

# Storm Water Advisory Board

Meeting Minutes  
September 21, 2012

## I. Welcome

The regular meeting of the Storm Water Advisory Board was called to order at 3:02 pm on September 21, 2012 in The Water Center by Chris Bohm (Chair).

### **Present**

#### Board Members

Richard Basore  
Chris Bohm (Chair)  
Hoyt Hillman  
David Leyh  
Mitch Mitchell  
Gary Oborny  
Joe Pajor  
Jim Weber

#### City of Wichita Staff

Tim Davidson  
Mark Hall  
Jim Hardesty  
Don Henry  
Scott Lindebak

#### Visitors

Tom Stiles, Chief, KDHE Bureau of Water  
Lisa French, Project Coordinator, Cheney Watershed WRAPS000

### **Absent**

#### Board Members

Jeff Bradley  
Larry Henry (resigned)

#### City of Wichita Staff

Dale Goter

## II. Approval of Minutes

Chris Bohm (Chair): Welcome to the September 21<sup>st</sup> Storm Water Advisory Meeting. We have Tom Stiles here to speak to us today. Let's go through some old business. First of which would be the review and approval of approval of revised minutes from the August 17<sup>th</sup> meeting. If you don't have copies of the meeting minutes, there are copies on the table. If you would take a moment to review those. I would entertain a motion for approval.

The minutes were reviewed.

Motion to approve by Hoyt Hillman  
Seconded by Jim Weber  
Vote: Unanimously accepted

## **II. Larry Henry's resignation**

The second items, not on the agenda, but I think everyone received an email from Larry Henry has resigned from the board due to other issues and things he has going on. We have enjoyed his experience and input on the issues that we discuss here. I wanted to make sure that is reflected in the minutes and he has sent a letter to Robert Layton and copied Chris in on it and replied to the board by email. I wanted to make everyone aware of that.

## **III. Review Draft questions for Regional Cities Questionnaire**

Chris Bohm (Chair): The next item on the agenda is the survey result from the MS4 Phase II communities that we performed the survey monkey. With that I will turn it over to Scott.

Scott Lindebak: (Attachment A) We sent out the survey and received mixed results. It was sent out multiple times and we ended up getting a 63% response rate to the MS4 Phase II communities in Kansas. We have a list, on a handout that Jim passed out, showing the respondents and we have a list of the ones that didn't supply us a response. We need to make a correction of this morning. Sedgwick County Public Works did respond to the survey. What we found was most of all the respondents had the exact same answer. I can go over each of the questions that we asked communities –

1) Did you provide any unique methods for erosion or string \_\_\_\_\_  
paltering, 29 out of the respondents said not, they didn't have any unique  
methods other than the normal standard practices,

2) Has you're your community implemented post-construction  
development/re-development water quality program requiring permanent  
BMPs. 24 said they have and 5 said they were scheduled to implement;

3) Commonly used water quality treatment practices including storm water  
pond, dry detention, vegetated filter, the list goes on... Does your  
community allow or has it considered any unique methods to water quality  
treatment not commonly used. 29 of the respondents said "no" and one  
person did say they've used some vortex and propriety devices. That is in  
the same realm of what we already use;

4) Is your community considered implementing offsite agriculture based program that reduces upstream or downstream pollution that you can use for a credit for your community in lieu of a permanent on-site BMP or development/re-development. Most of them said no and no implementations. Basically we thought some thought it was a good concept and some said there were many obstacles, and some talked about being "in lieu of" and how that would be determined but most people just wrote no on that line;

5) Any additional input only six respondents had additional questions. We attached two example surveys – one in Johnson County and then one from the city Shawnee provided the most elaborate response from their storm water program. 95% look just like what Johnson County did, basically a "yes" or "no" response. Some of these we did do by survey monkey but we did have to call some people to respond.

Jim Hardesty: We kind of brow beat to reach the 63%. That included calling 32 out of the 46.

Jim Weber: Just for the record, you did not have to call me.

Jim Hardesty: Then the afternoon after we called them or reset the survey for the third time after I left a message to follow up on the survey. So since they were brow beaten into it, I think in future ones 63% may not be as high when we get to Oklahoma. Because we are in the same state as they are and they may not care. I think the fact that they were fellow Kansans may have helped that response rate. The fact that it was sent three times with follow up phone calls probably helped that.

Chris Bohm: Did anyone say they were interested in the results or that they wanted a copy of the results?

Jim Hardesty: Yes, a couple of them do.

Scott Lindebak: We've already contacted the state of Texas in advance to get a proper list of their MS4 contacts. Texas states they need written permission from communities. So there is some resistance at the state level that appears strange on sharing a lot of information on this. I think we are moving forward and focusing on the larger communities. Similar size of Wichita or as a Phase 1 community we may get more interesting responses. Omaha, the Des Moines and other larger cities. Springfield, Missouri might

have more stories to tell as they have developed practices similar to Wichita.

Chris Bohm: Great. Thank you. Any discussion by board on the survey. Are there any actions we should take at this time.

Hoyt Hillman: I would like to commend Scott for pushing this and actually getting feedback. If that what it takes, then maybe we could help them sometimes if it becomes burdensome. This seems useful and that kind of dialog has to begin. We need to know what other people are doing. It is well worth it as far as I am concerned.

Chris Bohm: Any other comments.

Gary Oborny: We are dealing with municipalities would it make sense to talk to some of the engineering companies or colleges that are dealing with these issues. Because they might look at the innovative ways to doing it. So right now we are asking who at the municipality is trying to do unique things and they might be following a standard protocol which probably seems most evident. So if we are really looking for innovative ideas to come up with this I am wondering if we should broaden what our survey scope might be and look at engineering companies and universities, things of that nature. Because when I look at some of the more intriguing and unique ideas that is where they are coming. I wonder if there are ways we can look at that. Our contact at K-State might be able to help us out with the universities.

Scott Lindebak: I agree with what you are saying Gary. Both Jim and I saw a notice that came from EPA nationally asking for all universities to submit through their colleges a program on how to develop sustainable communities. You want specifically which storm water management, I think by April or May they will select a winner that would be able to receive some type of award and that university will also get a continuous grant to help fund additional research. I think what we are seeing is EPA looking to try to stimulate the young folks and colleges to come up with new methodologies to achieve the same result. So, what kind of wording do you want outside of looking into some companies and colleges who did the work and want us to focus on moving survey into additional Phase I communities around Kansas or surrounding states?

Chris Bohm: I was going to make the recommendation that we, at Next meeting, talk about the Universities and/or Engineering firms and maybe

compile a list. Set aside some time to figure out who that would be. Scott asks a very good question, should we ask that this survey be pushed out to some of the surrounding states. I don't know why we wouldn't right now if we have the ability and the staff time to be able to do it over the next month and see if there is any response from the larger communities that you mentioned.

Hoyt Hillman: The other thing that I think that we were talking about last time was after we reviewed a current survey we should look over the responses to the questions and see if we could refine them a little bit. If we are going to universities and other places and looking for a large audience, then maybe we should look at our questions again and maybe expand them a little bit. Have a few more open-ended questions rather than a simple "yes or "no".

Chris Bohm: I would recommend we set aside time at next meeting to talk about colleges and engineering firms that we could approach with a similar survey. Then it would be worth our time to push our survey that we have out a little bit further into the surrounding states and larger cities. Does everyone agree that would be a good course of action?

In the essence of time, I want to respect the speaker's time and keep things moving. So we will push that discussion until the next meeting. Thank you Scott and Jim for the recap of those results.

We have a little time to talk briefly about the Storm Water Manual revisions (Attachment B). Vicky had pushed out an email with those revisions about an hour ago. So I don't know if anyone has had the chance to look at them. These are the changes that we discussed previously that PEC had brought to light regarding some of the storage volume calculations for water quality currents.

Scott Lindebak: That is correct. This Storm Water Manual is red line version based on a suggestion. Joe Pajor made some recommendations. There is only one additional change that we have plans to make that is a \_\_\_\_\_ planning on developing a base map that shows the areas that you can have storage for channel protection volume. They will make a map for us. What we suggest that when we come back next month we can some comments and feedback on the red lines on changes. We don't expect a lot of \_\_\_\_\_ that Joe outlined for us.

Chris Bohm: Do we need to take action to approve on next month meeting. So we will put this on next month's agenda to action either to get more information or approve the changes as they have been presented. This will give everyone a chance to have questions they may have.

#### **IV. Tom Stiles, Chief, KDHE Bureau of Water**

Chris Bohm: Next on the agenda is Mr. Tom Stiles. He is the Chief of the KDHE Bureau of Water. He is going to speak about the testing program. Thank you for coming out. We really appreciate you taking your time and speaking to our group. The floor is yours

Tom Stiles: Some brief remarks as I have gathered from requests that came in, KDHE's sampling that were locations and timelines and the rationale for it. What you have is essentially in Sedgwick County that work of \_\_\_\_\_ sites that KDHE has maintained since 1973. A few of the sites first came on with the advent of \_\_\_\_\_. That includes the Arkansas River, Big River and down to Derby. The Little Arkansas up to Valley Center, and the Cowskin, we know where the original channel comes together. Over time, management objectives and more new data gaps came forward. From 1990's when we just totally expanded statewide the network to increase station coverage. In the course of doing that we added in the station on the big river up at Maize so effectively we bracketed the Big River with Wichita City between them. In 2000 because of so many of the issues that have popped up relative to what is going on here in Wichita. We have added more sites within some of the existing network on the Big River down toward the mouth of the Little Arkansas joined up to new Chisholm Channel. To increase our resolution in terms of ferreting out where impacts are relative to what is happening within the City, how much the Little Arkansas is responsible for water quality and so forth. So it has ongoing investment in establishing long-term base lines by which we can determine whether or not we get to do appropriate TMDLs. All of our TMDLs that we've done in and around your City have been based on this network. Just a base line to help evaluate as management and administration clean water programs have taken foot and progressing and implementing to see the impact or evaluate the net performance of those are. So the solid circle dots represent the stations that the permanent chemistry stream monitors. Some of those also coincide with a biological monitor that we collect which is predominantly macro invertebrates for bug larvae that gives us sense of what long-term

cumulative condition of the streams are. Some examples are down at the Derby site just below the Plant #2 outfall. Over time we've seen an improvement in the biological condition of the macro invertebrates because of the City's investment in taking out FCB of its waste water. Generally the biology we have found on the Cowskin is not very good as it gets down to some of the more natural channel reaches downstream. As we go farther upstream ironically it gets a little more deteriorated. Just because of how things are compounded and the condition of the channels rules all of western Sedgwick rural impacts as well. Little Arkansas tends to be really dinged? because of the pervasive agricultural impacts that are happening in the Little Arkansas marshes as well. You will also notice there are plus signs which represent sampling we did as part of the special study back when bacteria was the big ticket issue back 2000, when we first did the Arkansas River which also coincided with the Riverfest and the keen interest that the Wichita Eagle had in trying to lay blame for the water quality deterioration on the Big River in context of right before the Riverfest kicked off. So we have in some cases we will do special studies to burrow down to see what kind of relative contributions that are coming from certain areas to see if we can isolate on sources. You also see some triangles which represent problematic stream sampling across the state. It is used and has been promoted by EPA as a means to get a better handle on the general condition of waters across the country of which we participate. These are random selections that were there for a year and then we were out of there. These represent where we have been within the County itself. We have done one year of sampling there. Just as a random draw that changes year in and year out to give a statistical sense of overall conditions. We use those for general assessment purposes. Sometimes the data is handy when we might happen to be in a given area. But other than that we do not use them regulatory or TMDL decisions or management decisions. They are basically true assessment type of collection efforts. That essentially is the construction of our network. We have a fairly dense coverage within Sedgwick County and the City itself, More than anywhere else other than perhaps Johnson County. The streams going into the Missouri or the Kansas River. Between the two metro areas we have had strong contribution. What do we sample? We sample a whole suite of things. Anything from pesticides, metals, nutrients, TSS, etc. Again we have some biological monitoring in place there. The whole suite of what is out there. We have always sampled on a determined basis. Schedule says Tuesday to be out on Central Ave. to grab a sample, then we are out there grabbing a sample. We have never keyed it toward events. So over course of time

over two decades we have probably captured some flow events as well as low flow events just because of consistently being out there year in and year out. We have captured the condition of that day. We have never targeted toward “Well there has been a 2” rain in Harvey County” so we will run down to see what is coming down Little Arkansas. It has never been that way. It is just a matter of where our crews are at a given time. As such, our set tends to be skewed a little bit more to normal or dryer flows. Just because those are the conditions we more often than not encounter. If we encounter a wet weather event it was just luck of the draw and we just happened to be there and captured it. If we capture a peak of an event it truly is an aligning of the stars because it wasn't by design that we captured it. It is establishing that long-term base line of condition as it relates to what the states program is in terms of administering the clean water act. It isn't more fulfilling of purpose driven in terms of let's evaluate what the net impact of the Wichita waste water treatment plant is. Although we can ferret some of that out, what committees and boards concern is with stormwater it gets a little fuzzy. I think we have trouble sorting out how much of it is coming from within the MS4 to finding Wichita as opposed to what is coming down the rural watershed of Little Arkansas. Frankly isn't that, in our grand scheme of things, wherewe're focusing attention to make environmental improvements. When it comes to Wichita our bigger issue, and what we'd like to work with the City on, is investing in improving the quality of waste water. Because that is the predominate signal we see on the Arkansas River from the City on down toward Oklahoma. Storm water has not been the most pressing objective for us. Institutionally you can see that by the fact that it has taken forever for us to reissue the next set of stormwater permits. It hasn't been our biggest priority because it's Kansas. We are not the coast, we will not share the EPA's fervent concern over storm water as they do because of their recognition and proximity to East coast urbanized \_\_\_\_\_ there. We are much more rural situation with certain urban islands there. By the way, we need to do certain things, in fact EPA has rung our bell a few times over stumbling around with storm water. But when it comes to management you will find us quite flexible. Ranging from everything from in terms of dictating what practices we're having, what types and timelines as well as monitoring. When it comes to stormwater, we probably encourage Cities to focus on the issues that are important to the local citizens, more so than what is important to the State and State objectives. For us we are looking at the waste water coming out of number two is a more prevalent issues and monitoring how the new plants on the Cowskin are behaving. That is our bigger issue because that is what we see as bigger signal in terms of clean

water types of issues. On wet weather we are more flexible. In your survey on number 4, the prospective of doing an off-site program. What concerns us is what is KDHE committee's acceptance of that. I will tell you, we would love for someone to experiment and see what would happen if you put forth a trading program to not, forgiven dollars, do not put something inside the City, instead invest up in rural water. It would very intriguing to see what method of environmental gain would be to both the Little Arkansas and Big Arkansas when it comes to wet weather loading. You will find us fairly acceptable to that. We think EPA will accepted to it because we can count the terms on what they are all about right now, water quality trading. Legally there is a big nexus between waste water and stormwater. We do not believe that is the case, we believe those are apples and oranges. So we arenot real keen on that perspective. But when it comes to wet water coming off urban developed land versus wet weather loads coming off agricultural land. It is all the same type of delivery and commodity being moved out of their respective water sheds and we can certainly entertain ways to look at offsets and trades relative to that. So Mr. Chair I think that concludes our snap shot. I'd be happy to answer questions or take homework down that we can go back and work up whatever the board wants to look at. Jim, Scott and I met before the meeting to talk about some monitoring type of options and issues. I think they have some good ideas and their thinking is right along the line with what ours have been. The other point of nexus is that EPA has pushed the TMDR and TMDS. Again we are obligated to have and note some allocation loads to storm water. That is probably the only time you will see us get quantitative in terms of what we assign to storm water. It has been very loose in terms of breaking out what the wet weather loads are. There is because of the NPDS program you have to link it into how it is conforming to the expectations of the TMDL. We would say much of what my remarks have been in terms of going small and looking at condition on Jet Creek as opposed to the Big River or what is coming down the developed part of Chisholm or the Big \_\_\_\_\_ going toward the floodway or Cowskin. It is probably more important in this notion of time you are monitoring to where you are actually going to practice is to evaluate performance of the approaches that you are taking. It is going to valuable information for us and especially for you as you lay out a strategy of how you want to manage storm water on the local end. So, I guess if I were to frame this we would say that storm water is your program and it should reflect your priorities of what you are trying to accomplish. As long as it you adhere to the process you are going to find us very flexible for the City implementing its storm water program.

Chris Bohm: Thank you. Questions for Mr. Stiles.

Jim Weber: Is it worth looking at pushing more money toward treatment plants? One alternative is to go out and to do off-site visits. Is it an alternative we should look as or push a higher level not by regulation but of choice, to do a higher level of treatment at the water treatment plants as opposed to doing water quality?

Tom Stiles: I'd say yes. If I were to rank the three major sources, the whole thing being relevant, Wichita Waste Water, Wichita Storm Water, Little Arkansas and I am discounting what might be coming down the bigger river and up above me which tends to sometimes be there and more often not. It's a kind of a disjointed river, between Hutchison and Maize. But if you are looking at Little Arkansas, Wichita Waste Water, Wichita Stormwater, I would rank them Wichita Waste Water, (we would like to see a lot of investing), then Little Arkansas agriculture and then Wichita Storm Water. If you were to layout a schematic of Capital investment that is where we would go.

Jim Weber: You probably don't know, but discharge for Plant #2 during the low flow time, the discharge to the river is what percentage of the total flow of the river? Do we know?

Tom Stiles: It's going to be over 50%, about 60-70% of your low void, but under your design void it would be even better like 75%. This last summer Wichita Waste Water validated the flow moving down toward Derby and Oxford.

Gary Oborny: If we improve waste water treatment will we be able to get credit against that towards stormwater quantities via the permit?

Tom Stiles: To some manner we think so. EPA put out this notion of integrated planning which allows for municipalities to begin to pick choices of where it wants to make its investments. It's very fuzzy in terms of what sounds good and then when EPA gets through they would say "why would we do that". Under the concept of context of integrated planning we think that your idea Gary would play into that. We could basically give credit toward where the investments the City has made because it registers the greatest environmental good and to offset the demand on what expected for the storm water. The only constraint on that would be what are the

minimum requirements of the clean water act and what the six elements would have to say. In the realm of TMDL, you bet you. I guarantee we would load up on that end. To the six minimum requirements, to what degree you can play to that, although the six minimum elements in and of themselves do not really have to play the credits. You just have to hit those minimum marks. I think we could work out accommodation of a grand master plan on the part of the City to layout where it is going to make its capital investments to improve water quality. We are open to the concept.

Gary Oborny: So that would be true with other techniques we might be using or other processes, not that it would be economically viable, but the water recharge. If we pulling those particular items out could we get credit for that?

Tom Stiles: It gets a little sticker there.

Gary Oborny: Aren't you achieving the same thing?

Tom Stiles: But remember when the City is pulling water on the ASR it is settling and it fires it back into the Little Arkansas.

David Leyh: If it didn't fire back into the Little Arkansas and managed that, you are already pulling it out of the river and it is now contained, we just don't discharge it back into the little Arkansas then we are doing an improvement.

Tom Stiles: That is true. Anyway it would create a PR bonus for you because the farmers up in northern Sedgwick and Harvey County are still gritting their teeth over why they have to do land treatment to keep sediment out and they see the ASR returning sediment in there. Even though it is legal under Kansas standards, there is nothing illegal about it, it just frosts them. There is a way to look at that, if you were able to figure out a way to not discharge it back into the Little Arkansas and maintaining the big picture perspective there. Everything I have done is based on caveat that you do not have some local issue that is defining there. In other words, you let something slide within Cowskin and sell it because you are doing great things at Little Arkansas. The Cowskin stands on its own and there are citizens that find themselves enamored with the Cowskin and will not be placated because you guys are going great things.

David Leyh: We have things in place where we can try to implement pretty immediately that will have an impact. Such as that.

Tom Stiles: Exactly. For the most part there are three parameters of primary concerns for us - 1) Bacteria, 2) Nutrients, and 3) Sediment. What you suggest on the ASR probably tackles a sediment sight. Wichita Waste Water is not the problem because Wichita knocks out the TSS. They take out the bacteria. Those two of the three are not the problem to waste water end of things. That plays more to nutrients everybody in the pool. That is what our primary discussion has been with the City on the waste water is on the nutrients in there. So we need to match-make a little bit on what you are proposing in terms of where offset might apply there. I can make a case where we certainly could be supportive on something like that, but it has to be framed as a plan that is fairly comprehensive as master strategy and it basically have safeguards in it to ensure it is not just paper and a wish and a prayer, that there are milestones we try to hit. We need to maintain verification of effort as well as an audit for all its on-going evaluation of the net impact to the resource.

David Leyh: The way I look at it is each is a component piece of an overall better picture of how we handle the resources here and how we address the same issues. Where are we with pollution and trying to eliminate the pollution we have at hand. The EPA is giving us some general guidelines and wanting us to do some specific things, but we can handle it in a better manner. The end result is what everyone is trying to seek.

Gary Oborny: Would CRP also fall into that category, like what we are doing with the Cheney Wraps program. Would we not want to be creating credit for that too?

Tom Stiles: Well make your linkage between CRP and the City's efforts. How are you doing that Gary?

Gary Oborny: The City is purchasing CRP through the Cheney Wraps program. Which is basically taking crop land out of production which causes a big quantity of items that we are seeing coming into those basins. Again it is a credit type deal. If we are doing water quality over here why can we not get credit for it.

Tom Stiles: If you created a market place approach where you were taking crop land out of production in the Little Arkansas. That is exactly the kind of offset we are looking at. Where we wouldn't go is if you are doing stuff up in Cheney and then want to take credit for it here in Wichita. That is not going to fly. Completely different drainages.

Chris Bohm: In the same basin. I have a question on our permit with Wichita'sKDHE, it is specific in its language that you have to do stormwater treatment on site. It is specific. I think the fear of some on the board have been well if we would implement a broader base plan it would end up doing two things but there would still requirement on-site that would really not go away. So you end up doing two things. How can that be handled?

Tom Stiles: We would have to work out the language appropriately so you do not create double jeopardy for the City. Basically I'll sucker you into doing stuff in the Little Arkansas and then say, oh by the way you still have to do what is on the site. We would have to craft what is called a trading program and encapsulate it within the context of the permit. Because then that would give the City safe harbor when it come to that type of thing.

Gary Oborny: Could you see a program where, for instance, we were able to track, as we do now with the City, how many acres are developed or what is developed and that falls into an ex-numerical number. Then we go up by the acre and whatever we do and do water quality in basin and at the end of the year we would estimate how much would happen during that given year and then we would have reconciliation at the end of the year. If you plus or minus, if you have done more water quality than what you developed in the City, then you would have a credit that goes to the next year.

Tom Stiles: Yes and no Gary. First off this counting and tracking would have to be established because it creates the verification aspect of it. Second, under water quality trading parliaments of EPA we can expect that there is going to be multipliers that suppose we don't want to put a dollar on something in the City while to be able to do that you will need to put \$3 in Little Arkansas. It is going to be this 3-to-1 offset sort of thing.

Lisa French: It is not necessary dollars...

Tom Stiles: No not dollars using it just as a unit. One acre within the City you will want to do three acres in Little Arkansas. Thank you Lisa. That is the better way to do it. Because in the end three acres up in Little Arkansas is still cheaper than the one acre within the City. So tracking that and what the appropriate offset up there has to be done.

Gary Oborny: How about BMP practices, for instance parking lot sweeping. A lot of us do parking lot sweeping at our locations. That is at least all of articles I've read, all the testing that has been out there, the different universities, the different groups that have tested. We physically gone out

and looked at our street sweeping and had a machine go up to a property, do the property and then take a look at what was in there. It was fairly substantial of what to do in the parking lots. How get credit for that because we are affecting water quality when we do that.

Tom Stiles: Is housecleaning one of the six elements? So that is where you get your credit. That is the sort of information you should be feeding into Scott's program to get credit for minimum requirements of the law. That is one of the six elements.

Chris Bohm: Scott, your crews do a lot of that in the City proper, regular cleaning. So how do we quantify it?

Scott Lindebak: We calculate the number of lane miles that we do on public street but I consider that a mitigation. If this is a mitigating factor in terms of trying to eliminate or reduce \_\_\_\_\_. I haven't seen that being used as a permanent on-site BMP but it is a BMP that can be used to reduce the number of times you have to maintain your on-site permit BMP. Maybe you only have to clean out twice, once every 2 years because of the frequency that you vacuum. I know that Towne West vacuums their parking lot on weekly basis but based on the volume of trash that comes into our pump station that we pump over the floodway it is substantial. There is no way of completely reducing the trash and debris just through street sweeping alone. That is what I understand is that there still needs to be an on-site permanent BMP that acts as that guard before it leaves that site. It is certainly one of the six minimum elements and good housekeeping mitigates future maintenance.

Gary Oborny: Could that be categorized as a permanent BMP if it was registered with the deed? A lot of us have deeded items we also have private development agreements that get filed with the property that are permanent. So if that was listed in there could that not be then credited as a permanent BMP?

Scott Lindebak: It is not permanent because it is not actually controlled. It is not a control between the stream and your site or between the City's MS4 and your site. If it is done we actually, like in our community, will clean our storm sewer lines as well as the streets and ditches. So we are cleaning all the way through. But we are not limited to street sweeping we are doing a lot more between the creek and our storm sewer system. I think it is something to consider. I have not seen street sweeping by itself being

considered being a permanent BMP anywhere where there is no requirement for stormwater management if you did street sweeping.

Gary Oborny: It would be nice to get not just credit for that, but if there was a way to figure out how to make it a permanent BMP. We have parking, for instance, we don't need our parking requirements. We often have an off-site parking agreement that gets filed with the deed and it is permanent. It has to stay like that and you get credit for it. So we do credit for other things. My thought is that the sediment is not getting into the system who cares if it is before, after, middle or whenever as long as you prevent it from getting in there and you have a routine form maintenance and you are guaranteed as the City or KDHE that this will travel with deed so the next owner has to do the same thing. There are provisions. I know of a number of properties where we have permanent development agreements and people have to meet those qualifications with whoever owns the piece of property or the purchaser. So I am just wondering why.

Scott Lindebak: It would be an interesting question to ask universities and maybe seeing if anyone has done a study to see if just doing street sweeping alone would that be consider a permanent BMP. Because my experience from what I have seen in our storm sewer systems we're even. There is businesses that do street sweeping where a lot material comes in from those, enough to fill this whole room.

Jim Weber: There may be some level ground. Gary is talking about using street or parking lot sweeping and not putting in BMP.

Gary Oborny: I am talking about getting credit.

Jim Weber: I understand. I don't think you can get credit. I am wondering if you could downsize the permanent BMP to catch what you are worried about catching and lessen the impact on the site. But they may have sign up to forever and ever do sweeping and if they don't then maybe the City needs to send someone out to do it and send them a bill. I am not sure that works out but I think that is kind of what is reasonable.

Scott Lindebak: No, I think that is fair.

Jim Weber: I don't think that anybody gets credit under the six. I think as a government agency you almost have a mandate to go out and do the street sweeping. You don't get credit for it you just have to go do it, but we don't make private owners do that. There may be some place go with that.

Scott Lindebak: I discussed it with Don and I need to do more discussion with Alan but after this last rain event three weeks ago comparing to what our stations were before the rain event our pump stations were spotless until what we reviewed after rain. Then I also looked at some hydrodynamic separators as well as some devices that were called snouts. These snouts not even a tenth the cost of the hydrodynamic separator and what we found were they cost \$2,000 a structure and probably producing 80% - 85% results or even better than the hydrodynamic separator. Maybe we can find, rather than a \$25,000 hydrodynamic separator, the City would be saying hey you guys should be looking at some other tools that we would be welcome on sites five acres or smaller maybe snouts are the solution. Because it is a very small device. It is basically a plastic shield that goes in front of the storm inlet. I know that several consulting firms have used them and highly effective in terms of the trash and sediment removal and it get a lot of bang for the buck. Maybe not have to spend the astronomical amount. Maybe the cost of these BMPs might wipe away the need to consider doing some of this bigger water shed approach and try to simplify things. Something worth talking about in another presentation more down the road. Maybe the next two months.

Chris Bohm: Other questions for Mr. Stiles.

David Leyh: Right now we are looking at the street sweeping for the City is a required commitment by the City to try and do a certain level of reduction of materials in our grant system. What about taking that as a base and add additional street sweepings. Could we not if we get enough street sweepings in year to take a look at the effectiveness of that and would that not be considered something we could turn into an offset. If we currently do four street sweeping a year and if we do two more and we do them where we believe they are timed to where they do their most effectiveness for our City's benefit, would that no increase and also be considered as an offset as well. It would be the entire community wide. Just throwing out that idea.

Scott Lindebak: It's great. It is something worth considering.

David Leyh: That is something that is already in place. It is just a matter of funding and...

Chris Bohm: Taking credit for it and incremental benefit. Hoyt?

Hoyt Hillman: I would like to hear Lisa's version of upstream projects so that we can continue the discussion with her background included in this discussion.

Chris Bohm: Jim did you have a questions before we move on?

Jim Weber: Tom you mentioned water quality trading and there are places where this is happening now, some examples that are out there or is this a concept they are trying to get into?

Tom Stiles: There is talk. There has been examples that are out east, up in Michigan, around Detroit. It is pretty easy to tap EPA's site and just have them search up water quality trading and it will display some. We're not sure if those are real examples or not or whether they are just smoke and mirror, looks good on paper and not sure how effective it is. Our thinking has been, we actually funded K-State to look at it, is the notion of water quality trading between waste water and agriculture offset to us does not work on a couple of fronts. First off, what comes out of the waste water plants tends to be the more biologically available form, the nutrients, as opposed to what is coming off the agriculture land, which is attached to sediment. So it is not exactly same commodity that is potentially being traded now. Second, as we have seen and what the guidance has been in terms of water quality trading policy BPA, the City's on hook to ensure those practices are installed and maintained and perpetuated over time. If some reason the Farmer with \$8 corn decides to tear out it falls to the City who finds they are jeopardized as violating conditions of the permit. From that we didn't want to put cities in that liability front. There may be ways to doing it. I think it might be a good proving ground for whether or not some of this might work is to go look at what EPAs are doing the Chesapeake Bay. They are really promoting water quality trading to some degree. That might be some examples. We just have never believed that it would work here, but we have also brokered the idea that it would work for urban storm water. Now some commodities are the same thing and you still have some of the condition there but you have a record of tracking instead of this acre of developed land within Wichita you went up and did 3-5 acres along sand creek or something in north Sedgwick County to put in CRP or buffers or something to offset some of that. That has more viability to us than it does in the classic sense that EPA promoted more quality trading. Again I probably refer to EPA web site as the best place to do some research on what has been done and examples of what has been done. Some people are really high on it. Tracy Mehan who used to be the Assistant

Administrator of EPA and now he is with \_\_\_\_\_. It is like he is the prophet of water quality trading. He keeps preaching it wherever he goes. There has got to be some stuff out there on the internet to get some more background information on how these things might work.

Jim Weber: Did you say you've been thinking about working with a project with one of your universities or have worked on one?

Tom Stiles: No, K-State was more of an esoteric evaluation of whether the trading was there. K-State's feeling was basically was in them looking at waste water discharge along the Arkansas River. They said it probably wouldn't fly unless the state imposed new criteria and force the waste water to hit a certain number. We don't do that either. We are looking at reductions, technology based types of waste water treatment as opposed to classic water quality criteria. So water quality trading makes more sense if we create a very rigid closed market of that pollutant commodity. Like you said, this is the cap and it cannot go any more than that, then how does it get traded out. Okay we can work that. We don't know if the Kansas environment is immutable to try and stay out of \_\_\_\_\_ caps. We are more looking at relative reduction goals as opposed to maintaining a set hard allocation. It is a set hard allocation from that perspective. Our thinking has been very skittish about concentrating. Again this notion of tying it into urban storm water certainly has some validity to it that we would like to see explored. It is not just you guys we have talked about. We talked about your survey called clean 19 and less forward groups. We have approached the idea to them. We have talked to Newton quite a bit about and in fact we could probably tie future TMDLs to try to link up MS4s with corresponding groups to say where the two groups can find proper opportunities to effectively reduce the net. We are receptive to it but not as an offset to waste water.

#### V. **Lisa French, Project Coordinator, Cheney Watershed**

Chris Bohm: With your mention of wraps, that is a perfect segue into Ms. Lisa French who is here to talk about the wraps program. I will turn the floor over to you.

Lisa French: I have a presentation (Attachment C). I think some of you have seen this presentation before and you know a fair amount about this project and there are some of you who probably don't know about it. This is a project that has been going for probably since the early 90's. So it has been close to about 20 years now. Our office is in south Hutchinson. We

work through the USDA service center so that we are in a location where we see farmers on a regular basis and we work closely with USDA agencies.

As you all know the reservoir was built in the mid 60's. It was water supply for the City of Wichita, but also flood control and recreation. It is currently around 70% of the City's water supply plus other communities that buy water from the City of Wichita. As you can see from this the water shed extends over parts of five counties. Even though the primary part is Reno County portions are out in Stafford County, Pratt County and a little bit into Kiowa County and some in Kingman County. We are primarily working in Reno County right now. We have determined that is the area that will give us the biggest bang for the buck. We do some other projects in the other counties by we primarily work in Reno. It is about 1,000 square miles, 633,000 acres and it is 99% agriculture. So there is no opportunity here for farmers to say it's somebody's else's problem. We know what it is. This water shed is very diverse. Reno County in particular has very diverse agriculture. Probably more farms in Reno County than any other county in Kansas because there are a lot of small farms there. There are a group of small dairies. We have an Amish community around Partridge and a lot of them have 100-120 cow dairies. Diversified crop or livestock farms across the whole water shed. A fair amount of range land that generally follows the streams, which is good for us because we do not farm right up to the stream we generally have grass there as long as it is well managed. This also means we have cattle in the streams. But that is another issue. There is a fair amount of irrigated farming and more all the time. That is becoming a little bit of a concern for us. 17-20% of the APRs are in CRP grass and we have really worked hard to make that area a priority area for CRP. So when there is a sign-up to put grass in we get extra points. So it is easier to get land signed up in the CRP. In the 10- to 15-year contract in grass. The initial concerns in the early 90's were farmers were seeing bank erosion like in the upper left hand corner and they were concerned about that. They knew what that would mean for the reservoir down the stream. At the same time the City was starting to experience taste and odor problems. They just coincided at the right time and the conservationists in both counties put people together to talk to each other and talk to the City about what might happen. That was how our project got started.

As they began to look at it a little closer we came to understand that the two main issues were sediment and phosphorous. Phosphorous not only from livestock but also from commercial fertilizer but also natural occurring phosphorous that is in the soil within the water shed. The sediment issue is

a water quality issue but also an issue with taking up the storage within the reservoir. So the more sediment that goes down to the reservoir the less storage we are going to have. There is a definite end life to the reservoir as far as at some point it is going to fill with sediment and we are going to have to do something about it. That will be another expensive thing. Part of our goal is to extend the life as long as possible. Maybe that is doubling its life from 100 years to 200 years.

So the structure that we set up is organized through the Reno County Conservation District. They have a citizen's management committee that helps run the project. They are all either land owners or operators within the water shed, seven people. We have also set up a non-profit organization so we can operate either as water conservation district or a non-profit organization.

In the timeframe between 1994 and 2006 we have done over 1,300 projects and it is more now. It is always hard for us to tell you how many that we did because the way we track them is by a practice. So you might do three practices to get one project done. Maybe you put in fencing, put in a water source for cattle and did your did something else. So really it was one project but in our database it looks like we did three things. So I think that is fairly accurate. As you can see throughout all the water shed in the beginning we did a lot of things but clear out there in the tail end of the watershed probably made did not help the lake at all. I don't think. We know now we are going to have to be on the eastern half to eastern third and we are going to have to be closer to the streams and we are going to pay more attention to what things we do. At one time we helped \_\_\_\_\_ on household waste water systems. Unless they were dumping right to the stream that probably did not matter either. So we do not do that one any more unless we can document that it is really a critical issue that has a pipe going to the stream.

So, a little more about that partnership. First of all, we have the right structure of people that we are expecting to do something or the people that are in charge know what the problem is and they know they have ownership in the goals and the plan and they have some power to decide what we are going to do as we go through this project. We have this great partnership with the City. The City provides some matching funds. We use those funds to leverage other dollars. So sometimes City money is the only money that goes into these sites with the land owner puts in. But most of the time it is a small portion of the project and we leverage cost share that is

State dollars or Federal dollars. We are working with one that is now to our lake and parks project. We try to leverage it as much as we can often the land owner has a pretty good share in there as well.

The citizen's management committee is the one that makes decisions about the funding. Whether they think it is valuable or not and how it should be used.

We have had a wealth of good information from the beginning. The City worked with USGS and had them monitoring within the water shed. So we have all kinds of information from USGS. Also because we had that initial data that has attracted all kinds of people who want to do research in the water shed. K-State has been there. Kansas University is there. Nationally we have had NRCS there. In October we will have a Stream specialist from Oregon will be coming to measure bank erosion. We have a hydraulic engineer that comes from Arkansas every year. So it gives us more information all the time. We ask them when they do a project to bring it to this board and explain it in terms that they can go to co-op and tell somebody at the co-op what they learned. So it is not just lost in a report some place and that helps guide those decisions.

We work really hard with local leaders. We look for more people all the time and we send them to things like Kansas Environmental Leadership program or we try to take them to Water Conferences or something so they have a chance to learn new things but we also require them to speak at events or if we have field day like this they will be the host and they introduce people and they talk about why it is important for them and their neighbors to do something about water quality. That is a critical thing, this farmer to farmer information sharing is probably the most effective thing that we can do. If they just hear it from NRCS or someone from the City of Wichita it probably is not going to fly. I have lots of strong partnerships. I've mentioned those.

Current work (referring to slide). This is the hydrologist that will be here in October.

These are the types of things we do (referring to slide). This one I have become convinced in the last two years is probably the most critical thing we can do but it is the hardest thing to supervise. It is very hard to convince someone to care about soil health if they do not already care about it. It means not disturbing the soil and having some kind of residue all the time. It may be no-till but I think it is going to more than no-till. So there are some programs we do not really put any Wichita money into them but they are

through some of the Federal cost share programs. They can get some incentive money to go to no-till. Beyond that we are looking at even more diversity in what they grow. They need the cover crops and maybe they need multiple things growing at the same time and they need little roots in the soil as much as possible. That is way different than the agriculture that we see in that water shed. So this won't be hard to sell. It is kind of the new thing right now.

These are more traditional kinds of things, things we've been doing along (referring to slide). Helping people put in waterways and put terraces on their ground. All the cost share programs are geared to deliver this and we've got the technical expertise. It is a fairly easy to do. We have done lots and lots of them.

Healthy range land (referring to slide). You can come at that from lots of different ways and it goes back to the same thing – soil health. You need roots in the ground, soil covered and a diversity of species. That one has been a hard one this year. Two years of draught and people are tempted to leave the same amount of cattle out there that have always been there and the grass is not growing. So this one is tough and we are going to pay for it for a while.

Wetland development (referring to slide). This one happens to be just off the Ninnescah River in western Reno County. This little wetland is right off the river and it probably captures drainage from about 1,000 acres or more. It is a nice project. It is going to settle up sediment and process any herbicides or pesticides will be used up before they go to the river.

We do work with livestock projects as far as everything that is a confined feeding area in the watershed has been addressed in some way. Then you have things like this (slide) where you feed in the winter time and you use the stream for a water source and so sometimes the best thing we can do is provide water away from the stream and that is going to be reliable water for the cattle. They prefer a tank to the stream. Sometimes we move the whole feeding area. I don't know why but for some reason it makes sense to put your hay feeder right by the stream because the cow can eat and get a drink at the same time. There is no reason it has to be like that. They can put the hay feeder somewhere else. It doesn't cost them or us anything. That is just education. Someone should restrict the livestock from the stream. We do that when we can. Sometimes it doesn't make sense. If you have a long narrow pasture you cannot fence the stream off. So we do

what we can and often just providing water in another place is a big step. I mentioned that most of the confined operations have some kind of waste system in place. This is a small dairy (slide) all but one that I know of have some kind of waste system where they can capture all the run-off from their moths (?) and solid waste. But then the important thing is that once it is captured they are going to do something with it – use it to fertilize a field and they need to do it in the right way. So we work with them to do soil testing and also testing ways they are getting it applied in the right amounts in the right places. That is an on-going challenge. It is easiest to haul it to whatever is closest to the barn or whatever is closest to the water. The field that is the easiest to get in and around. That is an on-going thing.

One thing that is unique in this water shed and now some of the Federal Cost Share programs have picked this up. We started a program where Wichita paid for 50% of the cost to put in up to 2 miles of perimeter fence when a CRP contract expired if the producer agreed to keep it in grass for 10 years and they graze it and have a management plan and work that out with us. They have to maintain the fence. This has been a real successful thing. If you have to put the fence in yourself it is a big enough expense you might not especially when corn is \$8 – you might decide you will go to corn.

We do education (slide) with farmers we have taken them (picture on the right) to a stream with a biologist and talked about what \_\_\_\_\_ and invertebrates were there. One of those farmers was a fly fisherman so he was real interested in what was going to be there. The group on the bottom is a group of professionals that do training sometimes in the watershed and we help with those. We do some things with kids. We have not done a lot of projects with kids. We prefer to work more closely with the farmers but I have been here long enough I am starting to see the kids are starting to farm. So maybe it is important to do that. Try to catch them before they have bad habits in place.

These are the things I see that are changing in the watershed or changing in general. Maybe a decline in the number of BMPs we do every year. Because I think we have done the low hanging fruit. The things that were easy to do. The people who know about water conservation district. Those things happen pretty readily. We know some of the things we need to do know are harder. There are people who do not use cost share programs or they don't see the need for it so they are going to take some convincing or recruiting. We are working harder at recruiting than we probably ever had. Cost share is getting more focused and less generic. I've mentioned that

there are some things that we don't provide cost share for any more and some things we do not even mess with. So we are trying to focus in more on what is delivering phosphorous and what is delivering sediment to the reservoir. It might be a great project on somebody's farm. Do a nice thing for them and making their farm better but it might have an impact on the reservoir. There are an increasing number of people who bought land in the watershed for recreation purposes. They have very different ideas about what their goals are than someone whose owns it for purposes of raising a crop or livestock. So they may not want cattle out there at all but they might want something else. Or they may have the means to have their own bull dozer and change the stream without someone knowing about it. Sometimes they are the very best partners that we could have because they are not financially bound by what they can make off the land. Also increasing crop prices. We had a CRP sign up last spring and there were a number of acres that came out of CRP because people just were not interested in putting it back in. Crop prices are too good and whether it was the farm operator or the land owner who lives in California says why is there grass when we could be raising a high price crop. I think it is fine when it is cases where land that is away from the stream and maybe we are doing no-till farming or different than we used to or maybe it went into CRP as a retirement. Some of those acres I think it is fine that they are coming out. We are also seeing some more \_\_\_\_\_ areas that are coming out. This is not a steady progression of fixing things and fixing things and we'll be done. Because we go backwards at the same time they are going forward. You know that from what happens in the City as well.

David Leyh: With CRP what is the price right now?

Lisa French: For a rental payment. I would say it probably varies from \$35 to \$45 and acre per year for 10 years. So it is a nice guaranteed income but you have the potential to make more on crops. That is considering that you have decent soil. What I am seeing is some of the fields that are coming out are in really poor areas. They are not going to make that much raising crops or not consistently. So it is sometimes it is just a matter of not remembering what that was like to farm it before.

David Leyh: Is part of the issue maybe CRP is not attractive enough. Do we need to take a look at changing that evaluation for the benefit for the high productive yields.

Lisa French: Yes. The way the CRP program is set up is that they pay more on best ground and less on poor ground. Which kind of fits with rental rates. But I would like to see those poor spots have a real incentive to keep them in and not on the really good ground. So that is an awkward thing to handle.

Gary Oborny: You talked a little about some of these BMP practices that you help promote or actually help pay for. They are for certain time periods. How do you make sure you have compliance? Because that is one of the thing we just discussed here is how you create a permanent compliance situation or a time period compliance.

Lisa French: That is a really good question. If we tie it with one of the State or Federal programs they have compliance built in to that. So they do regular spot checks. Now they are not going to look everything every year but they do spot checks. They will go back and take a certain number of contracts every year and they will look at them and see what they look like. So in that case we do not worry too much about it we just turn over that over to them. The land owner does sign an agreement that they will maintain it for a certain period of time, 10 years is probably pretty standard. I've seen some that are 15 or 20. The only one that we really maintain on our own is that fencing. I haven't seen a lot of problem with that over the life of it. We go out and look at them again. I've had one where it was basically turned into a feed lot about the 9<sup>th</sup> year of the contract. So we started to address it but he was out of it the next year. That one is probably the only one that was really a problem. Sometimes they are not really the best grazing management but they are still in grass and we are better off there with a living plant with roots than we are if we farm it and till it every year.

Gary Oborny: It sounds like it has not been a real big issue.

Lisa French: No, it is not a real big issue. The other thing we have this board that are 7 farmers that are spread out across that water shed and they pretty well know what is going on and they will come tell me if they think there is something out of line. We do have a few, not so much we've caught shared on, but if you CRP out and it was classified as highly erodible land you would have to put conservation practices on it in order to farm it. There are a few that have come out last year that they just plowed it up and they are out of compliance with the farm programs and are not eligible for any kind of farm program payments unless they fix that. There are a few that have had someone come talk to us about those.

Gary Oborny: Do you see some similarities of what you are doing and what we are trying to accomplish? Do you have some ideas you could share with us on how we could, what we are looking to do here is to try to beat the mandates but do it in an alternative economic fashion. Maybe that makes a little more sense and more cost effective.

Lisa French: I think you learn some things from what happened in this project early on that we realized were very not effective. If you set up some trading program I would not offer everything in the water. Should I be real specific about where you are going to do it and where it is going to give you some benefit and I would look at specific practices that will give you the biggest bang for the buck. I know those training programs have looked at different ways to do that, like auctions and estimate the load reduction ahead of time and pay based on the load reduction, you want to look and see how set up. In this case, if it had anything to do with water quality in the beginning we were putting some money into it. We learned that was not the right way. You need to be more specific than that. I don't know if that compliance issue may be one. You will need a written agreement that it is maintained for a certain amount of time so you can go back to that land owner. When crop prices spike up they always come back down again, but when they spike up again the temptation is there to do something different. That is about all I have. The people who in the leadership group need to recognize a problem and they need to be able to talk to their neighbors and they have some power to make a decision for what is going to work best for them. There is another watershed program that is more regulatory and I do not think they have had as good of success of getting things implemented because there is resistance there. I'll say one thing is that in our watershed Wichita is seen is a really good partner. That is a real positive. People have a lot of good questions in the beginning, what are they going require us to do, are we going to have to let people come hunt on our land, what does that mean. By the time they get that first check helping them do a project they start thinking maybe this is Okay. Other things would be if you can figure out a way to tie it with farmers in the watershed or conservation district or something that is already structured that is using farmers I think that would be a useful thing to do. Tom (Stiles) may have some other suggestion on how you might ...

Richard Basore: I think one of the secrets of this groups success it that Wichita has a checkbook and provides funding to them, but it is the local group of people out there who are making the decisions as to who gets paid on which practice. People apply and say yeah we'll do this or that and the

other, but Wichita does not set at the table and vote who gets money and who doesn't. There is a lot of angst and whatever strong feelings in rural areas, as Tom eluded to earlier, vs. Wichita \_\_\_\_\_. There is a long heritage of City and rural relationship hasn't always been the best. There are some still out there. To sell programs you don't want to show up and say this is Wichita coming to help us or be heavy-handed about it. If you are in the background doing this as a helping hand then that allows the locals to give credibility to get the thing done. I think that has been the real secret over there and Wichita has been willing to partner but not literally in a directional or leadership role telling them how to do it. Let the locals figure out how to make the program that works best and they are there to help and succeed. You might mention just a little on how you handle the land board. You mentioned the Californian who, we have an increasing percentage of land that is owned by people who are not farmers and maybe if their granddad was a farmer they worked in town and the only time they got together is Thanksgiving dinner. They have no concept of how agriculture works.

Lisa French: Sometimes they are not even in California, they may be in Reno County but they inherited the land. We have a little project we are working on right now that works with women land owners because they tend to own 50% land and they may not have been actively involved in the farm or at least with conservation works. So we have started a little project where we do a workshop with them talking about the value of conservation practices and show them what they look like. We go out and do a field tour and look and see what they look like. So when the farm operator is interested in putting terraces in it is going to cost them something then they don't balk or back off from that so they understand there is a value to it. The ones that are a long way away are harder. We try to communicate with them as much as we can and then provide information to the farm operator so they have some ammunition or ideas of how they can approach their land owners. Some of them live a long ways away and when they are here we try to see them when they come to visit.

Mitch Mitchell: What is the City's contribution per year now and how much was it in the beginning?

Lisa French: When it started the commitment was we'll put \$200,000 a year in to the project and we have never spent that much money in the whole time. Because we use that money to partner with cost share programs and cost share programs have gotten less over time, it has gone down some,

and we probably do less BMPs every year. So it has gone down some. I would say now we have some funding that comes in to pay part of our office expenses. Most of that comes through KDHE. Now it is probably in the range of \$100,000-150,000 per year.

Mitch Mitchell: I think we just approved \$140,000 if I recall.

Chris Bohm: What results have you seen?

Lisa French: That is another really good question because there are mixed results there. I think a few years ago USGS did a little analysis to say how has the water in river changed at their monitoring point. They could not see a cleartrend towards improvement. They didn't see a clear trend that it got worse so nothing's deteriorated so maybe that is a positive thing. The City say they see less \_\_\_\_ order events and algae blooms from the 90's. I don't know if that will continue and whether that is a function of something else or if it can be attributed to that. That I don't know. The Kansas Biological survey they did some chlorine in the reservoir in the last year and their initial analysis of that said they see a decreasing trend in phosphorous. So that may be something we want to look at a little bit more. K-State some of their stuff showed some decreasing trends. I don't know how that is going to play in but we will look at that. We are going to be redoing the TMDLs this year so we will be working with Tom (Stiles). We will take all this data together and look at. One thing is that we know the things we are doing are probably the right things. We might not be doing them in the right spot and so we will be getting more focused and doing things in the most critical places is probably a big key. There was a National conservation Effects Assessment project that was done across the nation and our watershed was one that was studied. One of things they told us from that was that you can't measure on that large of a watershed and see changes in 10-14 years time. You need to measure on a smaller scale. Also there is a time lag. So when you do something here you do not necessary see it downstream right away. I think we are learning a whole lot of things but it doesn't give me any real strong data to tell somebody.

Richard Basore: One of the things I tell people is remember Cheney Reservoir had a 50-year head start on these folks. It already had phosphorous load and a sediment load it already before they ever showed up. So if they had a strong desire to go in there now,, it had a tremendous load in there and every time the wind blew it comes up off the bottom and becomes stirred up in the water column.

David Leyh: It is hard to measure it, obviously, but what do you think has been a true impact and do you think there has been a positive impact? How big do you think it may actually be? It is not quantitative but what are your thoughts?

Lisa French: I would say that the goal that I think we almost have to have, at least as far as the work that I do, is are people thinking differently about the way they manage their farm. I think that is the key. Because if they think differently you might not have to put money into what they do. So I almost feel that should be our whole goal is to have people thinking about water quality as they go along. So day-to-day they make decisions they don't set things up that become a problem. I know that we've had impasse but I don't know if we can measure. Tom do you have a thought on that?

Tom Stiles: I wasn't paying close enough attention. Was it 663,000 acres?

Lisa French: 633,000 acres

Tom Stiles: What was the percentage of that was actually getting treated with this project.

Lisa French: We worked throughout the whole thing from the beginning. But probably 1/3 to 1/2 now is probably the main goal. I have this matrix on my bulletin board that in appropriate land treatment in some areas are fine and does not have any impact. Inappropriate land treatment in vulnerable areas is where we have to work. So we have to look for where the most vulnerable parts of the watershed is and they may have to treat it in a way that is totally different than everybody else. The other thing is USGS has done some looking and it looks like maybe mostly sediment has gone into the reservoir in about 5-6 events over that last 20-30-40 years. That is very different implications for what we ought to be doing in the watershed than these standard practices that are for normal weather. We may need something that, going back to that soil health thing where you have living roots in the soil all the time, that could handle those storms.

Tom Stiles: Two big things that have come out of the \_\_\_\_\_ center has been the libraries for adaptive management. They try things and the USGS study came out two years ago, we looked at it and essentially saw nothing. Others would have said well then what is the point. They didn't they said then we are not doing it right. That didn't work, let's rethink what we need to do in terms of targeting and getting knowledge. Lisa makes a great point. Not all acres are the same. Proximity to the stream and the impact of the

acres on the stream is something that we need to become more aware of. So thinking in terms of gathering information and realizing we miss- stepped here or that didn't conform to what we thought would happen, let's try a different tact. We look to Cheney as the first group to really take that to heart and move forward. A very strongly invested group of stakeholders in that watershed that are not just going to say I'm done I have farming to do. They plowed back in to it. The second one is expanding knowledge base. We learn things like the loads are coming on very specific spikes, storm events. Most of the time when we collect again we are not getting the wet weather as much. Our data says we're looking pretty good. USGS continuously looked at it and said it is not good. It is happening on the 1" of rain that happened three weeks before you got there. So recognizing the delivery of the roads and what that is and that influences what practice you coming for and the second thing is not all practices are doing what we thought they would do. We thought no-till was the silver bullet. No-till is starting to show some warts. It is jumping up the dissolved phosphorous loads because it is holding it on the ground but then we are seeing come through as a ground water.

Lisa French: And you can get some gulley in your no-till. I am going back to that living roots and no-till all the time. If we could do that we could we would solve a lot of problems.

Tom Stiles: The third thing is that one BMP is not sufficient you have to create suites of BMPs. It is no-till with maybe stacking it up and so that there is a little of redundancy but it also kind of allows for catching when one's practices doesn't meet its mark in terms of performance and something else catches it and mitigates the effect of that failure.

Richard Basore: I know the significant thing you learned was about the ephemeral gulley effect. You really saw conservation practices as a terrace is a waterway rained at the gulley in the 1930's. Some of their recent work done on the Cheney watershed indicates that the rivulets that show up when they finally cultivate a wheat field just before they drill and you get a rain and you see these little fingers of sediment and stuff and how significant those were in carrying sediment loads to the stream. Everybody tells you just farm through and the next year it's not there until it rains again. In the meantime you will continue to lose soil into system.

Lisa French: That's one NRCS calculates soil loss in a field. They don't account for that.

Chris Bohm: Other questions or comments

Hoyt Hillman: Sort of a backward approach to this, but with the increase in corn prices and all of this stuff have we seen increases in Reno and above with the Little Arkansas. Have we seen increases in the sediment load over the last year simply because of the increased farming or is it going to take several years? I would think that would be almost an immediate change.

Tom Stiles: We need to rain first. Once we get to normal conditions we will be able to address it. The suspicion is we will see a flush.

Hoyt Hillman: A big flush of sediments.

Gary Oborny: You see much sediment with irrigation going on?

Lisa French: Well there is some. What happens is the soil is already saturate when we get a good rain and then you get more run off where you can get some sediment loss.

David Leyh: Is it possible to get less because the soil is being maintained.

Lisa French: Maybe, we may have more vegetation on there. Wheat is a pretty good crop because you have cover for a long time through the year. But if they are not doing it no-till you have a significant period where you could get some big rain when it is pretty bare.

Tim Davidson: Coming into Cheney vs what is actually leaving the reservoir, is there a big difference between sediments and nutrients or is sediment the big drop and nutrient load is similar.

Lisa French: Tom might be able to answer that. But I would guess the sediment is dropping out in the reservoir and the phosphorous is staying with it.

Tom Stiles: Generally Cheney was designed to not release much water so it is holding on to almost everything it can until you get a big full event.

Tim Davidson: So the reservoir is acting as \_\_\_\_\_. But treating 1/3 of 633,000 acres hasn't done a whole lot.

Richard Basore: All reservoirs are sediment traps.

Joe Pajor: The reservoir is like a pit for the storm water lift station even though you are out there trying to make improvements, even though you are

sweeping parking lots, there is enough soil and litter for both. You could fill up parking lot sweeping machine and you can fill up a stormwater lift station too.

Chris Bohm: If you said you can almost point to number of large events that have done a lot siltation, might you see or do you suspect that you might see on someother extreme event in the future due to better practices within the whole watershed that maybe it doesn't produce as much sediment from one of those signature events.

Lisa French: I've had that same question. I think that is a really good thing for GDS to look at. Maybe it would knock the tops off some of those or maybe we could if we haven't yet.

Chris Bohm: I contrast that to a big event in a natural or egg watershed versus a developed City where at some point a parking lot will take the sediment in the parking lot but after that it's not going to increase the sediment load from an urban type area, to some degree, versus a more unstable serving of an agriculture.

Tom Stiles: That is why you have a sediment monitoring smaller than what you've been doing to get to that because the 2" rain might fall over Silver Creek this week and we can kind of look at it but then three weeks from now fall over Goose Creek and it will look different. We can't see it but we can certainly determine to see the changes in the Silver Creek or the Goose Creek as a result of whatever practices that might have been there. Concept plays to which is what Jim and Scott are looking into in terms of future monitoring as well. You want to get smaller and not really about the big rivers as much as smaller drainages to begin to assess relative performance.

Chris Bohm: Any other questions or comments?

Hoyt Hillman: This is just a matter of timing with new technology and flow sensors. Is it possible at a reasonable cost to set up monitoring that automatically takes place during rain events so you can actually capture for 15-minutes or whatever? I would think that would be something...

Lisa French: You can but it is more expensive.

Joe Pajor: You have a good point Hoyt. Going to the Grand Canyon you understand that 80% of that was formed with 20% of the time since it

started. It is not uniform. We are seeing the same thing from a \_\_\_\_\_ gully to that \_\_\_\_\_. It is event driven. Each event is different.

Tom Stiles: Going back to the Street Sweeping. Some people cannot control the hydraulic relationship between rainfall and \_\_\_\_\_. Not only in placement, intensity but source control has some value in not having the pollutants or waste materials on surface to be waiting to carry off. Those have some value to it. So there is an appropriate place for it, to not let that material ride the next wave coming through there. That scenario can probably be fairly cost effective in terms of not having it on the ground in the first place. It is much more effect than trying to keep it in place once it is on the ground.

David Leyh: Our entire system is in our pipes and our creeks.

Tom Stiles: But where are you going to be able bring it in is going to be on your \_\_\_\_\_ services and you have to manage it. You have the highest probability of being successful if you can \_\_\_\_\_ as opposed as to once it is in the system it is going to ride through the system.

Chris Bohm: Other questions? Thank you Lisa for coming out and excellent presentation.

## **VI. Agenda Items for Next Meeting: September 21, 2012**

Review and Approve/Revise Minutes from September 21st meeting

Survey results from Kansas MS4 Phase II communities

Review community calc change management

Review Water Sheds

Committee Reports

RFP advertising in regard to Public Awareness

## **VII. Adjournment**

Motion for meeting to adjourn was made at 4:50 pm by Jim Weber

Seconded by David Leyh.

Vote: Unanimously accepted.

