank and back out of the tank through the very same pipe.

Q With that type of a design of a single in-flow -- excuse me -- in-flow and out-flow pipe, is it possible that the water would not have any detention time within the tank? It could flow in and flow right back out?

A It has no real detention time in the tank in -- it has minimal. I can't say no. It has minimal detention

in the summertime.

Q Okay.

A In the wintertime, you would have longer detention time.

Q Why would that be?

A Because in the winter, the water that you're putting into the tank is warmer than the water that is in the tank. And warmer water is lighter water and, consequently, tries to go up.

So your new water coming in in the winter would continue to rise in the tank until it has reached equal temperature with what it is kind of blending into.

Contrary to the summertime, the water you're putting in the tank is cooler than the water that is already in the tank. So you get almost no blending or mixing.

You merely put in new cold water. The existing water raises up. You put the new cold water in the bottom, and you took the new cold water out of the bottom. And you put new cold water in, and this stays. Thermal stratification.

That's easy to see on this tank. Look at the picture of the tank. All the paint's peeled off of the bottom. 20, 30 feet top, paint's just fine. Caused by sweating. Sweating is caused by this new cold water

coming in, going out.

Q Okay.

A The tank shouldn't have one pipe. A single pipe tank should have a circuit laid system put in them. But that -- that's obvious on this one that that's a single pipe. They'll have to unbolt it to tell you that. That's a single tank pipe. They can tell you that from the paint coming off the lower and the way it is deteriorated at the bottom.

Q So would it be your recommendation that -- that any new tank that was put into place would have either a recirculating system or an out-flow piping that was in a different location?

A Yeah. Any new tank built from scratch, I strongly recommend is double piped. Put the water in relatively high. Take it out relatively low. Absolutely new tanks should be built that way.

To put a new tank or a different tank on this pad, that's not so easily done to actually build the second pipe into it. But there are systems available and one is a positive retention circulation system that could be put into a tank like this with one pipe.

Put the water in high and take it out low. Accomplished the same basic thing on a single pipe tank.

Q And how much would a system like that cost, just

ballpark?

A Oh, I don't install them. But I would think an installed price is probably -- depends what you would have to do in the way of touch-up, painting and stuff. Six, $7,000.

Q All right. We -- we talked a little bit about the -- the pressure issue. You were stating that -- that given the height of the tank or the stand pipe itself, estimated a maximum of about 35 pounds of pressure at -- at the bottom of the tank?

A Yes.

Q Okay. Given that there's a few inches from the bottom of the tank where the -- the fill and -- and the supply line is, that would reduce the pressure at the point where the water comes back out, correct?

A No.

Q Why not?

A Not correct. You could raise the pipe up -- let's say it could be flush with the floor or the pipe could stand up here 3 feet. That did not change the pressure at this level.

The water is inside the pipe. The water is outside the pipe. The pressure didn't change. Now, if you ran the pipe up 20 feet, it still didn't change the pressure. But when you got down to only 20 feet of water

in the tank and you ran out of water, even though you've got 20 feet standing there, but the pressure didn't change.

Q All right. Now, can you explain a little bit more about the statement that when -- when the well kicked on there was a possibility that the available pressure went below the 20 DNR mark? Can you explain a little bit more about that?

A The well kicking on had nothing to do with the pressure. But the switch, that type of a switch, is a simple commonly used spring loaded pressure switch. They are normally set with a 20-pound spread. You can buy 2040s, 3050s, 4060s, almost always set with a 20-pound spread.

They -- some of them were two spring adjustable. Some are only one spring adjustable. That was a double spring adjustable. That really means that you can back off the small right-hand spring so it was not in play and still the narrowest possible band that you're going to get this switch to turn on and turn off in is nearly about 15 pounds.

And with the tank full, full, most you're going to get is 35 pounds. That means by the time the tank emptied or drew down to the point that this switch is going to turn the well on, you're down to about 20 pounds.

And there's nothing you can do about that as long as that type of a switch is being used.

I tried to adjust it to a narrow band. But once I looked at it, I said, Man, that's -- you know, that's the wrong switch for this system. Get as narrow as possible. It wouldn't get very narrow.

I went and bought a new switch that day and put a brand new switch. I thought the old one was sticking a little bit. Put a brand new switch on it, couldn't do any better.

Q And how often does the pressure switch activate turning on the well during a typical day?

A Oh, well, what's their water consumption? How many people are there? How many gallons did they use? Tank holds 210 gallons to the foot. I think that was the number. Makes -- make some assumptions. Somebody tell me how many people are there. Any guess you want. I don't care.

Q Let's go on to maybe an easier way of answering the question.

A Well, I'll get to your question, though, there.

Q That's fine.

A But I can't tell you what it is because if there's 300 people there, okay, 300 people and most of them use on average about 100 gallons per person per day,

300 times 100, they're going to use 30,000 gallons a day. Tank holds 210 gallons per foot. And we're going to change 15 pounds pressure. Okay? 15 times 2.31.

We've got to pull 34 and a half feet of water out of the tank to get it to turn on. That means we had to pull a little over 7,000 gallons out of the tank to get it to turn on. So about four times a day, it's going to turn on. Dry weather when they're using more water, it's going to be five or six. This time of year, maybe three or four.

Q Okay. So that is a -- a fairly often amount of time that the pressure would be at a -- at a level where DNR would consider a boiler?

A I'm not saying that that has ever happened. But I am saying that that possibility exists.

MS. BAKER: Okay. I think that's all the questions I have. Thank you.

CROSS-EXAMINATION

BY MR. CREACH:

Q I just had a couple of clarification types of questions real quick. First of all, you didn't actually check to see if this was a single pipe system or double? That's just in your opinion looking at it that it -- you think it's a single pipe?

A No. It is single.

Q Okay.

A In cleaning out the tank, you're right here in the bottom of the tank, and there's one pipe that comes in. That's it. It's a single pipe.

Q Okay. And then we talked a while ago, it would cost approximately, if we got a good deal, 64,000 to replace the stand pipe with a used stand pipe. Are there any other options available other than stand pipe? I mean, clearly, I mean, there's other water retention and detention systems and delivery systems that are out there. Is there something, in your opinion, that would make -- make sense for this type of system?

A Look at the whole thing in the long range. This man's wanting out of the water business. I'm sure he borders the water district. Somebody told me he's got an interconnect with the water district. So the water district would take him over, but -- but he don't have things up to what they want.

So, eventually, the water district's going to take him over. This is almost -- can't hardly argue with it. That's what everybody kind of wants to happen, I think.

He probably ought to look at whether the State would let him set in hydropneumatic tanks instead of replacing this stand pipe.

Q What would the cost of a similar hydropneumatic system be that would service the people that it needs to serve there?

A The State has some regulations on hydros. They don't want a system of any real size to operate on hydropneumatic. Makes sense. This is small enough, they probably would let him run on hydropneumatic. The min -- the State sets a minimum amount of gallons in theoretical storage that you would have to have in a hydropneumatic system at 35 gallons per person.

Okay. So you figure this out how -- how many people times 35. We need X number of gallons in hydropneumatic. I think he could probably spend less dollars setting in a hydropneumatic system than -- that would meet the regs than in replacing this tank.

And in two years or ten years, wouldn't make any difference, when the water district does finally take it over, if he's got a good used stand pipe, 6 by 80 or 90 standing there, that now is abandoned because they wouldn't want it.

The water district wouldn't want it at all. It's just a headache for them. Now they've got to get rid of it. They're going to have to pay somebody money to come take it down, whereas, if he had a good hydropneumatic system, he would have a tank or two tanks.

And in my mind, it would be two tanks, that even if you couldn't sell them, but you probably could sell them, you could at least get rid of them for a whole lot less money that you can get a stand pipe taken down.

I think it would make sense for this guy to look at and try to get the State to go along with putting in a hydropneumatic system.

Q Okay. And then --

A It could be done for less money. And I think in the end, the end result, everybody would be happier with it. And that would solve the pressure problems because now you could take that same 2040 switch and adjust it to 3050 because 2040 or 3050 is the same switch.

There's no difference. They just tighten the spring down a little bit. And your system now operates still in a reasonably wide range, but it could be narrowed to 15 pounds. And you would never fall down to this super low pressure level.

Q And then just, lastly, as clarification, again, your opinion is the tower is not structurally a problem as far as it's not going to fall down tomorrow, at least, you know --

A I don't think it will fall down tomorrow.

Q Okay.

A And I wouldn't spend a dime trying to fix it.

I'd do something else, you know.

MR. CREACH: That's -- that's all the questions I had.

MR. REED: Mr. Zelch, you can -- like I said earlier, you'll have an opportunity to read it, check for errors and sign it, or you can waive that, trust the court reporter to have taken down everything accurately and you don't have to read it. It's up to you.

MR. ZELCH: Well, I believe she wrote everything down.

MR. REED: So you'll waive signature, I guess?

MR. ZELCH: Yeah. I'm not --

MR. REED: We'll send you a copy.

MR. ZELCH: I'm not worried about it. A copy, that would be good. I'd like that.

MR. REED: All right. Very good. I guess we're done, then.

(Witness excused.)

(Signature waived.)

(The foregoing deposition was concluded at 11:03 a.m. on December 6, 2007.)

REPORTER'S CERTIFICATE

STATE OF MISSOURI)
)ss.
COUNTY OF OSAGE)

I, Monnie S. VanZant, Certified Shorthand Reporter, Registered Professional Reporter, Certified Court Reporter #0538, and Notary Public, within and for the State of Missouri, do hereby certify that on December 6, 2007, pursuant to Notice, the above witness, CLYDE ZELCH, was by me first duly sworn to testify the truth, the whole truth, and nothing but the truth in the case aforesaid; and that the deposition by him was reduced to writing by me in stenotype, and thereafter transcribed by me, and is fully and accurately set forth in the preceding pages; that the signature to said deposition was by agreement of counsel and the witness waived; that said deposition is now herewith returned.

I do further certify that I am not related to, nor attorney for, nor employed by any of the said parties, no otherwise interested in the event of said action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on December 21, 2007.

_____
Monnie S. VanZant, CSR, CCR #0538
Registered Professional Reporter

Siboney 13 July 07 15

7
Standpipe Foundation

EXHIBIT
1
12/6/07 KU

Suburban 13 July 07 3

Standpipe Top From Northwest

EXHIBIT
2
12/16/07

South Face of Standpipe

EXHIBIT
5
12/16/07

Suburban Water Company 13 July 07 1

Street pipe

EXHIBIT
4
12/6/07 NW

Suburban 12-4-07 12

Valves to distribution

EXHIBIT
5
12/6/07 LL

Back of Fourplexes, Cunningham Drive

EXHIBIT
6
12/6/07 JLV

12 July 07

16

Anchor Bolt not tight

EXHIBIT
7
12/6/07

Standpipe showing patches. Northeast face

EXHIBIT
8

Stand pipe Top from Southeast

EXHIBIT

9

EXHIBIT
10
12/6/07

EXHIBIT

EXHIBIT

12

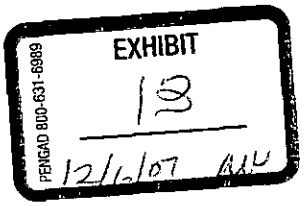
TOMCAT CONSULTANTS
P.O. Box 317
Rosebud, Missouri
63091

Phone 573-764-6255 **Fax 573-764-6255** **Mobile 314-630-1630**

Clyde R. Zelch
Resume'

Experience and Qualifications for Inspection of Water Storage Facilities

1. New Construction or Pre-Bid Evaluations:
   - A. Knowledge of AWWA, NSF, AWS and SSPC Standards.
   - B. More than forty years experience in:
     1. Metal fabrication
     2. Steel plate welding
     3. Pressure vessels
     4. Pipeline maintenance welding
     5. Weld inspection using dye penetrants
     6. Ultra sound and visual magnification
     7. Surface preparation and coatings application using compressed air grit blasting systems both wet and dry
     8. High pressure water blasting and pressure washing
     9. Standard and high performance coatings applied by brush, roller, air and air-less spray
     10. Climbing and rigging of high structural steel, elevated and ground tanks, bridges, smoke stacks and steeples.
   - C. Attended and participated in Tnemec Company, Inc. Protective Coatings Training which includes the Principals of Corrosion, Fundamentals of Coatings Technology, Coatings Selection, Surface Preparation, Application, Inspection Techniques and Equipment.
   - D Attended and participated in a training program covering tank design, construction, maintenance and inspection presented by Tank Industry Consultants.
   - E. Steel Structure Painting Council training on surface preparation and coatings application.
2. Inspection Equipment;
   - A. All ropes, rigging, climbing and safety devices necessary for inspections.
   - B. Elcometer 202 Ultra Sonic Metal Thickness Tester.
   - C. Positest Magnetic Mil Gauge and Pit Depth Gauge.
   - D. Atlas Transit for vertical alignment.
   - E. Vacuum blast unit for TCLP testing.



3. Programs Presented for Mo. DNR, AWWA, MRWA,KRWA, IRWA, Il. Potable Water Operators Assoc. and the City of Des Moines, IA regarding Tank Inspection;
   A. Maintenance and Sanitation.
   B. Distribution Line Flushing.
   C. Hydrant Maintenance.
   D. Flow Testing and Color Coding.

4. Specialties;
   A. Potable Water Storage Sanitation.
   B. Pre-maintenance inspections on existing facilities.
   C. Critical phase inspections on new construction and tank renovations.
   D. Portable water storage facilities to maintain safe and stable pressure while the tank is off line for renovation and/or inspection.

5 Licenses;
   A. "B" License in Water
   B. "C" License in Wastewater
   C. Backflow Certified.

TOMCAT CONSULTANTS

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December 15, 2006

SUMMARY OF TRAININGS FROM 1978 TO 1993

Attended about 51 different programs, covering approximately 78 days as an attendee of a broad variety of Water Wastewater and Fire Fighting Water Supply educational seminars.
I also taught at least 13 other programs on Hydrant Flow testing,
Line Flushing and Storage Tank Inspections.

SUMMARY OF TRAININGS FROM 1994 TO 1999

Attended and/or was an instructor at about 30 seminars, at conferences covering approximately 50 days. Author of at least six different articles on Fire Hydrant Flow Testing & Color Coding, Water Storage Inspections, Tank Sanitation, Insect/Frost Proof Vent Design, Temporary Storage While Your Tank is Shut Down For Maintenance, and was co-author of "Contaminated Water Storage Tanks, A Fowl Problem" presented by Robert Adkinson, with the Missouri Department of Natural Resources at the annual American Water Works Association Conference in Atlanta, Georgia on June 15th-19th, 1997.
I was the inspector who found and identified the sanitary flaws in three storage tanks that caused the deaths of at least 5 people, due to salmonella bacteria in southeast Missouri, in January of 1994. I taught Tank Sanitation classes in at least four states, Missouri, Illinois, Kansas & Iowa.

SUMMARY OF TRAINING FROM 2000 TO 2005

Attended at least 37 different training programs, covering about 70 days, in 11 different States.
Was on Speakers Program and presented programs of 1 hour or more at 17 of these Conferences or Seminars, in 6 different States. The programs covered: Water Storage Inspections, Tank Sanitation, Insect / Frost Proof Vent Design, Temporary Storage Using
Portable Hydro-pneumatic Tanks, and Construction Inspections.
I have secured two patents on products relating to water quality, and hold Missouri License # 2245 Drinking Water Level B, Wastewater Level C, and Distribution Level DS III

Short-Biography

Clyde H. Zelch is the President of Tomcat Consultants / TAP Company.

Clyde has more than 40 years experience in water storage tank maintenance, including all phases of welding, grit blasting and painting.

He started Tomcat Consultants in 1989, specializing in tank inspections, repair specifications and inspection of work in process of both new construction and renovation of existing tanks.

Tomcat Consultants also provides portable temporary hydro-pneumatic storage tanks.

He is recognized as an industry leader in tank sanitation
and holds two (2) patents on water quality related products.

TAP Company provides quality products to the water industry, including insect/frost proof vents, pressure manways, roof hatches, ladders and other specially fabricated parts.

CLYDE H. ZELCH LIST OF SPECIAL EDUCATION 2006 TO ????

March 21st – 22nd, 2006
Attended and exhibited at the Missouri Rural Water Association Conference held in Springfield, MO.

March 28th – 30th, 2006
Attended and exhibited at the Kansas Rural Water Association Conference held in Wichita, KS.

April 29th – May 2nd, 2006
Attended and was on Speakers Program at the Arkansas Water Works and Water Environment Association Conference held in Hot Springs, AR.

September 12th & 13th, 2006
Attended and exhibited at the Missouri Water Wastewater Conference held in Columbia, MO.

November 15, 2006
Attended for a ½ day and Speaker, accompanied by John Hogan, for the Missouri Department of Natural Resources Public Drinking Water Branch Regional Workshop in Jefferson City, MO.

March 12th – 14th, 2007
Attended, along with Kevin Brockhoff, and on Speakers Program at the Nebraska Rural Water Association Conference in Columbus, NB.

March 20th – 22nd, 2007
Attended and exhibited, along with Kevin Brockhoff, at the Missouri Rural Water Association Conference in Springfield, MO.

March 28th & 29th, 2007
Attended the New England Water Wastewater Association Conference in Worchester, MA.

April 2nd – 5th, 2007
Attended and on Speaker's Program at the Ohio Rural Water Association Conference in Columbus, OH.

July 12, 2007
Presented program on " Portable Pressure Tanks" at the Texas Rural Water Association Expo, in Galveston, TX.,with Randy Moore, of Utility Service, also sharing that time to do his presentation on "Tank Sanitation".

July 25, 2007
Charlie Zelch represented Tomcat Consultants / T.A.P Co. at the Nebraska Rural Water Expo, in Fremont, NE.

August 16, 2007
Presented program on "Birds, Bats & Bugs –Sanitary Defects of Storage Tanks" for the Rural Lorraine Water Authority Conference, in Put-In-Bay, OH.

October 2nd & 3rd, 2007
Kevin Brockhoff represented Tomcat Consultants/T.A.P Co. at the Missouri Water & Wastewater Conference in Columbia, MO.

October 11, 2007
On Speaker's Program for the Iowa Section American Water Works Association Conference in Davenport, IA.

October 23rd & 24th, 2007
Attended, exhibited, and shared, along with Mike Ritterbeck of C.P.S./ M & R Services, in the presentation of three educational programs at their booth during the Ohio Rural Water Association Conference in Wilmington, OH.

November 14, 2007
On Speaker's Program for the South Carolina Rural Water Association Conference in Myrtle Beach, SC.

Clyde H. Zelch **List of Special Education** **2000 to 2005**

March 2000
Speakers Program for the Illinois Rural Water Association at Effingham, Illinois.

April 26, 2000
Speakers Program for the Missouri Water & Wastewater Conference Southeast Region meeting at Sikeston, Missouri.

June of 2000
Exhibitor at the 5 day National American Water Works Association Conference at Denver, Colorado.

August 8, 2000
Attended Arkansas Rural Water Conference at Hot Springs, Arkansas.

October 8 to 11th, 2000
Exhibitor at the National Rural Water Conference at Kansas City, Missouri.

October of 2000
Speakers Program for the Missouri Rural Water Association Fall Conference at The Lake of the Ozarks, Missouri.

March 20,21, 2001
Exhibitor at the Missouri Rural Water Conference at Springfield, Missouri.

March 27,28th , 2001
Exhibitor at the Kansas Rural Water Conference at Wichita, Kansas.

September 27, 2001
Attended the Missouri Rural Water Conference at The Lake of the Ozarks, Missouri.

November 27, 2001
Speakers Program for the Illinois Water Operators at Ren Lake, Illinois.

March 12, 13 or 13,14th, 2002
Exhibitor at the Missouri Rural Water Conference at Springfield, Missouri.

September 12, 2002
Speakers Program at the Illinois Water Conference at Springfield, Illinois.
The topic was " Storage Tank Sanitation, Maintenance and Security".

October 6,7,8th, 2002
Exhibitor at the National Rural Water Conference at Spokane, Washington .

October 15, 2002
Speakers Program at the Kansas Rural Water Training Program at Coffey County tank site. Topics were tank maintenance procedures, inspections procedures, ladder safety and other safety regulations, paint and coating systems, altitude valve maintenance and repair, possible water contamination in storage, antenna and equipment installations. Live demonstrations were also included.

March 13, 2003
Participated in the American Water Works Association teleconference at St. Peters, Missouri.

March 18, 19th, 2003
Exhibitor at the Missouri Rural Water Conference at Springfield, Missouri.

March 24,25,26,27th, 2003
Exhibited and was on the Speakers Program at the Kansas Rural Water Conference at Wichita, Kansas. The topic was " Water Storage Tanks- A to Z ".

April 27,28,29th, 2003
Exhibitor at the Arkansas Water and Environmental Association.

June 10, 2003
Speakers Program at the Kansas Rural Water Training at Leavenworth, Kansas.

October 19,20,21,22nd, 2003
Exhibiter and attended the National Rural Water Conference at Oklahoma City, Oklahoma.

October 28, 29th, 2003
Attended the Missouri Rural Water Fall Conference at the Lake of the Ozarks, Missouri.

March 16, 17, 18th, 2004
Exhibitor at the Missouri Rural Water Conference at Springfield, Missouri.

March 23, 24, 25th, 2004
Exhibitor at the Kansas Rural Water Conference at Wichita, Kansas.

March 30, 31st & April 1, 2004
Attended the Michigan Rural Water Association Conference at Grand Rapids, Michigan.
The topic was " Water Tank Issues".

October 10,11,12,13th, 2004
Exhibitor at the National Rural Water Conference in Biloxi, Mississippi.

October 27, 2004
Attended the Missouri Rural Water Conference at The Lake of the Ozarks, Missouri.

September 14,15th, 2004
Exhibitor at the Missouri Water & Wastewater Conference at Columbia, Missouri.

November 18, 2004
Speakers Program at the Kansas Rural Water Association Conference at Newton, Kansas.
The topic was " Water System Operations and Maintenance Training."

December 8, 2004
Speakers Program at the Southern Illinois Water Operators Association Fall Conference at Ren Lake, Illinois. The topic was " Tank Maintenance – including inspections, problems identified during inspections, and portable hydro-pneumatic storage tank service."

December 14, 2004
Speakers Program for the Kansas Rural Water Association training seminar at Manhattan, Kansas.

March 15 & 16, 2005
Speakers Program for Nebraska Rural Water Association Conference at Columbus, Nebraska. The topics were "Water Tank Sanitation & Inspection" and " Portable Hydro-pneumatic Tank Applications."

March 22,23,24th, 2005
Exhibited and attended the Missouri Rural Water Association Conference at Springfield, Missouri.

March 29,30,31, 2005
Exhibitor at the Kansas Rural Water Association 38th Annual Conference at Wichita, Kansas. Speakers Program for " Tanks A to Z " on March 29th and " Tank Sanitation & Portable Pressure Tanks " on March 30th.

April 24,25,26,27th, 2005
Attended and exhibited at the Arkansas Water Works and Water Environment Association at Hot Springs, Arkansas.

July 19,20th, 2005
Exhibitor at the Nebraska Rural Water Association Exposition at Freemont, Nebraska.

September 14, 2005
On Speakers Program and attended the Iowa Section, American Waterworks Association Conference at Des Moines, Iowa.

September 15, 2005
On Speakers Program and attended the Illinois Potable Water Conference at Springfield, Illinois.

Clyde H. Zelch **List of Education** **1994 to 1999**

April 1994
Attended the Missouri Water and Wastewater Association Section Meeting at Sikeston, Mo

April 1994
Speakers Program for the Missouri Water Wastewater Association Section meeting at Savannah, MO. The topic was " Water Storage Tank Inspection and Sanitation".

April 14, 1994
Speakers Program for the Missouri Section American Water Works Conference at Springfield, Mo. The topics were ""Tank Maintenance" and " Rural Water and Fire Districts in Mo."

September 1994
Attended the American Water Works Association National Distribution Symposium at Omaha, Nebraska.

October 20,21st, 1994
Attended the Missouri Rural Water Association Fall Operation and Maintenance Symposium at the Lake of the Ozarks, Missouri.

November 1994
Speaker for the Missouri Department of Natural Resources at their Regional Workshop in Jefferson City, MO.

March 14-17, 1995
Attended the Missouri Rural Water Association Annual Meeting and Technical Conference at Columbia, Missouri.

March 23, 1995
Attended and Speaker at The Advanced Water Treatment Program, held at The University of Missouri in Columbia, MO. The topic was " Sanitary Defects in Storage".

September 1995
Attended the American Water Works Association National Distribution Symposium at Nashville, Tennessee.

March 19, 20,21st, 1997
Attended the Missouri Rural Water Association Annual Meeting and Technical Conference at Springfield, Missouri.

June 15-19th, 1997
Attended the American Waterworks Association National Conference in Atlanta, Georgia. Bob Atkinson with Missouri Department of Natural Resources presented a program on " Contaminated Water Storage Tanks: A Fowl Problem." Detailing the effects of bird / insect contamination of water storage tanks in a distribution system. Co-authored by Clyde H. Zelch and Mary Lou Cox.

September 28- October1,1997
Attended the Missouri Municipal League Conference at the Tan Tara Resort at the Lake of the Ozarks, Mo.

September 15, 1998
Attended the Missouri Municipal League Conference at St. Louis, Mo.

September 30, 1998
Attended the Missouri Water Wastewater Conference.

February & March 1999
Participated in the "Professional Engineer Review" program presented by the Department of Civil Engineering Continuing Education at the University of Missouri –Rolla, MO.

March 9,10,11th, 1999
Exhibited at the Missouri Rural Water Association's 33rd Annual Meeting and State-Wide Technical Conference at Springfield, Mo.

April 6-9th, 1999
Exhibitor at the Missouri Section American Water Works Conference at Kansas City, Mo.

October 28,29th, 1999
Attended the Missouri Rural Water Association Fall Operations and Maintenance Symposium at the Lake of the Ozarks, Missouri.

1975-1978
East Central College at Union on Fire Fighting Officer Training.

March 1988
One day training seminar on Energy Conservation in Water and Wastewater Treatment Facilities: Presented by Gregory G. Haug, P.E., and Tracy Ashlock; Lafser & Schreiber, Inc., St. Louis, Mo. and Missouri Department of Natural Resources Division of Energy.

March 1988
A three day seminar on Water Storage Tank Design, Construction and Maintenance presented by Tank Industry Consultants, Inc., held in Indianapolis, IN.

1988
Three day training seminar for Wastewater Certification held at Linn City Hall; presented by Missouri Department of Natural Resources; Jim Locke, New Bloomfield; Charlie Fisher, Jefferson City; Mike Logston on Backflow; Bob Atkinson on Hydraulics.

1988
One day training classes held at Montgomery City and Jefferson College presented by Missouri Water and Sewerage Conference; Metropolitan Engineering Co., Wastewater; 5 C.E. credits each.

February 1989
University of Missouri Columbia program on Cross Connection Hazardous Waste Liability; Open Meeting Law; presented at Union Electric Calaway Plant.

September 26,27,28th, 1989
Missouri Water and Sewerage Conference, Columbia; Oilspill on the Gasconade By Greg Schoen, P.E.; DNR Update by Jerry Lane, P.E.; Winter Water Shortage at St. Joe, MO, Dave Hines; Quick Fix to Pressure Problems by Lorsene Boyt; Innovative Water Storage and Pumping Facilities by Timothy Swenson, P.E.; Crossing the Meramec River by Kevin Dunn.

February 16, 1990
Water Quality Workshop at Hannibal

March 1,22nd, 1990
Missouri Rural Water Association State Conference at Springfield.

April 11, 1990
Missouri Water and Sewerage Conference Midwest Section at Jefferson City.

April 17, 1990
Missouri Rural Water Association training, Hillsboro.

April 18, 1990
Missouri Rural Water Association training, Bowling Green.

April 19, 1990
Missouri Sec. American Water Works Association, Columbia.

April 24, 1990
Missouri Water and Sewerage Conference at St. Peters.

May 1, 1990
Missouri Water and Sewerage Conference at Monette.

March 18, 1992
Missouri Rural Water Association State Conference at Springfield, Mo.

April 16, 1992
Missouri Water & Wastewater Conference Section Meeting at Poplar Bluff, Mo.

April 23, 1992
American Water Works Association Conference at Kansas City, Mo.

April 29, 1992
Missouri Water & Wastewater Conference Section Meeting at Jefferson City, Mo.

September 22,23,24th, 1992
Missouri Water & Wastewater State Conference at Jefferson City, Mo.

September 17, 1992
Illinois Water Operator's State Meeting at Springfield, Illinois.

October 7, 1992
Tnemec Coatings Seminar at St. Louis, Mo.

October 22, 1992
Missouri Rural Water Association Program at The Lake of the Ozarks, Mo.

March 10,11,12th, 1993
Joint Conference, AWWA and MRWA at Jefferson City, Mo.

Spring 1993
Wrote and published an article on " Color Coded Cooperation " in the Missouri Water Lines Magazine.

April 27, 1993
Missouri Water & Wastewater Section Meeting at St. Peters, Mo.

April 28, 1993
Missouri Water & Wastewater Section Meeting at Jefferson City, Mo.

June 15, 1993
American Water Works Association Training at Springfield, Mo.

September 15, 1993
Illinois Water Operator's Association at Springfield, Illinois.

September 21, 22, 23rd, 1993
Missouri Water & Wastewater State Conference at Columbia, Mo.

September 26,27,28,29th, 1993
Attended the Missouri Municipal League Conference at the Adams Mark Hotel in St. Louis, Mo.

Taught classes on tank inspection, hydrant flow testing and line flushing at the following locations:

March 24, 1992
St. James, Mo. for DNR , Instructor for 3.5 hours on Tank Inspection.

April 8, 1992
Tipton, Mo. for DNR, Instructor for 3.5 hours on Tank Inspection.

April 29, 1992
Jefferson City, Mo. for MWWC, Instructor for 45 minutes on Tank Inspection.

May 26, 1992
Sikeston, Mo. for DNR, Instructor for 3 hours on Tank Inspection and Hydrant Flow Testing.

March 11, 1992
Springfield, Mo., Inspector on Operations, Tank Maintenance and Painting.

June 4, 1992
Malden, Mo. for DNR, Inspector for 3 hours on Tank Inspection and Repair Specifications.

September 23, 1992
Jefferson City, Mo. for MWWC State Conference, Instructor on Tank Sanitation.

December 8, 1992
Farmington, Mo. for DNR 2.5 hours, Instructor on Sanitation & Backflow.

December 15, 1992
Springfield, Mo. for DNR, Instructor for 1.5 hours on Sanitation.

February 11, 1993
Macon, Mo. for DNR, Instructor for 2 hours, 45 minutes on Inspection & Specifications.

April 21, 1993
Cape Girardeau, Mo. for MWWC, Instructor for 3 hours on Tank Maintenance.

October 21, 1993
Lake of the Ozarks, Mo. for MRWA, Instructor for 1 hour on Tank Inspection.

8-29-07
Bangor Estates

EXHIBIT
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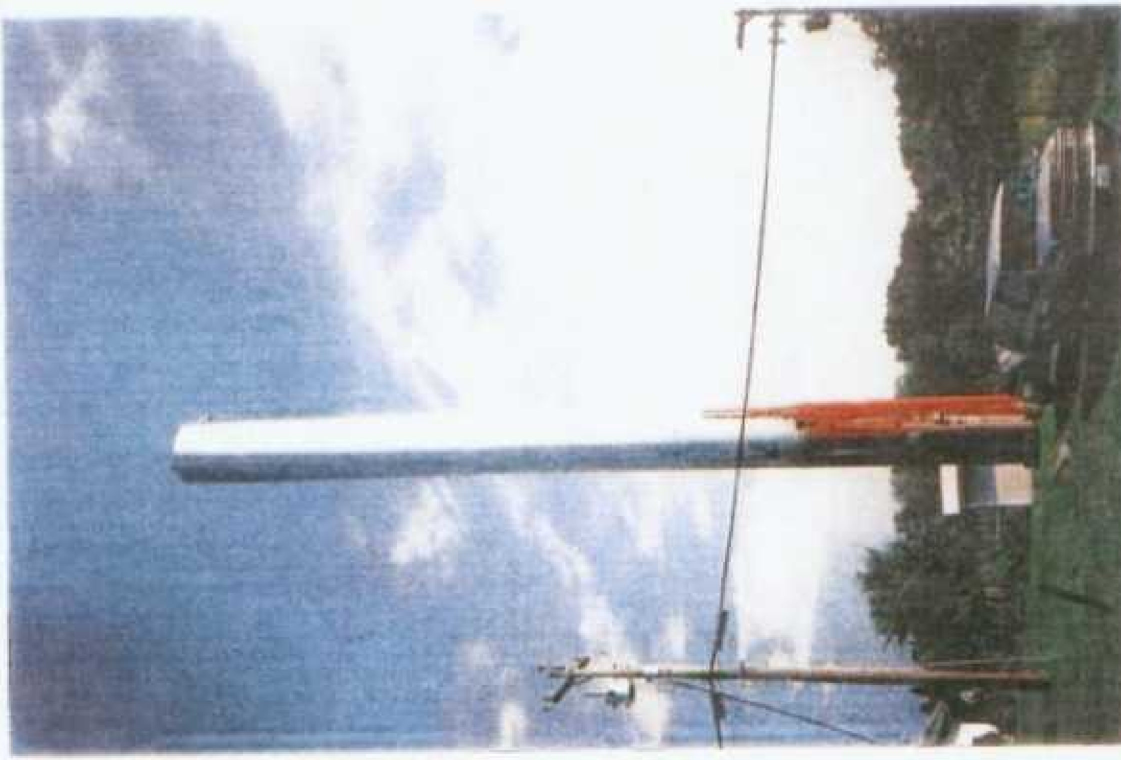


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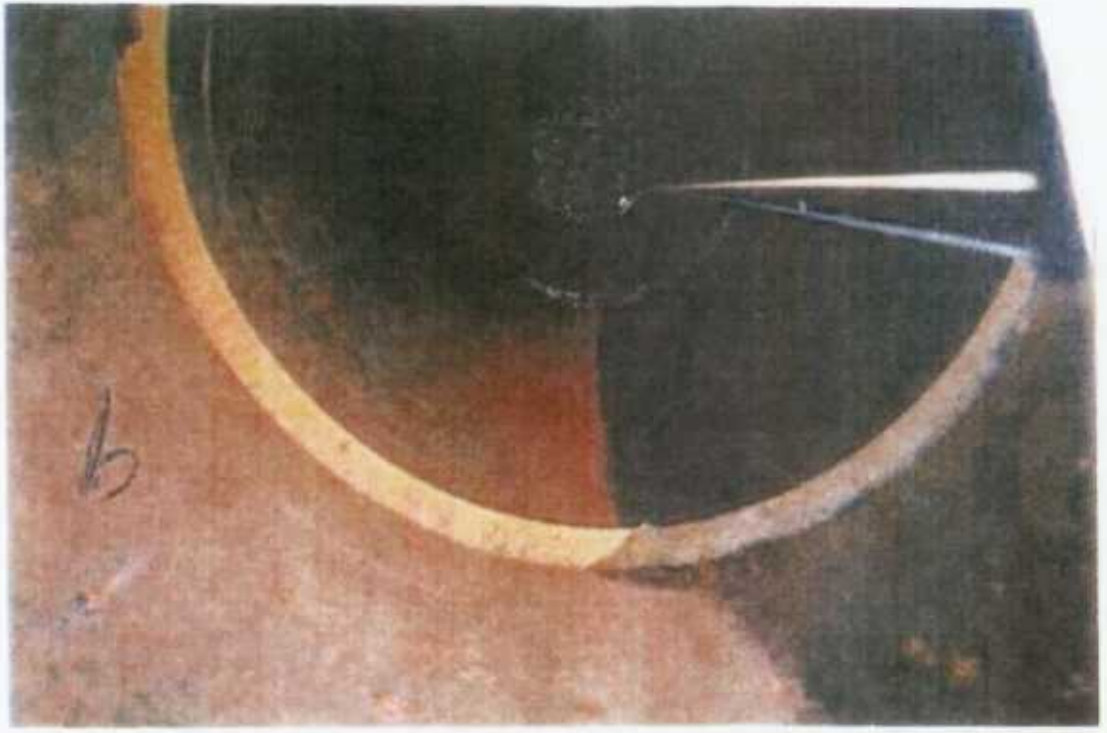
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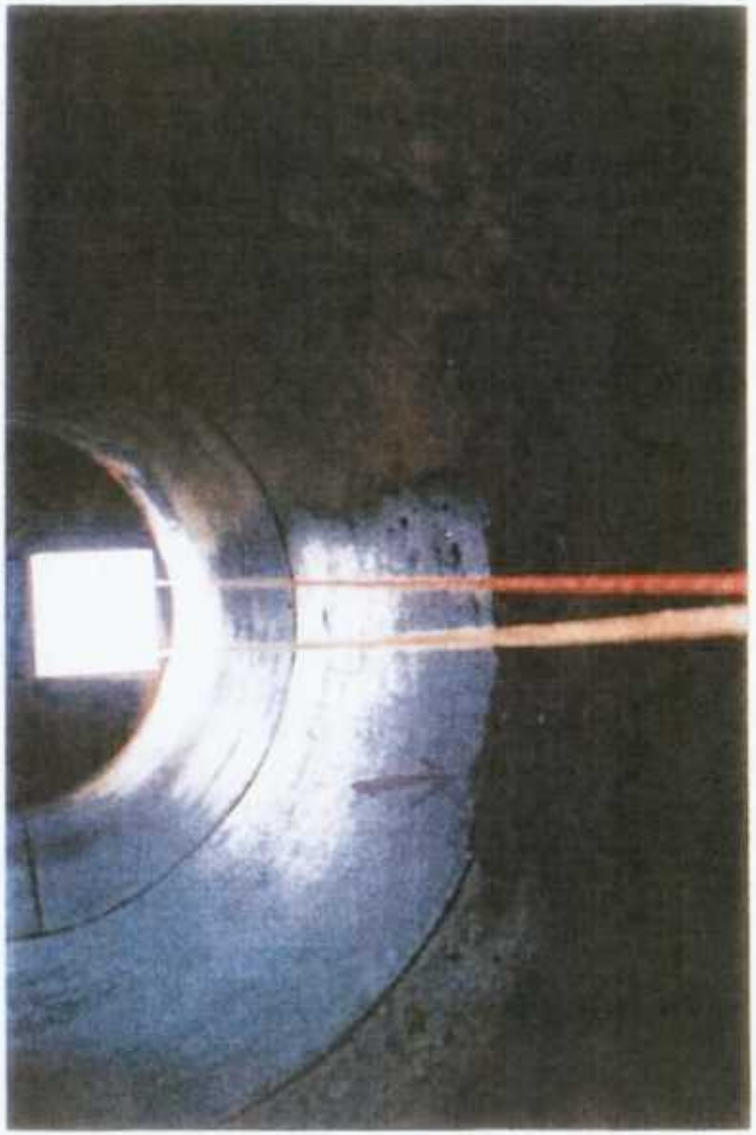

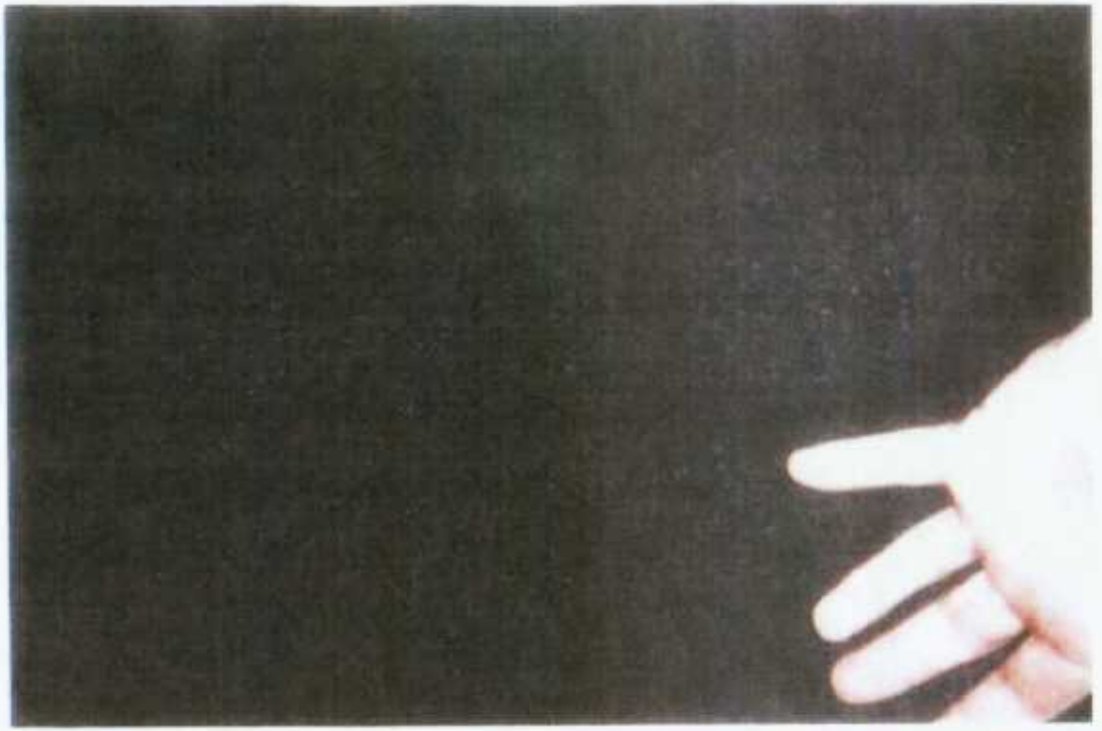

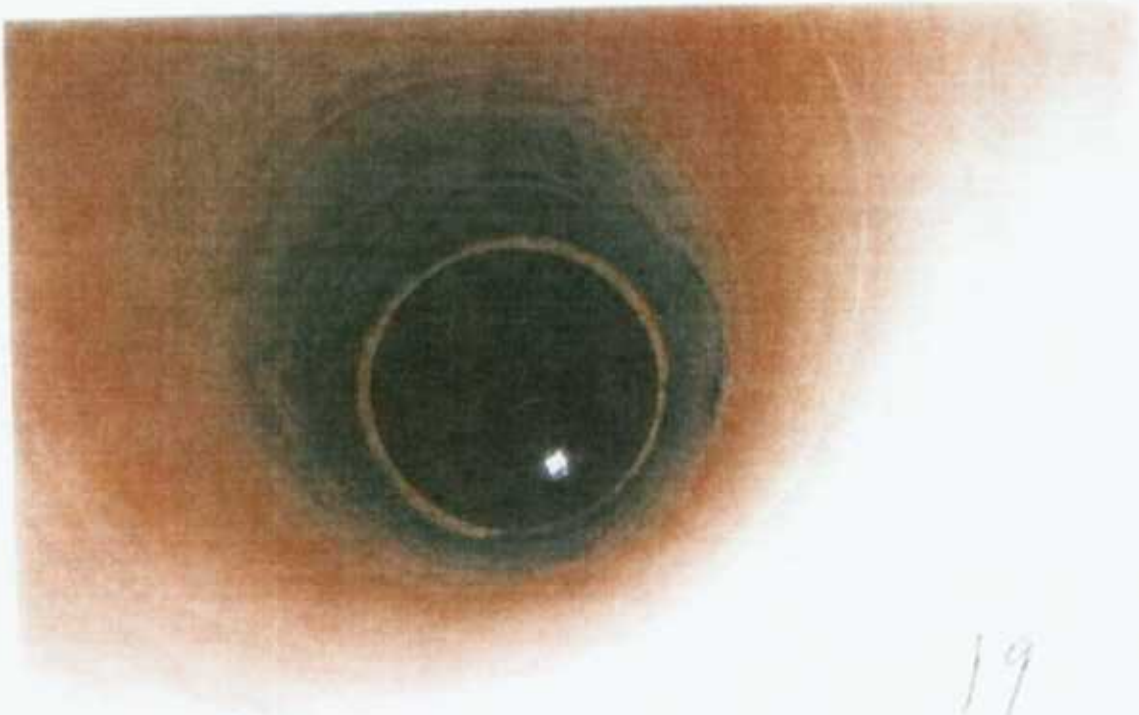

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September 25, 2007

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1103 E. Broadway, Suite 101
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Phone: 573-874-7777
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County: Boone

Contact Person: Tom Harrison

Inspection Date: August 29, 2007

The following pictures were taken during the cleaning and inspection of the standpipe water storage tank located at Bongor Estates, which is owned by Suburban Water & Sewer, located at 1501 Vandiver Drive in Columbia, Missouri.

PICTURE REPORT

Picture #	Description
1.	**Tank is 6' diameter by approximately 80' tall, the well house is visible behind the tank.** The lower 1/3 has almost no paint left and several patches. The exterior has, or HAD, a two or more coat alkyd system with a red iron oxide primer and an oil base aluminum finish. **Tank exterior was last painted in 1990 or 1991 (I painted it), the tank was NOT drained and NO interior cleaning or painting was done at that time**
2.	**Looking from the well house towards the tank – I drew piping lines on this picture as I believe they exist. There are two valves that can shut water off, both right and left, going to distribution BUT CAN NOT CLOSE OFF THE TANK, another valve is needed at the (X), marked on the picture.**
3.	Ground level access manway is 16 ½" inside diameter and the cover plate is not hinged, or on a davit arm. This opening is too small and is not compliant with current Design Standards of the MO.DNR or AWWA. The anchor bolts are loose, there are 8 bolts @ 2" diameter, but tightening them now is pointless.
4.	**The overflow is stubbed out at the top and it is screened.** Overflow's are required to come to grade and should have both a # 4 screen and a hinged flapgate.

5. **Tank is 80' 8" tall.** The ladder is not compliant with current OSHA Design & Safety Regulations, has no safety climb and no climb prevention cover. **The roof hatch is 24" square, hinged and lockable, this would be okay.**

6. The vent is a 3" diameter pipe, inverted J, and it inhales air less than 3" above the roof. This vent is NOT frost resistant, NOT sanitary, and NOT complaint. **I put the screen on in the early 1990's.**

7. **Inside the tank - overflow intake is an open end 4" pipe and the high water level is 79' 10".** There is a very small amount of red paint on the roof and top few feet of shell wall.

8. Very little paint at the top and nothing but RUST going down.

9. Looking down - Solid RUST. **There are 4 or 5 reinforcement bands inside.**

10. The top 3 shell sections are covered with rust grains, starting at the 4th section down there is scale rust and pitting.

11. The places with solid rust scale and shallow pits are indicated by arrows

12. At the joint of section 4 to 5 down is SOLID RUST.

13. The 6th and 7th sections down is RUST, RUST and more RUST. The pits are getting more serious.

14. About halfway down I found NO paint, just rust.

15. About 2/3 down are heavy barnacles, blisters and pits. **I am confident that if I scratched very much, I would find pits that go completely through to daylight.**

16. RUST, pits and patches welded on the outside.

17. The lower ¼ to 1/3 of the tank is ABSOLUTE JUNK AND NOT
18. REPAIRABLE. The tank will have to be replaced, it is not worth
& spending money on this one. **Start over with a different tank, there**
19. **should be decent repairable 6' tanks out there, that could be moved here and set on this concrete pad.**

20. **The roof hatch is closed and held with a bolt.**

21. **The hatch is closed and bolted. The tank is chlorinated and refilling.**

22. There are 30 + patches on the bottom 5 or 6 shell sections. Very little aluminum finish and not much red primer. This tank is in VERY POOR condition.

Comments:

In the well house the pressure gauge and control pressure switch are set up wrong, or they are the wrong type. The pressure gauge should be installed on the down stream side of the snubber, to take out the hammer of starting and stopping from the gauge (that is why the needle is bent), and the gauge can not remain reasonably accurate when it's hammered, as it is now.
The pressure switch is the wrong type. The spread between "on & off" is entirely too wide and can not be adjusted down to what is needed. This type of switch is intended for use on a hydro-pneumatic system, with a pressure spread of 15 to 20 PSI. Your system needs a pressure switch with an adjustable spread of no more than 5 PSI. They are available from USA Bluebook and others.

Clyde H. Zelch

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September 5, 2007

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Phone: 573-874-7777
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County: Boone

Contact Person: Tom Harrison

Inspection Date: August 29, 2007

Tank : Located at Bongor Estates, and owned by Suburban Water & Sewer which is located at 1501 Vandiver Drive in Columbia, Missouri.

INSPECTION REPORT

Specs:

The system was shut down for the cleaning & inspection of the tank but pressure can be maintained by the Rural Water District.
It is unknown when the tank was built, or who built it.
This is a standpipe water storage tank.
It holds approximately 210 gallons per foot.
The tank capacity is 16,850 gallons total.
The high water level is 79' 10".
The tank is 80' 8" in height.
The tank is 6' inside diameter.
There is electric in the well house, about 30' away.
The tank is not lettered.
The tank area has limited working room.

Tank Exterior and Conditions:

The foundations are concrete pad and in GOOD condition.
The foundations show no indication of settling.
The tank base is anchor chairs and they are GOOD.
The base plate has heavy rust.
There are 8 anchor bolts @ 2" diameter, they are GOOD.
There were no indications of leaks in the tank on the day of the inspection, but the bottom section had at least 32 patches.
The tank ladder has 5/8" X 14 ½" rungs, 5/16" X 2" side rails, and 4 ½" toe clearance. There is no climb prevention cover and no safety climb. This is not compliant and not safe.
OSHA requires tank ladders have ¾" X 16" non-skid rungs, 3/8" X 2" side rails, and 7" toe clearance.
The tank has no balcony.
The tank has no roof ladder.
The tank has no water level indicator, there is a pressure switch and gauge in the well house.
There are no facilities to drain the tank.

There are no bolts, rivets, or welds missing.
The roof vent is POOR. It is a single screen design, not frost proof and too short.
The overflow piping is 4", stubbed out at the top and screened.
The roof access hatch is 24" square, hinged and lockable, but needs a gasket.
The paint on the roof is POOR.
The paint on the tank is POOR.
The general condition of the exterior coating is POOR.
The general condition of the exterior steel is POOR. It looks bad and has many patches.

Tank Interior and Condition:
There is no significant interior coating left, it's all rust.
There is no rigging rail.
There is no ladder into the tank.
The roof coating is POOR.
The upper tank coating has HEAVY RUST.
The center tank coating has HEAVY SCALE RUST.
The lower tank coating is RUST, with deep pits to numerous to count.
The tank base plate coating is POOR, it has deep pits.
The overflow intake is an open end 4" pipe.
The fillpipe size is 6" inside diameter and 7" outside diameter.
The fill pipe is 6" in height and has no cover.
The upper stank steel is FAIR to POOR.
The center tank steel is POOR.
The lower tank steel is POOR.
The base plate steel is POOR.
The tank access manway is 16 ½" inside diameter, has 16 bolts @ 5/8", is not hinged and has no davit arm.
The general condition of the interior coating is that there is NO COATING LEFT, only RUST, more heavy rust and pits.
The general condition of the interior steel is that it's JUNK.

ITEMS DIRECTLY RELATED TO SANTITATION

1. **The tank is clean.**
2. There are no interior tank coatings left.
3. The rust scale and heavy pitting is, in itself, a sanitary problem.
4. **The overflow is stubbed out at the top and screened,** overflow's are required to come to grade.
5. There are numerous patches on the bottom section of the tank and the steel is junk. This tank is NOT repairable.

Clyde H. Zelch
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