

## Appendix M

### SWAP Public Meeting

The following was published in newspapers across the state (Memphis, Jackson, Nashville, Chattanooga, Knoxville, Kingsport and Johnson City) more than 30 days prior to the public meeting:

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Notice of Public Meeting  
Department of Environment and Conservation  
Division of Water Supply

There will be a public meeting with the Division of Water Supply Staff to hear comments from the public concerning the development of Tennessee's Source Water Assessment Program pursuant to Section 1453 of the 1996 Safe Drinking Water Act Amendments. This section requires that all states establish Source Water Assessment Programs (SWAP), and submit a plan to the Environmental Protection Agency (EPA) by February 6, 1999 detailing how they will:

- Delineate source water protection areas.
- Inventory significant contaminants in these areas.
- Determine the susceptibility of each public water supply to contamination.

The public meetings will be conducted in the manner prescribed by the Uniform Administrative Procedures Act, Tennessee code Annotated Section 4-5-204. The meetings will take place in Knoxville at the Knox County Health Department Auditorium, located at 140 Dameron Avenue, 1:00 pm EST on the 15<sup>th</sup> day of December, 1998; in Murfreesboro at the Fleming Training Center located at 202 Blanton Drive, 10:00 am CST on the 16<sup>th</sup> day of December, 1998 and in Jackson at the Department of Agriculture Assembly Room B on Airport Drive, 10:00 am CST on the 17<sup>th</sup> day of December, 1998. Written comments will be considered if received by close of business December 31, 1998. Written comments should be mailed to the Tennessee Division of Water Supply, 6<sup>th</sup> Floor L&C Tower Building, 401 Church Street, Nashville, TN 37243-1549.

Any individuals with disabilities who wish to participate in these proceedings should contact the Department of Environment and Conservation to discuss auxiliary aids or services needed to facilitate such participation. Such initial contact may be made no less than ten (10) days prior to the scheduled meeting date to allow time for the Department to determine how it may reasonably provide such aid or service. Initial contact may be made with the Department's ADA Coordinator, Mr. Isaac Okoreeh-Baah, Division of Real Property Management, 7<sup>th</sup> Floor, L&C Annex, 401 Church Street, Nashville, TN 37243-0449 whose telephone number is (615) 532-0059.

For further information, contact:

Thomas A. Moss  
Source Water Protection Coordinator  
TN Division of Water Supply  
401 Church Street  
Nashville, TN 37243-1549  
(615) 532-0170.

Or the nearest office of the Tennessee Division of Water Supply at 1-888-891-8332.

An electronic copy of Tennessee's Source Water Assessment Overview may be obtained from the Department's Webpage at:

[www.state.tn.us/environment/dws/index.html](http://www.state.tn.us/environment/dws/index.html)

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## **Knoxville, TN; December 15, 1998**

### Attendees:

Tom Moss, Source Water Protection Coordinator, TN Division of Water Supply  
Gordon Caruthers, TN Division of Water Supply  
Darlene Lipford, TN Division of Water Supply  
Larry Lewis, TN Association of Utility Districts  
Roger Booher, TN Association of Utility Districts  
Gary Miller, Engineer, Eastside Utility District  
Bobby Green, Chief Operator, Eastside Utility District  
Don Stafford, General Manager, Eastside Utility District  
Samantha Pearson, Coordinator, Tennessee Clean Water Network & Foundation for Global Sustainability  
Linda Ewald, Foundation for Global Sustainability, East Tennessee Headwaters Council, Tennessee Clean Water Network

The entire meeting was taped; however, only the question and answer portion has been at the end of the presentation has been transcribed here.

The first part of the meeting was an overview presentation. It was explained to the audience that there were no new regulations being proposed and that this would be a public meeting rather than a public hearing and that no formal presentation was required to be made to the Water Quality Control Board but they are being kept informed. One of the SWAP Committee members is also a Board member. It was further explained that this was being done to meet the requirements of providing information to the public. The audience was told that all comments would be due by December 31, 1998.

Linda Ewald, representing the Foundation for Global Sustainability, East Tennessee Headwaters Project and Tennessee Clean Water Network:

I read in a journal about environmental activist type issues an article about the fuel additive methyl ethyl (tert?) butyl ether (MTBE) for gasoline. Are there any plans for testing for this? We have all these boats on these reservoirs.

Moss: I know they are already testing for it in ground water. I don't know for surface water. I'll check whether or not it is being tested for – it may be in the volatiles scan already.

Ewald: Two stroke engines are a concern ... leaking fuel. It is banned in some places.

Moss: Labs run all of the volatiles suite together – this is great for ground water issues and it's cheap as well.

Ewald: The new additive hasn't been used long.

Moss: UST uses as a tracer for new gas versus gas from an older gas station. Fortunately, Tennessee is blessed with an abundance of water. This is probably more of a problem in places such as California and Texas.

Ewald: Could be a problem in drought conditions.

Moss: We actually do have drought problems in ground water presently in east Tennessee.

Ewald: Oak Ridge is doing a lot of water tracing – is there a problem for ground water systems?

Moss: We have a Division that only deals with Oak Ridge. There are no ground water systems anywhere near there. There are definite ground water problems at Oak Ridge.

Sara Pearson, representing Foundation for Global Sustainability, Tennessee Clean Water Network:

We're here to learn about the program, how the public can get involved and how Tennessee Clean Water Network can play a role.

{We are} making sure people know how they can get involved with their drinking water. I do have a question. I understand there is no regulatory hammer in this, so to speak. You also showed the map for the TMDL's watershed plan. You said you will incorporate your data into data being produced Group 1 and 2 and so on. Does this mean this work will go into the work for the TMDL's where designated for drinking water?

Moss: TMDLs (Total Maximum Daily Load) are only developed for impacted streams. To my knowledge – and let's hope it stays that way – there are no intakes on impacted streams. If you are going to worry about discharge, you should worry about drinking water – the stream is not merely a sewer. There may be some impacted streams well upstream of the intakes, we don't have all the stuff into GIS to tell yet.

Pearson: What's going to be done with these studies?

Moss: Every five years there is a re-look within each watershed. Unfortunately Congress didn't give more time. If they had we might not have to contract with TAUD. Our Department is running about 2 – 3 years behind when this information must be turned in. By the time we get our first iteration done, I think we'll be far enough into GIS development that we'll be able to take the ball and run with it. The Watershed Management Approach looks at each watershed every five years, guaranteed. That's why the link to assure a re-look. I see my job as not just wellhead protection but every time we look at a watershed I'll be involved at the public meetings.

There may be more source water protection at the local level, wellhead protection is the same way. We have the minimum requirement, we're hoping for considerably more. Memphis is doing more and Collierville considerably more. We require 10 year time of travel protection area for water coming to the wells. Collierville and Germantown did 40 years to look at what kind of impact development, etc. will have in the future. In a particular watershed where a local group wants to do more, Water Pollution Control has said they will be willing to work with them.

Caruthers: Your group could come up with projects to raise awareness at the public level for source water protection programs, get people more familiar with it on the community level, enhance public support. That's a key issue in continuation of the program. We can come up with a program written within the bounds of time and money we have. The continuation and ultimate effect depends strongly on public support. We feel that's where you could come in.

Ewald: What about branching out to water quality issues in the Knoxville area?

Moss: Shelby County has a Ground Water Management Board, but to my knowledge that's the only effort quite like that in a local scale.

Ewald: You mentioned that no intake is on an impacted stream.

Moss: To my knowledge.

Ewald: There are some concerns though Knoxville upstream of the intake.

Moss: It may be impacted, but I don't know that it is listed as a 303(d) – it might be. Not all 303(d) has been put into GIS to compare against intakes. We are concerned about

that. In streams there are things we can tolerate at higher levels than fish and aquatic life. Sometimes the driving force will be drinking water, sometimes the driving force will be fish. Metals will really wipe out fish.

Ewand: This {area of concern} is right along the Tennessee River.

Moss: The good thing is with the size of the river it will dilute this but we don't like to say the solution to pollution is dilution.

Caruthers: One other critical factor concerning drinking water is that on surface streams there are extensive requirements for treatment. By the time finished water gets out to the consumer, it has been treated. Critters in the river have to deal with it just like it comes – sometimes that's a more serious impact. We can drink it once it's run through the treatment plant but fish might not be able to live with it.

Ewand: Aren't there things that make it through filtration and chlorination?

Moss: Actually when I say filtration, technically it's not filtration that takes the critters out anyway. As a water treatment issue, before you chlorinate you must get the mud/turbidity out. When you flocculate these clay particles out, you drop out everything else too. In some ways, that is more critical than filtration. Of course the plant has to be operated properly. That's why we still need source water protection – in the past the treatment operator says we filter and chlorinate, what do we have to worry about?

Ewald: You never know when there might be arsenic ... other things to worry about.

Moss: We'll still have to do our best at treatment operations. We may be able to cut down on treatment but we can't take it out.

Larry Lewis, TAUD: In addition to collecting required information for the state, we work with water systems on a continuous basis and with water plant operators. If a community wants to take it further as far as protection of a water system goes, we'll do with surface water what we've done with ground water. If issues come up that need to be dealt with we're still going to be available to work with the state and help those water systems.

Moss: That's the other beauty of using TAUD – they'll be around and they always work with water systems.

## **Murfreesboro, TN; December 16, 1998**

Attendees:

Tom Moss, Source Water Protection Coordinator, TN Division of Water Supply  
Gordon Caruthers, TN Division of Water Supply

Darlene Lipford, TN Division of Water Supply  
Larry Lewis, TN Association of Utility Districts  
Nancy Allen, TN Association of Utility Districts  
Greg Upham, Dept. of Agriculture, Nonpoint Source Program Manager – SWAP  
Committee Member  
Jennifer Adkins, Natural Resource Conservation Service – SWAP Committee Member  
Art Newby, Senior Scientist, Consoer Townsend Envirodyne  
Scott Woodard, Engineer, CTE Engineers

The first part of the meeting was an overview presentation. It was explained to the audience that there were no new regulations being proposed and that this would be a public meeting rather than a public hearing and that no formal presentation was required to be made to the Water Quality Control Board but they are being kept informed. One of the SWAP Committee members is also a Board member. It was further explained that this was being done to meet the requirements of providing information to the public. The audience was told that all comments would be due by December 31, 1998.

There was trouble with the recording equipment and the meeting was not taped. There were only the two people from the engineering firm besides two people from the SWAP Committee that attended and TAUD staff (the Division's contractor). The only questions related to the design of susceptibility analysis diagrams. It was apparently unclear to Mr. Newby that the "pie slices" always remained the same size for every water system and the weighting factors were not the number of facilities located in the area. This has since been remedied and the slices are sized by assigning true percentages to eliminate the confusion (previously, the numbers used were relatively arbitrary to get the slices the right sizes rather than true percentages, with the computer program calculating percentages from that). Mr. Upham was concerned about the objectivity of the susceptibility analysis diagram approach. With the yes/no "scoring" for each susceptibility factor, it would be difficult to design a more objective approach.

## **Jackson, TN; December 17, 1998**

### Attendees:

Tom Moss, Source Water Protection Coordinator, TN Division of Water Supply  
Gordon Caruthers, TN Division of Water Supply  
Darlene Lipford, TN Division of Water Supply  
Bill Goodyear, TN Division of Water Supply  
Larry Lewis, TN Association of Utility Districts  
Greg Baker, TN Association of Utility Districts  
Tony Wyatt, TN Association of Utility Districts  
Sharon Fidler, 1<sup>st</sup> Vice President, League of Women Voters of TN

The entire meeting was taped; however, only the question and answer portion has been at the end of the presentation has been transcribed here.

The first part of the meeting was an overview presentation. It was explained to the audience that there were no new regulations being proposed and that this would be a public meeting rather than a public hearing and that no formal presentation was required to be made to the Water Quality Control Board but they are being kept informed. One of the SWAP Committee members is also a Board member. It was further explained that this was being done to meet the requirements of providing information to the public. The audience was told that all comments would be due by December 31, 1998.

Sharon Fidler, League of Women Voters of Tennessee: I have a question. For drinking water in a small town, I'm concerned about small towns that need tertiary treatment for their sewage treatment plants. Are you working with them?

Moss: I'm sure Water Pollution Control is. We haven't yet gone that far yet. There is money available on the Water Pollution side and Drinking Water side {Revolving Funds for Surface Water and Drinking Water} to take care of some of that. Unfortunately, in the past Water Pollution Control looked only at surface water and we looked only at ground water. As long as it wasn't polluting a surface stream, they didn't care. {We're both} starting to look at more. That's where Watershed Management comes in, looking at the overall watershed.

Fidler: In dealing with watershed areas, do some of these watershed areas exist in the national forest? What ability/power do you have to go in there and say you're not going to log this area because of what it's doing to the streams?

Moss: We don't really have the authority to stop them. We have talked to the National Forest Service and they will take our concerns into account. If we give them an area we consider to be a problem, they will avoid those areas. It's not iron clad, but the potential is there to take care of some of these issues. The other thing, we don't like trying to use a hammer too often, but there are provisions under the Safe Drinking Water Act that the state can address if someone knowingly messes up a water system. Making people aware is important.

Fidler: What about these chipping mills in North Carolina impacting Tennessee waters?

Moss: Good question – I know Water Pollution Control working with them. They negotiate with other state on withdrawals, etc.

Caruthers: EPA is ready and willing to get into interstate water quality issues. There is also more cooperation between the states. Last week I was looking at the possible impact in Tennessee that a landfill in Mississippi would have. That used to never happen. We're encouraged that these types of things are happening.

Fidler: We are very much concerned about that. We are concerned that even though Tennessee makes huge wellhead protection and source water protection areas {there might be problems from other states}. You're not really considering the Mississippi

River Basin are you? That means Louisiana and Mississippi are not being considered even though Tennessee is probably discharging raw sewage from small towns all along the Mississippi River.

Moss: We don't deal with that. We don't since we don't have any intakes along that river.

Fidler: So you're dealing with intake areas and not discharge areas?

Moss: Yes.

Fidler: Have you considered urban sprawl as well? It adds to nonpoint source pollution.

Moss: Well unfortunately, we really don't have any control over this. The best we can do is point out as not a good idea. Much of this is a local issue – even wellhead under the Safe Drinking Water Act regulates water systems. We don't regulate municipalities or possible contaminant sources. We have asked the water systems to pass this information on to county executives, zoning agencies, etc. lots of water pollution issues are zoning issues and we really don't have the authority to do anything.

Fidler: You mentioned a few minutes ago that you've worked with the forestry department on potential siltation. Pennsylvania is a case in point. Years ago logging decimated forests in Pennsylvania and dropped the water table tremendously. The second and third growth trees are there but the water table has not recovered. Right now Pennsylvania is in a very bad drought period and has been off and on for a period of at least fifteen years that I can remember. I have relatives there. It affects the streams, it affects the ground water. It seems like we can't look at just one thing.

Moss: Ground water and surface water are not separate issues. If it hasn't rained for several days – where do you think that water came from. {We sometimes} Fix one problem and create another. We can't pull out one particular item because it's attached to everything else.

Fidler: I have a question about water conservation. Can your office push that or some other government agency?

Moss: We can't unless water losses are way high. I think TAUD has worked with systems.

Tony Wyatt, TAUD: We can work with distressed systems.

Moss: With my Division it used to be as long as they're serving good quality water {it was okay}, but they are starting to look at leaks and other issues. It really doesn't come up until they are in trouble.



Wyatt: We did have some trouble a few years ago. DOE (?) had some money available where if the cost rates were too high they were qualified for the program. We still do training as far as education.

Caruthers: The problem may be self-solving anyway. Even in this part of the country, water resources are finite. They're losing water they've paid to treat. As far as conservation measures with the general public, that's a more difficult nut to crack. Would require statutes there.

Fidler: {There's an area in} North Carolinas with 28 days of water left. They've already been given evacuation routes to where they might go for drinking water.

Moss: If the water system is running out, we can require conservation measures, but unfortunately all too often it's too late. The water system for Pikeville, Tennessee has apparently dropped the water table to the extent sinkholes are falling out and upped the turbidity. {Withdrawal has} dropped the supporting layer of water. Memphis has started {drawing down the water table} – the effective water table has dropped. It's a hypothetical water table since it's artesian. DuPont in Memphis dropped their use 40 – 50% when they realized how much they were wasting. I believe the Memphis Sand aquifer could be declared a sole source aquifer. It would cost too much to switch over. The water they've got is all {there is}. It's a fantastic aquifer.

Wyatt: Emergency operation plan should include when they reach certain levels.

Moss: Under the Safe Drinking Water Act Amendments, we are required to address capacity assurance – how viable is this water system.

Lewis: New ones coming on line will be looked at, but eventually they will look at existing stressed ones as well.

Moss: This will discourage new ones starting up that may go bankrupt. With more and more computers, they can look at how much do we produce and how much do we sell. Fire lines are not metered so if they leak it won't show. Insurance liabilities have caused industries to fix these leaking fire lines. Such was the case in Jackson where the water system couldn't get the industries to repair, but when the fire department told them they would not be able to provide fire service; the insurance companies forced the industries to fix the water lines within two weeks. Liability also means something in wellhead protection – an industry may decide to build elsewhere.

Caruthers: There are other factors besides regulatory steps we can take. Liabilities, security and financing are also other factors that effect surface water systems. Depending on the size of the waterway they are withdrawing from, Division of Water Pollution Control pretty closely monitors the water coming out. With a lot of development pressure, the cities and a number of systems are actually edging up against their withdrawal limitations; including water and sewer line extensions. It's becoming more and more in their best interest on conservation measure issues.

Fidler: Who is involved on issues of sufficient water for development and water being drawn down?

Moss: Water Pollution Control decides how much water can be drawn down. They are not technically stopping them from development, but can put restrictions on further withdrawal and moratoriums on further sewers. That's a pretty substantial hammer.

Fidler: I know of an area where this has happened. They would not extend the water for some reason. They built the subdivision anyway and drilled a number of wells.

Moss: It depends on the size of the subdivision. If each home has a separate well, it's all private wells, but if the wells are for the subdivision - depending on size - could be a public water system. We regulate more than 15 connections as a public water system.

Fidler: Are you concerned about closure of abandoned wells in a number of areas?

Moss: Yes, absolutely. We don't have the regulatory authority we'd like, but we're sure encouraging it and every chance we get we're telling them. If they are in a wellhead protection area but not in the city, the city or municipality won't have control and it's pretty tough. In areas where they have control, we're telling them they need to take a look. They {the wells} are a serious problem - a direct shot to the aquifer. We have cases where they were turned into injection wells. If they turn them into injection wells, we can handle them.

Caruthers: We pursue them vigorously. The same way as with underground injection, the difficulty is in finding this stuff.

Lewis: We're identifying them in the potential contaminant source inventory and where they are.

Moss: We are planning additional work in wellhead protection. Any time we go out in the field we're going to be looking for them.

Caruthers: Particularly in the case of injecting or drilling for the injection of waste, they're in serious trouble. We're finishing a case in East Tennessee where we caught them. He was rather surprised when we did show up.

Bill Goodyear, DWS: That would be a criminal offense, wouldn't it?

Caruthers: Yes. We got a search warrant and went with the deputy sheriff and dug up this guy's parking lot.

Fidler: Do you do anything to discourage septic tank construction? That's not exactly the optimum way to dispose of the waste.

Moss: We work with the division that does septic tanks. A lot of areas are going to – I forgot the buzzword – but they have a septic tank with no field lines and have a pump to pump waste to a treatment plant. I think that's going to become more and more pushed. I know Water Pollution Control is really encouraging this.

Caruthers: In rural areas where soil conditions are not good for septic tanks that's something we're encouraging, basically a collection system where each individual house has a tank but also has a pump and instead of disposal lines there is a direct feed and grinder pump.

Moss: Unfortunately in Middle Tennessee as there is more and more development, it's developing poorer and poorer land. Therefore soils are a problem. This is becoming more and more of an issue.

Caruthers: It's a whole lot less expensive than full collection when you're not collecting the solid portion.

Fidler: If I have any more questions like that I can call you?

Moss: Sure, we'd be glad to talk to you.

Goodyear: Are we pretty well in line with other states?

Moss: We're all fighting the clock. On ground water though Georgia was looking for completion in 2015. In Alabama they were doing voluntary wellhead protection. They're having to back up and write regulations requiring wellhead protection. A lot of other states out west were doing voluntary too. Tennessee was one of the last states, in the last 15 – 20% of the states to have their wellhead protection program but we're farther ahead than most. They {EPA} really pushed us toward mandatory. Seeing what we see now, we're better off. My boss has always been a "If we don't tell them they have to do it, they won't do it."

Fidler: It's human nature.

Moss: The New England states have been big on wellhead protection for years, not so much so in the Midwest and South. If we're not on the leading edge, we're at the front of the pack. Florida has had water management areas for years, but genuine wellhead protection just this year.

That's the reason this is all so flexible. Kentucky had a law written 4 – 5 years ago. They had had a major drought so they're operating under a law and we're operating under a policy.

Some have already had serious problems. We're definitely in the middle of the pack on wellhead protection. Layne Central gave a talk in Jackson and their guru out of Oklahoma (who didn't know I had written the regulations) told me he had read 10 – 15 states' wellhead protection plans and Tennessee's got the best I've seen. He said they were practical and implementable and something to work from. I thanked him and told

him I'd written them. Some of the higher ups at EPA have been impressed. The last they'd heard we were getting ready to start wellhead protection and now we've got it implemented.