

**Seepage Barrier Tracer Test Update Workshop  
(Lake Belt Mitigation Committee Workshop)**

**Friday, January 21, 2011**

**9:30 a.m. – 12 p.m.**

**B-1 Storch Room**

**MINUTES**

**LBMC Members who participated in person:**

Terrie Bates, SFWMD

Leah Oberlin, USACE

Jeff Rosenfeld, MacVicar, Federico & Lamb (Ex-officio Member)

**LBMC Members who participated by phone:**

Janet Llewellyn, DEP

Tim King, FWCC

Evan Skornick, DERM (alternate)

Howard Hayes, DEP (alternate)

Eric Hughes, USEPA

**Other meeting participants:**

See attached sign-in sheet

**1) Introductions – Terrie Bates**

Terrie Bates called the meeting to order - This is a special workshop session of the Lake Belt Mitigation Committee (LBMC). This meeting was set up as a noticed public workshop because there was a number of committee members associated with the LBMC, which operates in accordance with the Sunshine Law, that wanted to participate and there has been a lot of interest in seeing the work that has been done so far with the seepage control pilot project.

**2) L-31N Test Barrier Design and Construction - Tom MacVicar**

Tom thanked Terrie and everyone for showing up and went through his presentation entitled “Preliminary Evaluation of Data Associated with the Field Test of a Seepage Mitigation Feature West of L-31N Canal.”

There was a public stakeholder team that was involved in this project. The first meeting on this topic was about two years ago in Miami to talk about a concept on doing a test

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of a slurry wall. We were looking at a site at a miner-owned property and it quickly evolved into a pretty extensive test at the L-31N SITE. When we picked that site, Steve Krupa got involved and helped us with all the instrumentation that was already on site. Everyone that has been involved in the seepage management issue has touched this informally for the last two years. Everything that you will see is just a product of what Tom's firm has done with the data.

Contractor Chris Ryan built the slurry wall and Les Bromwell designed it. He showed a slide which showed the Geologic Cross Section at the Test Wall Site.

In one of the slides he displayed, he showed the 4 well cores that were collected at the Test Wall Site showing hard layer approximately 15 feet below. The concept is to cut off dead zone that cuts into canal.

Another slide showed the trenching machine they used which is an 18-ft deep trench 28 inches wide. Les Bromwell talked about the trenching machine and the fact that there were issues about what kind of damage this could have done to the Miami limestone. The teeth of the machine are not that big and it is more of a milling machine. It's not cracking rock or banging on rock, it's just milling it down. This machine consistently got them down 18 - 18 ½ feet through that first hard layer. This made a nice clean slice. He wanted to make sure everyone knew and understood that.

Tom continued with the presentation showing the slide on the Slurry Mixing Plant. Chris explained the Slurry Mixing Plant that mixes cement and bentonite together. It turns into a clay-like consistency. It starts as a liquid and turns into a heavy cream consistency. He continued showing some additional slides showing the placing of the slurry. He shared a slide showing a picture of a wall they did in Utah that was 7 miles long using the same technology. They have an accurate quantification of the volume of slurry used.

Tom continued showing the slides that showed the project three months after Construction and then shared that the goal was to determine whether and to what degree the barrier was working.

### **3) Tracer Test Design**

Tom presented more slides showing the general layout of L-31 N Field Test showing where new instrumentation was installed. He also shared other graph slides that

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showed groundwater flow velocity measurements, groundwater flow direction measurements, and groundwater stage measurements.

### **4) Brief Review of Initial Performance Monitoring**

Jeff Rosenfeld did a show-n-tell of the cricket tube that was put in to L31N. It is a 12 inch plastic tube that is surrounded by mesh and allows water to go through protecting the packet which is a charcoal bag inside. What it does is that it sits in canals and monitoring wells and absorbs dye through the entire period that it's in the ground. He then sends them to the lab which measures the cumulative concentration that went through the charcoal during the time it was submerged. He also shows the slides with the graphs that show where the tracer test was done and where they released the cricket tubes and the areas where the data was collected. Other graphs that were discussed were the Tracer test Layout at L-31N, the hydrologic conditions during the tracer test and that they were released on Oct 13<sup>th</sup>.

Additional slides included Tracer test sampling locations with and without the wall and comparison of groundwater stage in tracer test monitoring wells. There was a slide that showed the center site, no-wall, two days after tracer release and another of the center site, with wall, two days after tracer release.

### **5) Tracer Test Results to Date**

Tom continued sharing the results/data using the graphs explaining where the dye was released. The cumulative Tracer concentration measured in canal charcoal samples, the Tracer test results through day 49: canal data at three release points. Stage differences vs. seepage flow; pre and post-wall; and some model simulations.

The next slides that were shown were 2-D model simulations of the barrier wall depths through time and the amount of time the dye reaches the canal. The influence of the wall was demonstrated by: 1) Groundwater stage data upstream and downstream of wall; 2) Shift in stage vs. AVM flow data; 3) Cumulative Canal tracer data. The seepage mitigation benefit was estimated by 2-D modeling.

The goal is to bring a seepage barrier on line concurrent with the completion of construction of the Tamiami Trail Bridge in 2013.

Tom MacVicar – In order for the project to move forward with Lake Belt funding, it has to provide for wetland mitigation credits. The technical parts are doable, not sure of

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the administrative part. The District's Right-of-Way permitting has been a great vehicle for us to do the test. We need a good Right-of-Way when we're done. There may be some additional tests that are still needed.

### **6) Next Steps – Group Discussion**

Group Discussion – There were some concerns about knowing that everyone is on board and what approvals should be sought for next phase. Per Tom, we need to recommend to the LBMC that they allow the funding to be spent. They will put it on District's Right-of-Way and coordinate with the Park. There is a process issue that hasn't been solved. Other issues and concerns involved the funding needed for this project.

Terrie Bates – as a note to the LBMC- state legislation that was established to provide for use of funds coming from the mining activities was not just for wetland restoration but also for hydrologic improvements to the system. Those activities can be covered by the funds. Will need to account for the environmental lift.

Dan Kimball, Everglades National Park– Seepage management is important. He appreciates what has been done and all the technical work. There are a fair number of unknowns. He thinks this is something that they need to continue to look at seriously.

Joan Lawrence, U.S. Department of the Interior – Agrees with Dan and said that we need to answer the technical questions and we need to do this expeditiously.

Leah Oberlin – What are the ecological benefits of the wall? Does the wall work? Will the wall work at 30 ft? What additional test needs to be done?

Eric Hughes – Embraces concept but ultimately it is a huge \$ issue. Suggests come back with a cost estimate as to what it would cost to construct a 30 ft. deep wall for whatever is the appropriate linear distance with the associated monitoring cost. This may be a logical next step. We can see what type of \$ we are talking about.

Terrie Bates – Suggest that the technical team from each of the agencies Corps, DEP, District, ENP without involving the LBMC members, come up with a recommendation of what should be the next step. What are the questions that need to be answered and then be in the position to come back when we have something we need to fund that the LBMC needs to consider and then at that point we would all individually as committee

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members have input from our technical representatives from our agencies. What they collectively think is the best path forward, another pilot test or something else and an approach of what would need to be funded and decide next step.

Tom MacVicar – We need a technical working group meeting. Will put a technical working group together from all agencies without having to include committee members and they can come after having talked to their agencies. Suggest in about 6 weeks.

Terrie Bates – One thing that we may want to do if there are some immediate things where everyone agrees with the good next tests which require funding and require approval is to figure out what those are and we can notice and schedule a meeting as quick as we can and still go forward with the technical meetings of what else we really need to flush out and get a bigger picture.

Tom MacVicar – Will come back with a short term potential action for the committee to fund that would be a consensus of kind of the immediate next follow up steps that folks would do and then go forward with a technical working group meeting to look at what we think should really be the next step with all our technical staff and that would come to the committee sometime in the future but in the meantime, we have the rest of the staff working on what we think are the best next steps.

Suggestion would be to meet in-house to review what we've come up with real soon and once we have an idea of what our recommendation would be, let the technical group get together to advise the LBMC to come up with some recommendation.

Tom thanked everyone for their attention in this workshop.

The next Lake Belt Committee Meeting is scheduled for March 2, 2011 at 9 a.m. in the District's B-1 Storch Room.

**Meeting was adjourned at 11:41 a.m.**