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STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

REPORT OF THE FOURTH REGULAR MEETING HELD BY THE
WATER RESOURCES COMMISSION
ON WEDNESDAY, JULY 30, 2014,
IN BATON ROUGE, LOUISIANA.
9:00 A.M.

LABELLE ROOM
LASALLE BUILDING
617 NORTH 3RD STREET
BATON ROUGE, LOUISIANA 70802

REPORTED BY:
ESTELLA O. CHAMPION, RDR, CRR
BATON ROUGE COURT REPORTERS

1 IN ATTENDANCE:

2
3 MEMBERS OF THE WATER RESOURCES COMMISSION:

4
5 COMMISSIONER SCOTT ANGELLE, OFFICE OF THE

6 GOVERNOR, CHAIRMAN OF COMMISSION

7 KYLE BALKUM, LOUISIANA WILDLIFE & FISHERIES

8 HON. JAMES WELSH, COMMISSIONER OF OFFICE OF

9 CONSERVATION

10 HON. GLENN BRASSEAU, MAYOR OF CARENCRO

11 JONATHAN "JAKE" CAUSEY, LOUISIANA DEPARTMENT

12 OF HEALTH & HOSPITALS

13 HON. GUY CORMIER, POLICE JURY ASSOCIATION

14 DAVID CULPEPPER, COMMISSION MEMBER

15 KAREN GAUTREAU, LOUISIANA WILDLIFE FEDERATION,

16 COALITION TO RESOLVE COASTAL LOUISIANA AND

17 LEAGUE OF WOMEN VOTERS.

18 EVE K. GONZALEZ, LOUISIANA PUBLIC SERVICE

19 COMMISSION

20 JERRY V. GRAVES, LOUISIANA PORTS ASSOCIATION

21 CHARLES KILLEBREW, PH.D., THE GOVERNOR'S OFFICE OF

22 COASTAL ACTIVITIES

23 CHRISTOPHER KNOTTS, PE, F.ASCE, LOUISIANA

24 DEPARTMENT OF TRANSPORTATION AND

25 DEVELOPMENT

1 MEMBERS OF THE WATER RESOURCES COMMISSION:

2 IN ATTENDANCE: (CONTINUED)

3 SENATOR GERALD LONG, CHAIRMAN, SENATE COMMITTEE ON
4 NATURAL RESOURCES

5 BENJAMIN J. MALBROUGH, CHAIR HOUSE NATURAL
6 RESOURCES AND ENVIRONMENTAL COMMITTEE

7 TED W. MCKINNEY, SPARTA GROUNDWATER CONSERVATION
8 COMMISSION

9 EUGENE H. OWEN, THE CAPITAL AREA GROUNDWATER
10 CONSERVATION DISTRICT

11 JIM PRATT, EXECUTIVE DIRECTOR OF THE SABINE
12 RIVER AUTHORITY

13 VINCE SAGNIBENE, LOUISIANA DEPARTMENT
14 OF ENVIRONMENTAL QUALITY

15 BRADLEY E. SPICER, LA DEPARTMENT OF AGRICULTURE &
16 FORESTRY

17 COMMISSIONER JIM WELSH, OFFICE OF CONSERVATION

18 LINDA G. ZAUNBRECHER, LOUISIANA FARM BUREAU

19
20 WATER RESOURCES COMMISSION STAFF:

21 JOHN ADAMS - STAFF ATTORNEY, CONSERVATION

22 GARY SNELLGROVE - DIRECTOR, ENVIRONMENTAL
23 DIVISION

24 MATTHEW REONAS - EDUCATION AND MARKETING
25 REPRESENTATIVE

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1 (Meeting is called to order at 9:16
2 a.m.)

3 CHAIRMAN ANGELLE: Good morning.

4 We'll go ahead and call the Water
5 Resources Commission Meeting to order, and certainly
6 would extend a warm welcome to everyone here and to
7 thank the members for making the sacrifices to be here
8 and to serve the people of Louisiana.

9 We certainly have a robust agenda on
10 this unseasonably cool July morning. It's really,
11 really nice to wake up to that this morning. And I
12 know we are now 30 days away from kickoff to the
13 college football season. So as we begin to look
14 forward to all those good things in Louisiana, again
15 welcome and thank you for being here.

16 The first item would be for roll call so
17 we can get our business in order, so I would ask the
18 staff to call roll.

19 MR. ADAMS: Thank you, Chairman.

20 If you will please acknowledge when I
21 call your name.

22 MR. ADAMS: Commissioner Scott Angelle?

23 CHAIRMAN ANGELLE: Here.

24 MR. ADAMS: Present.

25 Kyle Balkum?

1 MR. BALKUM: Present.
2 MR. ADAMS: Present.
3 Mayor Glenn Brasseau?
4 MAYOR BRASSEAU: Here.
5 MR. ADAMS: Present.
6 Jake Causey?
7 MR. CAUSEY: Present.
8 MR. ADAMS: Present.
9 Parish President Guy Cormier?
10 PARISH PRESIDENT CORMIER: Here.
11 MR. ADAMS: Present.
12 James Cramond?
13 David Culpepper?
14 MR. CULPEPPER: Here.
15 MR. ADAMS: Present.
16 Mark Davis?
17 Representative Gordon Dove?
18 Paul Frey?
19 Karen Gautreau?
20 MS. GAUTREAU: Here.
21 MR. ADAMS: Present.
22 Eve Gonzalez?
23 MR. GONZALEZ: Here.
24 MR. ADAMS: Present.
25 Jerry Graves?

1 MR. GRAVES: Present.
2 MR. ADAMS: Charles Killebrew?
3 MR. KILLEBREW: Here.
4 MR. ADAMS: Present.
5 Christopher Knotts?
6 MR. KNOTTS: Here.
7 MR. ADAMS: Present.
8 Howell Leggett?
9 Jackie Loewer?
10 Senator Gerald Long?
11 SENATOR LONG: Here.
12 MR. ADAMS: Present.
13 Benjamin Marlborough?
14 MR. MARLBROUGH: Here.
15 MR. ADAMS: Present.
16 Ted McKinney?
17 MR. MCKINNEY: Present.
18 MR. ADAMS: Present.
19 Eugene Owen?
20 MR. OWEN: Present.
21 MR. ADAMS: Present.
22 Jim Pratt?
23 MR. PRATT: Present.
24 MR. ADAMS: Present.
25 Vince Sagnibene?

1 MR. SAGNIBENE: Here.

2 MR. ADAMS: Present.

3 Paul Sawyer?

4 Brad Spicer?

5 MR. SPICER: Here.

6 MR. ADAMS: Present.

7 Commissioner James Welsh?

8 COMMISSIONER WELSH: Here.

9 MR. ADAMS: Present.

10 Linda Zaunbrecher?

11 MS. ZAUNBRECHER: Here.

12 MR. ADAMS: Present.

13 We do have a quorum, Mr. Chairman.

14 CHAIRMAN ANGELLE: Thank you, sir.

15 We certainly want to take the time to
16 acknowledge a former member of the commission, Captain
17 Michael Rooney, who passed away after our December
18 meeting. Mike was a great guy, young man, 53 years
19 old; served his country in the armed services and did a
20 variety of great things serving the people of
21 Louisiana.

22 I thought it would be appropriate for us
23 to perhaps observe a moment of silence in his memory,
24 have the record recollect that, and ask the staff to
25 send a letter to his family so noting that the Water

1 Resources Commission on this 30th day of July, 2014,
2 took the time to stop and pause, to remember his
3 service for the people of Louisiana.

4 So if you would join with me in a moment
5 of silence.

6 (Moment of silence.)

7 COMMISSIONER WELSH: Thank you.

8 Okay. We have a couple of housekeeping
9 items. We have some new members we want to welcome to
10 the Commission, folks that we're looking forward to
11 serving us in a very exciting way.

12 And the first one is Ben Malbrough. Ben
13 serves as the appointment of the House Natural
14 Resources and Environmental Chair, Gordon Dove; and he
15 also serves as the Executive Director of the Bayou
16 LaFouche Freshwater District. We have worked on a
17 couple of projects here recently, and we're excited to
18 have you as a part of our group here. And we know that
19 you can add to the things that we're discussing. And
20 since you're the youngest guy here, you will be
21 responsible for a lot of other things that none of us
22 want to do anymore.

23 So again, thank you so much.

24 The next guy is Guy Cormier. Guy
25 represents the Police Jury Association of Louisiana.

1 Guy is the Parish President in St. Martin Parish. Guy
2 is the second Parish President ever to be elected in
3 St. Martin Parish. I was the first one, but he still
4 remains the best one. And I'm glad to have you here,
5 Guy.

6 David Culpepper. Where is David?

7 David -- got a chance to introduce
8 myself to David. David is a geologist with over 30
9 years of experience in environmental management and
10 groundwater remediation and was appointed by the
11 Governor.

12 We're happy to have you, David, looking
13 forward to your contributions. Thank you for being
14 here.

15 And Jimmy Cramond. Jimmy.

16 Maybe he wasn't here when you called
17 roll; correct?

18 MR. ADAMS: He's absent.

19 CHAIRMAN ANGELLE: Absent? Okay. Very good.

20 Again welcome, and we're looking forward
21 to that.

22 Want to say a special shout out to
23 Senator Gerald Long for being here. As many of you
24 know, Senator Long is the Chairman of the Senate
25 Natural Resources Committee, very active in the

1 management of the state's natural resources, and long
2 advocate for some real smart water policy, a dear
3 friend of our family; and again certainly thank you for
4 being here.

5 I know that after the session, you
6 probably had to go away for a little while to find your
7 heartbeat and your pulse. But we're happy to have you,
8 and it looks like you're doing well. So thank you for
9 being here, sir. Appreciate it.

10 Before we get into adoption of the
11 previous meeting summary, a special shout out to a
12 couple of folks who are in the audience that we perhaps
13 will hear from a little later, and that's Mr. Chip
14 Groat, who is the former Louisiana Geological Society
15 survey guy, worked with the USGS up in D.C., and worked
16 with DNR, as well as Kai Midboe, who is the former
17 Secretary of DEQ.

18 Gentlemen, just if you would, just both
19 raise your hands. We thank you for being here. And
20 you know, I always want to look and find folks who
21 served in that area. And somebody asks why I always do
22 that. I say, because when I'm 75 years old and I'm at
23 one of these meetings, I want somebody to give me that
24 same shout out. So I appreciate you guys and thank you
25 for your service.

1 And Mr. Commissioner says we still have
2 some 75-year-olds up here.

3 Okay. All right. So Item Number 4 will
4 be the adoption of the previous meeting summary. As I
5 recall, we did not have a quorum at that meeting. Is
6 that correct?

7 MR. ADAMS: No, we had a quorum, yes.

8 CHAIRMAN ANGELLE: Okay. You're calling it a
9 summary as opposed to minutes, I just thought maybe --

10 MR. ADAMS: We call it a summary as opposed
11 to minutes just to include less information in it.

12 CHAIRMAN ANGELLE: Got it. Okay. Very good.

13 So is that information has been
14 presented to the members, is that correct?

15 MR. ADAMS: That is correct, yes, sir.

16 CHAIRMAN ANGELLE: Via email; yeah?

17 MR. ADAMS: Yes, sir.

18 CHAIRMAN ANGELLE: Do you have any comments
19 on it, Mr. Adams?

20 MR. ADAMS: No, sir. Staff at this time does
21 request adoption of the previous meeting summary.

22 CHAIRMAN ANGELLE: Motion by Owen, second by
23 Zaunbrecher.

24 Any questions? Any objections? Any
25 discussions?

1 Hearing none, that motion is adopted.

2 Okay. We go to Item 5, to get into some
3 of the meat of the agenda. And number 5 is a Report on
4 the Water Bills from the 2014 Legislative Session.
5 We'll ask Mr. John Adams with the Office of
6 Conservation to take us through that.

7 MR. ADAMS: Thank you, Mr. Chairman.

8 As many of you are already aware, it was
9 quite an active session for legislation, particularly
10 water-related legislation.

11 Each of you in your packet has a copy of
12 all of the water-related bills that were adopted last
13 session.

14 Just to highlight a few, with regard to
15 the coastal zones, HCR 62 Representative Harris
16 requested the CPRA to study Lake Verrett as an
17 alternative drinking water source for Bayou Lafourche.

18 With regard to ports, Act 505,
19 Representative Anders expanded the Vidalia Port
20 Commission to include all of Concordia.

21 With regard to public safety in the
22 rural water systems, Act 573, Senator Morrell required
23 the Department of Health and Hospitals to promulgate
24 rules and regulations to maintain minimum disinfectant
25 residual levels of free or total chlorine throughout

1 the public water systems.

2 And with regard to the surface water and
3 groundwater treatment, Act 285 with our own Senator
4 Long extended the time that the state may enter
5 cooperative endeavor agreements for the sale of surface
6 water.

7 Related to that is Act 556 from
8 Representative Thompson which requires proceeds
9 collected from the sale of surface water withdrawals to
10 be deposited into a fund to address aquatic plant
11 control.

12 Act 795 from Representative St. Germaine
13 addressed some -- added a member and cleaned up some
14 language with regard to the Capital Area Groundwater
15 Conservation Commission.

16 And then Senate Resolution 171 from
17 Senator Claitor established or requested the Louisiana
18 Law Institute to establish or come up with some
19 language for a Louisiana water code.

20 As I said before, all these are included
21 in the package. And if any of you would like
22 additional discussion or have additional questions,
23 feel free to contact us.

24 CHAIRMAN ANGELLE: John, do you have any
25 particular areas of what you've addressed that are more

1 either problematic to us or are going to have -- or of
2 more importance than others?

3 I'm assuming the water code legislation
4 is probably the most important piece or the most far
5 reaching piece.

6 MR. ADAMS: That one is by far the chief area
7 of importance because that's -- the ultimate goal is to
8 put together a Louisiana water code, which of course
9 this Committee should have a grade deal of say and
10 influence over.

11 Probably a lot of the legislation that
12 was produced this year, although it's related, it's not
13 directly related to the purpose of this Committee, for
14 example. Of greater importance would be the rules
15 pertaining to the disinfectant levels with regard to
16 free and total chlorine in drinking water systems; or
17 appropriating, looking at studying Lake Verrett as an
18 alternate drinking water source. Those are much more
19 directly related to drinking water and conservation
20 issues than, say, expanding the Vidalia Port to include
21 all of Concordia Parish.

22 CHAIRMAN ANGELLE: None of the legislation,
23 in your opinion, has taken away the rights of any
24 particular person as respects their ability to access
25 groundwater?

1 MR. ADAMS: I don't believe so, no, sir.

2 CHAIRMAN ANGELLE: Any questions for
3 Mr. Adams on this issue?

4 Okay. Hearing none, thank you, John.

5 We'll go to Item 6, which is to Review
6 the Agency's Groundwater and Surface Water Activities
7 since the last meeting. And Matthew Reonas with the
8 Office of Conservation is going to lead us through
9 that.

10 MR. REONAS: Right. Thank you, Mr. Chairman.

11 Again it's been an active year for all
12 of us. And one of the biggest issues that we've tried
13 to tackle, as noted in the 2012 Groundwater Commission
14 Report, was well auditing, well registration, in terms
15 of making sure that there's appropriate control over
16 installation and registration of water wells.

17 I would like to note that, dealing with
18 the 2012 report which we believe every Commissioner
19 should have -- if not in their binder today, then we've
20 provided them in the past. But if you do not have one,
21 we can provide it. It's also online as well. Please
22 just let us know.

23 But in your binder today -- this is just
24 a black and white copy. But in your binder today is
25 the report we produced in January of 2014 which listed

1 all the recommendations from that 2012 Groundwater
2 Resources Commission, of course the precursor to this
3 Commission.

4 In this report we went through all those
5 recommendations for actions and have sort of listed out
6 where we're at with those from an agency perspective
7 and sometimes Office of Conservation, Department of
8 Natural Resources, of course DEQ, DHH. And what we
9 tried to do is go through and sort of give each of you
10 an idea of where we're at with those. Some of them
11 we've completed; others continue to be in progress.

12 A lot of these you'll hear from, in
13 terms of progress, you'll hear from different speakers
14 today. Particularly U.S. Geological Survey will talk
15 about the groundwater monitoring network. Louisiana
16 Geological Survey is here to discuss the surface water
17 monitoring network. We have a representative from
18 Capital Area Groundwater Conservation Commission here
19 as well. So a lot of the points that are stipulated in
20 here, discussed in here, a lot of the issues will be
21 discussed at a point later on today with some of our
22 other presenters.

23 But from our perspective, from an agency
24 perspective, I did want to run through a few of the
25 things that we have been involved in. Particularly one

1 of the biggest ones has been water well auditing and
2 registration.

3 That was a huge issue, one that we ended
4 up pursuing changes in the regulatory nature of it to
5 really tighten down our control -- not over well
6 owners, which again there's hundreds of thousands,
7 potentially hundreds of thousands of well owners around
8 the state -- but our focus was to really narrow our
9 focus down to the well drillers themselves. Water well
10 drillers are a relatively small body -- about 250
11 licensed water well drillers around the state -- and
12 really focus on them to assure compliance in terms of
13 prior notification for irrigation wells and industrial
14 wells, and also to make sure that, when the wells are
15 drilled, that they are properly registered.

16 CHAIRMAN ANGELLE: Matt, let me jump in right
17 here.

18 MR. REONAS: Yes, sir.

19 CHAIRMAN ANGELLE: On that issue I recall at
20 one point in time we were not including the water well
21 drillers as kind of our primary source for
22 registration; and as a result we were having folks who
23 perhaps were getting only one well in their lifetime,
24 being unaware of the rules and regulations of the
25 state.

1 MR. REONAS: Correct.

2 CHAIRMAN ANGELLE: As a result then getting
3 into a kind of a got-you situation where they were
4 unaware. They were good people, they just failed to
5 notify because of not knowing this stuff.

6 And you said about 250 water well,
7 licensed water well operators. So if the well is going
8 to be drilled by a licensed operator, now we're talking
9 about a population of 250 we have to manage, as opposed
10 to four and a half million people in the state.

11 MR. REONAS: Correct.

12 CHAIRMAN ANGELLE: And are you able to get
13 now with the licensed drillers, that they are helping
14 you to get wells registered and we're not counting on
15 well owners to do that?

16 MR. REONAS: That's correct. And that's
17 really what we're looking at.

18 We pursued a really aggressive auditing
19 program over the past year and a half. As you can see
20 from the PowerPoint, quarterly audits all through last
21 year, audits through this year as well.

22 From over the fiscal year, July --
23 fiscal year 2014, July of last year through June of
24 this year, we had approximately 480 wells that required
25 prior notification -- for instance, irrigation wells

1 and industrial wells -- and so we had almost 87 percent
2 compliance with prior notification. So 87 percent of
3 those wells, you know, met what we were asked the well
4 drillers to do.

5 CHAIRMAN ANGELLE: And prior to that,
6 establishing that rule -- I don't expect you have that
7 metric. Otherwise you would have put it up there.

8 MR. REONAS: Right.

9 CHAIRMAN ANGELLE: But would instinctively
10 you be able to tell us that there is no question that
11 86 percent of compliance with the regulations, prior
12 notice to the state --

13 MR. REONAS: Right.

14 CHAIRMAN ANGELLE: -- is a lot higher than it
15 was prior to this change?

16 MR. REONAS: Without a doubt, it's through
17 the roof in terms of compliance. So we've had a really
18 great response from the well drillers.

19 We've interacted with them at their
20 trade association conferences. We've worked a lot with
21 the trade association -- that's Joel Walton with the
22 Louisiana Groundwater Association -- to try and get the
23 message out, to let them know that we're here to answer
24 questions, provide guidance on any of the regulations
25 and needs that they have.

1 And again, it's a process. Again the
2 new regulations were adopted in November of 2012. So
3 really we're going on basically two years of having
4 this -- a year and a half of having this in place. And
5 so it's a learning process, again from the well
6 drillers themselves who have never really had to
7 provide all this documentation. And again, they are
8 busy, you know, out in the field most of the time. So
9 again, it's a level of requirement from them that they
10 weren't used to. And so we've had to work with them to
11 get them accustomed to what we need.

12 It's not a burdensome amount by any
13 means, but it's something that we feel provides us a
14 better picture and better regulatory control over water
15 wells in the state which, as you know, prior to the
16 1980s we had no regulations at all.

17 CHAIRMAN ANGELLE: And so you saved yourself
18 a bunch of work because in the past you would have to
19 start chasing down -- you said through the roof -- so
20 I'm going to say probably half, if using "through the
21 roof" perhaps as maybe almost doubling what you have
22 here.

23 MR. REONAS: Sure.

24 CHAIRMAN ANGELLE: So you-all would have to
25 chase, after the fact you would have to chase down

1 these well owners --

2 MR. REONAS: Right.

3 CHAIRMAN ANGELLE: -- and say, The law
4 requires you to do this. Now you've got to get an
5 after-the-fact-type permit or after-the-fact notice,
6 and you don't have to do that anymore.

7 SENATOR LONG: And Mr. Chairman, if I might
8 follow up on what you're speaking up?

9 Matt, when you look at those 480 permits
10 that have been issued, can you give us a breakdown
11 perhaps as to how many of those would be strictly for
12 agriculture purposes?

13 In other words, are we seeing a trend in
14 compliance or in the development of these wells, or is
15 it just simply 480 that encompass all of the needs of
16 Louisiana?

17 I'm just wondering: Do we have a
18 percentage breakdown as to how these wells are?

19 MR. REONAS: We can get that for you. I
20 don't have the number right here. I'm not sure if our
21 water well staff has that, can pull it down; but we can
22 get those numbers for you, yes, sir.

23 SENATOR LONG: I think it would be
24 interesting if we could trend that particular pattern
25 to see if, in fact -- because what I've discovered,

1 that, through the Senate Natural Resources, is that
2 companies in particular are quick to comply with that;
3 but where there perhaps is not quite as much structure
4 in the organization, you may find some issues. It's
5 just a point of reference.

6 MR. REONAS: Right. Yes, sir. We'll get
7 that number for you, if that's acceptable.

8 SENATOR LONG: Okay. Thank you.

9 Thank you, Mr. Chairman.

10 CHAIRMAN ANGELLE: Thank you, sir.

11 Just so everybody -- we had more than
12 480 wells that were drilled.

13 MR. REONAS: That's right.

14 CHAIRMAN ANGELLE: Only 480 wells by statute,
15 by definition that required prior notification because
16 of their size or their geographic area. Correct?

17 MR. REONAS: Right. Right.

18 We have probably, the average is
19 probably 300. It varies of course. In the wet months
20 of the year, it's less. You know, in the wet winter
21 months, it's less. But 250 to upwards of 400 wells a
22 month that are registered.

23 So these are ones that required prior
24 notification by the regulations and for specific
25 reasons; and again, we were at an 87 percent clip on

1 that.

2 And so we did of course, within our
3 jurisdiction, we did issue under the Commissioner of
4 Conservation's authority compliance orders with the
5 water well drillers that were noncompliant in terms of
6 filling out their paperwork.

7 Again, we're trying to work with them,
8 educate them about what the needs are, what they need
9 to do; and provide them with, you know, as much
10 information as possible to, you know, to comply without
11 being again sort of overly, overly burdensome. And
12 again, our goal is to reach a hundred percent
13 compliance.

14 To sort of help with that, one of the
15 things we just ended up pursuing was an establishment
16 of a compliance line with water well drillers.

17 One of the problems we ran into with
18 water well drillers in particular -- again, because
19 it's a small, relatively small group, a lot of them
20 know each other. They were somewhat hesitant, or we
21 found they have been somewhat hesitant to report
22 unlicensed well drilling activity; that is, well
23 drillers that are out drilling wells without either a
24 license or without having prior notification or without
25 registration. And this is an issue we need to sort of

1 tamp down on in terms of getting a handle on going
2 forward.

3 And so one of the things we wanted to do
4 to sort of start with is establish sort of a compliance
5 line, sort of an anonymous reporting. A well driller
6 can call in, report different issues.

7 And again, for them it's affecting their
8 bottom line. If an unlicensed well driller is
9 activating -- is working in their territory, that's a
10 job that that licensed well driller, who is, you know,
11 again following the rules, is complying with state
12 regulations, that's a job he's not getting. So really
13 it's in the well drillers', licensed well drillers'
14 best interest to let us know really what's going on out
15 there in terms of unlicensed well drilling activity.

16 And there are a number of cases that we
17 have open right now that we're working on, trying to
18 pursue unlicensed well drillers -- some of them are
19 from out of state; some of them are from instate -- and
20 sort of really crack down on that and get a handle on
21 it.

22 So the compliance line we ended up
23 implementing, again sort of an anonymous tip line. I
24 hate to call it a hotline. I hate to call it sort of a
25 Crime Stoppers. It's not really that. It's just: Let

1 us know, give us some information to where we can open
2 an investigation, pursue the different leads that are
3 out there.

4 And again, it was supported by the trade
5 association, the Louisiana Groundwater Association.

6 And again, primarily, let us know if there's a well
7 being drilled in your territory, that: Look, you had a
8 bid in on that well. A guy that doesn't comply with
9 the regulations came in and said, I can do it for
10 30 percent less. Right? You know, that's really
11 cutting into the bottom line for licensed well
12 drillers.

13 So it's an issue we feel like we need to
14 go ahead and get ahead of the curve on in terms of
15 providing some opportunities for well drillers to call
16 in and let us know what they see and what's going on
17 out in the field.

18 And of course we distributed this to all
19 the licensed water well drillers around the state,
20 working with the Louisiana Groundwater Association to
21 get some more messaging out, and sent it out through
22 the LSU Ag Center, the Natural Resources Conservation
23 Service, USDA. And really what we're trying to do
24 there is reach down to the parish level, the county
25 agents and conservation districts which work with

1 farmers.

2 This is primarily an issue in rural
3 areas, heavily agricultural districts around the state,
4 and really provide parish-level officials that work
5 with farmers and domestic well owners on a day-in and
6 day-out basis, again those county agents and other
7 staff of the LSU Ag Center and RCS, just to try and get
8 them some information as well so that they will be
9 aware of what we're looking for, and perhaps they can
10 pass that on to the people they interact with on a
11 daily basis.

12 And again, you see the memo that went
13 out, the announcement. And again, it's just an
14 anonymous line.

15 MR. GRAVES: Excuse me.

16 CHAIRMAN ANGELLE: Yes, sir.

17 MR. GRAVES: Can I request that notification
18 be distributed to the Commission Members --

19 MR. REONAS: Yes.

20 MR. GRAVES: -- for our need to get out to
21 districts?

22 MR. REONAS: Yes.

23 MR. GRAVES: Thank you.

24 MR. REONAS: Yes, sir.

25 CHAIRMAN ANGELLE: Do you feel like perhaps

1 for the first time you're beginning to get your arms
2 wrapped around the notification and the registration
3 issue? Because as you try to manage the resource and
4 we provide input to manage the resource, obviously
5 having a very compliant registration process, knowing
6 where the wells are, right --

7 MR. REONAS: That's it.

8 CHAIRMAN ANGELLE: -- is pretty important.

9 MR. REONAS: It's paramount, yes, sir.

10 CHAIRMAN ANGELLE: It's the very beginning of
11 a management program. You're beginning to feel like
12 the changes -- and I want to compliment the Commission
13 because some of the ideas that you all implemented came
14 out of these meetings.

15 You're beginning to feel like you as
16 managers are wrapping your arms around that issue and
17 getting to a point where it is becoming a culture of
18 the state that registration and prior notification is
19 just the way it's going to be; right?

20 MR. REONAS: Yeah, that's where we're going.
21 Again, it's a work in progress. I mean, there's no way
22 around that.

23 But again, we're seeing a lot of
24 response. Well drillers are, for the most part, in
25 compliance. They are understanding what we're

1 requiring of them and they are following the rules that
2 we've set out.

3 So again it is, yeah, this is the lay of
4 the land going forward. Let's get accustomed to it.
5 How can we work together to make it for efficient?

6 And again, as you'll hear from USGS a
7 little bit later, in terms of having the data that's
8 out there available, understanding how many wells in
9 the state are out there.

10 Again, before 1980s there was no
11 regulation or registration of water wells. So there
12 could be a hundred thousand wells out there, we have no
13 idea: How big they are, where they are, what condition
14 they are in. So this is a way for us to at least get a
15 handle on wells being drilled going forward. And then,
16 you know, as resources become available, try to work
17 our way back on those unregistered wells that are still
18 out there.

19 COMMISSIONER WELSH: Mr. Chairman, I would
20 ask that the practice that we've established here with
21 water wells is a long recognized process that's been
22 used in oil and gas regulation, other activities that
23 we regulate to interact closely with landowners,
24 stakeholders, other industry, to report things to the
25 Office of Conservation.

1 We've always said that landowners and
2 other operators are our best inspectors. So it's a
3 practice that other agencies, I'm sure, use that
4 regulate various activities; but we thought this would
5 round out that ...

6 CHAIRMAN ANGELLE: So if you're talking about
7 perhaps an average of about 300 wells a month, and
8 assume like, I guess do the math, about 40 a month that
9 require prior notification, can you give the
10 Commission -- maybe another staff member, I'm not sure
11 if you're the one -- so give the Commission again -- I
12 know that we just need to be reminded. We all need to
13 be reminded -- of the type of wells that require prior
14 notification. So, of 300 -- again using that as a
15 monthly average -- about 40 of them are requiring prior
16 notification. So I would like for the Commission to
17 hear the kind of wells that require that --

18 MR. REONAS: Right.

19 CHAIRMAN ANGELLE: -- and then the kind of
20 wells that don't require prior notification --

21 MR. REONAS: Right.

22 CHAIRMAN ANGELLE: -- but clearly the law
23 requires some notification, again after the fact, which
24 allows that information to come into your database.

25 So why don't you kind of run that

1 through, run through for the Commission members the
2 difference between those wells.

3 MR. REONAS: Right. Well, in terms of -- I
4 may not be actually the best person to speak on that.

5 CHAIRMAN ANGELLE: Mr. Snellgrove?

6 MR. SNELLGROVE: We'll bring Gary Snellgrove.

7 CHAIRMAN ANGELLE: Gary Snellgrove with the
8 Office of Conservation.

9 MR. SNELLGROVE: I've confident Matt could
10 have handled the task. I'm certainly pleased to be
11 here and welcome commission members and will provide
12 that information.

13 The type of wells that are not exempt
14 from notification coming into the agency, at least 60
15 days prior to a well being installed, are: Public
16 supply wells, industrial wells, irrigation wells, and
17 rig supply wells, drilling rig supply wells that are
18 being used for frack purposes, which we determined that
19 to be an industrial type of purpose.

20 The type of wells that are exempt would
21 include domestic wells and drilling rig supply wells in
22 general.

23 So that's the breakdown of the type of
24 wells that are out there that require prior
25 notification.

1 And of course you have environmental
2 wells that are drilled for monitoring purposes and what
3 have you, and those are not required to provide prior
4 notification before they install those types of wells.

5 CHAIRMAN ANGELLE: So just to clarify, so on
6 the drilling rig supply well, which is perhaps a small
7 well that is used for the general kind of wash-down,
8 kind of cleanup, kind of general purposes associated
9 with it, that is more akin to a domestic well and does
10 not need notification.

11 But in the state of Louisiana, when a
12 well is going to be used for frack purposes, that has
13 the highest level of registration in the state, which
14 is prior notification 60 days ahead of time. Correct?

15 MR. SNELLGROVE: Yes, sir, that's correct.
16 Again drilling rig supplies, those are temporary wells.
17 They are installed in locations where there may not be
18 a public supply available, so for the purposes of
19 drilling and completing the oil and gas well.

20 Typically those wells would be P&As,
21 plugged and abandoned after the work has been completed
22 for the oil and gas well. Sometimes they are not and
23 they can be used on the facility for other purposes, or
24 they can be transferred over to the landowner.

25 But if it is used, correct, for purposes

1 other than just that just that temporary use; i.e. for
2 frack purposes, fracking, hydraulic fracking, then
3 before they use the water for that purpose that's
4 withdrawn from the well, the operator must provide at
5 least 60 days prior notification for us to evaluate
6 that use, the water for that purpose. And at that
7 point we would determine whether or not there's any
8 concerns for adverse impact to the aquifer or any
9 nearby water users or other installations nearby.

10 CHAIRMAN ANGELLE: Ms. Zaunbrecher.

11 MS. ZAUNBRECHER: You talked about 60 days'
12 notification for agricultural wells?

13 MR. SNELLGROVE: That's correct.

14 MS. ZAUNBRECHER: Is there any waiver?
15 Sometimes you don't have 60 days that you need.

16 MR. SNELLGROVE: It's written in the law, the
17 law actually requires that the well owner provide at
18 least 60 days of prior notification. However,
19 typically turnaround time for our evaluation is, you
20 know, within the week or two.

21 MS. ZAUNBRECHER: It can be.

22 MR. SNELLGROVE: And then once we complete
23 our process, we send notification back to the well
24 owner and they can install at that moment. So they
25 don't have to wait 60 days.

1 MS. ZAUNBRECHER: Okay.

2 CHAIRMAN ANGELLE: Isn't there a provision
3 for a replacement irrigation well, that there is no
4 requirement, that that's waived?

5 MR. SNELLGROVE: Any of the nonexempt
6 wells -- public supply, irrigation -- any of those
7 types of wells, if they are truly -- if they truly meet
8 the definition of a replacement well, then that 60-day
9 prior notification is not a requirement. It's not
10 required. They can go ahead and install the well.

11 But, caution: I mean, it truly has to
12 be a replacement. And the well that it is replacing
13 needs to be plugged and abandoned within a certain
14 time. Same depth, same size well, same use.

15 MS. ZAUNBRECHER: Yeah. And if you're going
16 replace one, you probably wouldn't replace it with
17 exactly what you had before.

18 MR. SNELLGROVE: Most of the time that's
19 correct. It's usually bigger.

20 MS. ZAUNBRECHER: I understand. Or you
21 wouldn't have to do it.

22 MR. SNELLGROVE: Yes, ma'am.

23 CHAIRMAN ANGELLE: And that law that requires
24 the 60-day notice, that's been around since about 2001
25 or '2?

1 MR. SNELLGROVE: Correct. Beginning -- well
2 2001 I believe is the timeframe whenever it was
3 enacted. And then there was a subsequent law that was
4 passed that formalized that process being under the
5 Commissioner's authority.

6 CHAIRMAN ANGELLE: Anybody have any
7 questions, any commission members have any questions
8 for staff on the issue of auditing or registration?

9 Seeing none. Okay.

10 You want to continue on with your
11 presentation, Matt?

12 MR. REONAS: Yes, sir. All right.

13 Again, another issue we have been
14 involved in is education, primarily here in East Baton
15 Rouge, although certainly our focus is looking
16 statewide. But when we started developing an education
17 program, East Baton Rouge with its groundwater issues
18 was a major area of focus. And we had a very
19 successful teacher workshop this past -- about a month
20 ago in late June at LSU, the School of Education.

21 We were very fortunate to develop a
22 program last year. It's called "Water-Wise in BR." It
23 was sort of a public awareness, but we really put a lot
24 of emphasis on reaching teachers in the parish,
25 especially science teachers.

1 We developed a specialized curriculum
2 that focused on groundwater resources, awareness about
3 groundwater, use here in Baton Rouge, saltwater
4 intrusion, and really put that in the context of what
5 we call "Science in Your Own Backyard." Here's a great
6 opportunity to learn, right, learn about natural
7 processes, the management of natural resources, the
8 conservation, sustainability -- key vocabulary such as
9 that -- and ended up developing the curriculum to go
10 along with it.

11 This year, through a partnership with
12 DEQ, through one of their beneficial environmental
13 project programs, we were able to secure some
14 additional funding, expanded the curriculum here in
15 East Baton Rouge to include a 5th grade component.
16 Prior it had really been 8th, 8th grade, middle
17 school and a high school environmental science
18 component.

19 We added a 5th grade component, added
20 a math component to it as well -- again utilizing
21 primary source material, charts, graphs, you know, real
22 data, a lot of stuff from USGS -- getting students to
23 engage with the material that we use as managers every
24 day, and then also added sort of a civics component
25 again because this comes down to government, management

1 of natural resources.

2 And so what we ended up doing was having
3 the first of one of a series of workshops at the LSU
4 School of Education in late June; had approximately
5 fifty teachers from East Baton Rouge Parish schools.

6 We're reaching out. I'm doing a program
7 next week with the Catholic school system here in the
8 Baton Rouge area, trying to get this curriculum out to
9 those teachers as well.

10 But it was a real success. Again about
11 a three-hour program focused almost exclusively on
12 curriculum.

13 The previous workshop we held we had
14 about 30 or so attendees. This was last year. We had
15 a big program, a day-long program where we had speakers
16 from USGS, the Baton Rouge Water Company. We actually
17 took them on field trips out to one of the Baton Rouge
18 Water Company's well fields and out to Entergy to look
19 at their co-gen plant, water use there.

20 This time around we wanted to focus very
21 exclusively on curriculum development. We had a lot of
22 demonstrations, hands-on activities for the teachers,
23 and provided them, of course, with our classroom
24 poster, copies of the curriculum, and a bunch of other
25 goodies as well that they could use in their classroom.

1 So that's really the first and one of
2 several we would like to hold over the next year here
3 in East Baton Rouge.

4 Terry, can we go to the next slide,
5 please.

6 However, we do have an interest in
7 looking at statewide issues. One of the things I'm
8 working on right now for development and launch once
9 school gets back underway, probably September, I'm
10 working with the Cane Center at LSU, which its focus is
11 on STEM -- science, technology, engineering,
12 mathematics -- curriculum at the high school level,
13 middle school/high school levels.

14 What I want to, what I would like to
15 develop is or what I'm developing right now is a
16 statewide teacher survey, science teachers in
17 particular, to really see what's being taught right now
18 in the classroom, what the needs are going forward,
19 especially with the adoption of the Next Generation
20 Science Standards. It's going to be a huge emphasis --
21 and this is something that I had extensive
22 conversations with the Department of Education about --
23 There is going to be a huge emphasis on engineering
24 with these Next Generation Science Standards.

25 And for those of you that are involved

1 in education policy at all, trying to navigate through
2 these Next Generation Standards, that's just very
3 dense. Great stuff, but it takes a tremendous amount
4 of time to work through them; and there's going to be a
5 huge need -- from what I understand talking with the
6 Department of Education, talking with a lot of teachers
7 out in the field, there's going to be a huge need for
8 lesson plans and curriculum.

9 What I'm trying to do right now -- and
10 again I'm working with the Cane Center on developing
11 this survey that we can send out and hopefully kind of
12 get a picture, some data of what's being taught right
13 now and what teachers are anticipating their needs are
14 going to be going forward -- is the survey to, you
15 know, give us again some data.

16 We need to understand what they are
17 using right now, what's being taught right now, again
18 what needs are they going to have going forward. We
19 would like to launch this in September, and again we
20 can keep the Commission posted as we develop this.

21 From more of a public policy standpoint,
22 we're also working again with our parish contacts.

23 This is a list that we're continuing to
24 expand and refine. It includes -- this is a project
25 sort of we undertook a year and a half ago to sort of

1 develop a parish contact list of: Public works
2 officials, parish presidents in some cases, police
3 jurors in some cases, and just to keep them apprized of
4 major, major developments in groundwater and surface
5 water policy; again sort of as one of our management
6 tools.

7 Again, that's a group; I have probably
8 80 to a hundred people on that list right now, and it's
9 a group that kind of continues to fluctuate, as you
10 could imagine at the parish level, as people come in
11 and out of government or retire from their positions in
12 public works departments. But again, just to try to
13 keep them updated on major developments with the Water
14 Resources Commission, with major management issues.

15 And so, for instance, this past January,
16 when we released the recommendations, updates, status
17 update, we sent that out with sort of a breakdown of
18 contact information, relevant material that was
19 available online.

20 Of course the USGS, we hit them with all
21 the information on the expanded groundwater and surface
22 water monitoring networks. And then just recently back
23 in May, we reached out to them, just trying to sort of
24 gauge what their needs, if they anticipated any on
25 groundwater education, if they had any programs that

1 were undergoing within their areas, and then you know
2 to provide them assistance if possible.

3 Now we haven't had a tremendous response
4 from them. Of course some areas, especially in the
5 Sparta for instance, are already very highly attuned to
6 groundwater issues. Other parts of the state, Chicot,
7 I think there's a high level of knowledge about
8 groundwater issues.

9 But in terms of actually having sort of
10 a public outreach and awareness that's -- and in many
11 parts of the state it's relatively nonexistent. So
12 that's one of the things we're looking at, just to kind
13 of reach out to parish officials -- again police
14 jurors, public works people -- let them know that we're
15 out there, the Office of Conservation in particular,
16 for groundwater issues, and to provide them sort of
17 with regular updates on what's going on at the state
18 level.

19 And then again, following sort of the
20 last point I wanted to hit on in terms of agency
21 actions was the recently amended South Caddo Emergency
22 Groundwater Order.

23 Again, Commissioner, as you will
24 recall -- you were secretary then -- the Office of
25 Conservation issued a Temporary Groundwater Emergency

1 Order for South Caddo Parish here in 2011 when local
2 wells began to run dry. We've monitored that area very
3 extensively, created two areas of interest, had very
4 strict regulations on groundwater use, installation of
5 wells. And what we've seen over the past couple of
6 years has been a steady trend of recovery.

7 Now that particular aquifer, the
8 Carrizo-Wilcox there in South Caddo Parish, which is
9 heavily used in sort of the rural areas below
10 Shreveport, what we've seen is that there has been the
11 steady trend of recovery. And with the recommendation
12 of the Red River Watershed Management Institute which
13 maintains a series of monitor wells in the area -- we
14 were talking with Gary Hanson there extensively. Of
15 course he was sending in regular data. USGS also of
16 course had regular monitor wells in there and they were
17 sending regular updates.

18 What we ended up doing was relaxing that
19 order, amending the order this past June to provide for
20 the resumption of normal water use. Again, we had very
21 tight restrictions on water use in these two particular
22 areas in South Caddo Parish below Shreveport.

23 Basically we're keeping the order in
24 place, encouraging local residents to maintain sort of
25 what we call a judicious use of groundwater,

1 understanding that the groundwater resources there are
2 rather limited.

3 We sent out a flyer, an educational
4 flier last September in a dry spell, just to kind of
5 again remind local residents about the order and the
6 restrictions. But even with that dry spell last
7 September -- and I have a slide I'm going to go to in
8 just a minute to show you --

9 And maybe we can go to that now, Terry.

10 What you've seen is -- and I'll come
11 over here and show you. What we've seen, even with
12 this sort of a mini-drought that hit late last summer
13 in northwest Louisiana -- right, you see the dip here,
14 that was last summer, and it still recovered to higher
15 levels than before. And these are the deeper wells, so
16 you see less movement up and down. And it's a cyclical
17 pattern. It's very common.

18 But what we see -- and this was
19 winter-spring 2012, winter-spring 2013, and
20 winter-spring 2014 -- as you see the lines, the
21 recovery lines going up and up. It's still an area, we
22 still have the order in place in terms of maintaining
23 strict regulations on installation of new wells in
24 particular. Again, if anybody wants to go in and put a
25 new well in those areas of interest, we have to have

1 prior notification of that, we have to put it through a
2 very rigorous evaluation process --

3 CHAIRMAN ANGELLE: Matt, I don't want to
4 interrupt you but --

5 MR. REONAS: Yes, sir.

6 CHAIRMAN ANGELLE: So you've given the
7 Commission some method. So as we recall in 2011, we
8 got some reporting that showed that the monitoring well
9 was at a level -- what was that number?

10 MR. REONAS: These are the different wells,
11 as you can see the lines here.

12 CHAIRMAN ANGELLE: No, I think it's a great
13 graph. But I think unless someone takes a look at it
14 and examines it for 30 minutes --

15 MR. REONAS: Right.

16 CHAIRMAN ANGELLE: -- it's very, very hard to
17 just grasp real quick.

18 MR. REONAS: Right.

19 CHAIRMAN ANGELLE: So for members of the
20 audience, you play like you're the weatherman, and
21 that's an upper level low moving across, and tell us
22 what the forecast looks like.

23 MR. REONAS: Right.

24 Well, here we had a low of minus 20
25 feet, right, a drop of 20-plus feet in some of the

1 wells, in the more shallow wells. The deeper wells the
2 drop was less.

3 But what we've seen, right, in the
4 wetter months of winter, you see a gradual increase;
5 and then, right, the winter-spring of 2012 you saw an
6 increase. And then when it gets hot again, as you
7 would expect, water use goes up, the demand on the
8 aquifer goes up, and so the water levels drop back
9 down. Again this is about 20 feet here.

10 But you can see, this was the low, this
11 was the high. The first -- or this was the next low,
12 here was the next high, the next low again.

13 This was the last -- this was just last
14 summer. Late summer Caddo Parish had a burn order in
15 place. A couple of months was exceedingly dry. It was
16 actually, I think it moved into like stage 3 or stage 4
17 drought on the U.S. Drought Monitor right here.

18 CHAIRMAN ANGELLE: So from that point right
19 there to the previous point, the original point that
20 caused the concern over to the left --

21 MR. REONAS: Right.

22 CHAIRMAN ANGELLE: -- what is the difference
23 in that metric?

24 MR. REONAS: You're talking about almost 50
25 feet difference right there.

1 CHAIRMAN ANGELLE: Fifty?

2 MR. REONAS: Yes. From minus 20 --

3 CHAIRMAN ANGELLE: No, no, to the one right
4 there.

5 MR. REONAS: Yes, about 30.

6 CHAIRMAN ANGELLE: That represents the next
7 low; right?

8 MR. REONAS: Right, that's correct. Yes,
9 sir.

10 CHAIRMAN ANGELLE: About a 30-foot
11 recovery --

12 MR. REONAS: Yes.

13 CHAIRMAN ANGELLE: -- in the level of the
14 well?

15 MR. REONAS: Yes, sir.

16 CHAIRMAN ANGELLE: Right. And we believe
17 that that instance was caused by an extreme drought in
18 2011?

19 MR. REONAS: It's really a year and a half
20 drought that started in 2010 and extended into 2011.

21 We feel like most of the wells that were
22 in trouble, those well owners have gone to the expense
23 of, right, deepening their wells and tapping into the
24 aquifer at a different level.

25 So, again, we feel pretty good about the

1 situation there. And we feel very strong about it.
2 And again, it was back primarily by our eyes on the
3 ground there in Caddo Parish, the Red River Watershed
4 Management Institute.

5 CHAIRMAN ANGELLE: Well, I think the Red
6 River Water Institute Management deserves a lot of
7 credit for kind of putting us on notice in 2011.

8 MR. REONAS: Oh, yeah, without a doubt.

9 CHAIRMAN ANGELLE: And I just would again
10 tell the Commission members that, you know, there was a
11 point in time when the State had a really robust
12 monitoring program; and for a variety of reasons, that
13 kind of got eroded. And then we've been working all
14 together, all of our agencies and all of our folks
15 working with parishes and whatnot, trying to put
16 dollars together, and we've been able to put dollars
17 together, and we've got now an expanded monitoring
18 program.

19 Of course, you know, we're going to have
20 to continue to press forward to appropriators that it
21 is the right thing to do, that we need to do it.

22 In this instance, in this instance, had
23 it not been for the early monitoring program, a
24 monitoring program in that area, the state of Louisiana
25 would not have had the information they needed for the

1 Commissioner to issue that order. He could have all
2 the authority that he wanted to have, but if he doesn't
3 have the data, he can't get it done.

4 MR. REONAS: That's right. Right.

5 CHAIRMAN ANGELLE: So again, you hit today on
6 the monitoring program that we have been able to
7 expand. To the degree that you-all are having
8 conversations with people supporting a monitoring
9 program that is robust, that gives the management team
10 the ability to respond, to provide some pattern of
11 recovery, to modify behavior when behavior needs to be
12 modified and the conditions, it's very, very important.

13 And to not do that to me seems to just
14 be going in the dark and having a program that is more
15 counting on luck rather than management. And none of
16 us have been able to really control our luck. Right?

17 So if we can work on the management
18 side, thank you very much.

19 Do you have a few more on this?

20 MR. REONAS: No. That kind of wraps up the
21 agency presentation. And I'll take any questions if
22 there are any, in particular on any of the --

23 CHAIRMAN ANGELLE: So you get copies of -- I
24 guess will you be wanting me to refer to the Report on
25 the Groundwater Monitoring Network on Item 8 to get

1 into that a little bit deeper?

2 MR. REONAS: Yes. U.S. Geological Survey is
3 here, John Lovelace, and he will present on the
4 Statewide Groundwater Monitoring Network; and again
5 kind sort of drill down into a local instance I think
6 here in Baton Rouge where having, as you say, a robust
7 network really provides you the management tool, the
8 eyes on the ground, to see what's happening. Otherwise
9 again we're sort of flying blind out there in terms of
10 management and foreseeing anything that might happen
11 down the road.

12 Again, we have a good sense of what
13 these aquifers can do and what they are capable of; but
14 again, when you have unpredictable weather, extended
15 drought such as there was in 2010, and people are
16 demanding water of aquifers that may not be able to
17 sustain that, that's a huge issue. We've got to have
18 some understanding of that, some data to sort of back
19 up management actions.

20 CHAIRMAN ANGELLE: Good. Appreciate your
21 help on that.

22 Obviously I always want to have a
23 hundred percent compliance on reporting and to have
24 wells registered so the managers can have that data and
25 certainly expand. I'm very appreciative of the pilot

1 project here in the Capital City with regards to
2 education. We need to expand that statewide. I know
3 that you have a goal trying to get that out, but that
4 would be something I know that we took on several years
5 ago, something that would be very worthwhile.

6 As we're bringing, as we're changing the
7 behavior of adults as it comes to registered wells,
8 it's always a good thing to begin educating the next
9 generation of users.

10 So to the degree we need to put that
11 effort on steroids, I would certainly be willing to
12 help try to find resources, private funds or whatever
13 we can get our hands on. I think that's very, very
14 important for the 5th graders or whatever choice grade
15 you think is important --

16 MR. REONAS: Yes, sir.

17 CHAIRMAN ANGELLE: -- that we can make that
18 change.

19 MR. REONAS: Well, there is money out there,
20 especially for science and engineering. And I've had
21 numerous conversations with nonprofits and private
22 sources.

23 There's a tremendous amount of interest,
24 and I think we're moving in that direction. There's a
25 lot of interested parties out there and there is money

1 available.

2 I think the biggest thing for us, from
3 an educational standpoint, is just to have the data
4 available, again: What are teachers teaching right
5 now? What resources do they have at their fingertips?
6 What are they going to need going forward? What can we
7 provide them going forward?

8 And I know Sparta is here to talk a
9 little bit. Lindsay Gouedy is here. We'll talk a
10 little bit about that. We had a great conversation
11 yesterday.

12 And again, like I said, the nonprofits
13 that are out there are very interested, and water is a
14 huge issue going forward -- they realize it -- not only
15 here in this state, but nationwide and around the
16 world. And so I think there is going to be, I think
17 there is money out there that we can tap into and
18 develop a statewide program.

19 CHAIRMAN ANGELLE: Very good. Thank you very
20 much. Appreciate it.

21 We're going to change the order just a
22 bit, go to Item 13. Chris Knotts, who is a member of
23 the Commission, has another engagement he has to take
24 care of, so we're going to accommodate Chris.

25 And as you-all know, I guess it was in

1 2012, we changed the Groundwater Commission to the
2 Water Resources Commission and expanded our advisory
3 authority, not only to groundwater, but to also include
4 surface water. So we thought it would be good for
5 Chris to kind of give us a presentation on that.

6 So, Chris, thank you very much for being
7 here.

8 MR. KNOTTS: Mr. Chairman, thank you for the
9 opportunity to address the Commission. I do appreciate
10 the modification of the agenda to allow me to take care
11 of some family obligations later today.

12 Terry.

13 The Public Works Water Resources,
14 Department of Transportation and Development, includes
15 the statewide flood control program, federal projects,
16 the Non-coastal Reservoir Priority and Development
17 Program, Dam Safety Program, Levee Safety Program,
18 Non-coastal Levee Districts. We are the coordinator
19 for the National Flood Insurance Program for FEMA
20 Region 6 for the state, and we also do all the
21 hydraulics for the roads and bridges of the state.

22 For the purpose of this presentation,
23 I'll focus on our dam safety program.

24 When an individual or an entity would
25 like to construct a new dam, we have the application

1 online and they would go fill out the application. If
2 they are computer savvy, they can submit it
3 electronically. Otherwise they can print it out and
4 send it in.

5 The dams that require notification of
6 our office are ones that are greater than 6 feet in
7 height or ones that store more than 15 acre-feet of
8 water.

9 For those of you-all not familiar with
10 an acre-foot of water, it's roughly 326,000 gallons per
11 acre-foot of water.

12 Those that require a permit are ones
13 that are greater than 25 feet in height or that
14 store -- excuse me -- more than 50 acre-feet of water.

15 So you would get that application
16 online, fill it out, send it to us, send it to the
17 Corps of Engineers. The Corps of Engineers does the
18 joint application process/notification process.
19 Through all those comments, you would either get an
20 approval or a denial from the Corps. Then you would
21 send all of the letters of no objections and the permit
22 from the Corps to us at the safety meeting.

23 We'll then conduct a public hearing in
24 the parish that the dam, proposed dam is to be located
25 in. The applicant is required to have -- they are

1 required or their representative is required to attend
2 that hearing to answer any questions.

3 A hazard classification is determined by
4 the evaluation of the probable maximum impacts of a dam
5 breach.

6 The owner is responsible for
7 establishing that hazard class; but in the dam safety
8 unit, we assume that all the dams are high hazard until
9 proven otherwise. And if we don't agree with the
10 owner's assessment of the hazard classification, we can
11 reject it.

12 So the program was created by Act 733 in
13 1981 regular session. We are responsible to define and
14 enforce minimum standards, maintain the state levee
15 safety inventory.

16 Applicable to all dams or impoundments,
17 "any" which is defined as an artificial barrier which
18 will impound or divert water or any liquid -- I put
19 "any liquid" in red because some people don't realize
20 that, if you build an industrial facility, you might
21 have a storage pond, you might have a sewer treatment
22 oxidation pond. If it meets those criteria, it's
23 termed as a terminal reservoir and it has to be in the
24 dam safety program. Those just are a listing of the
25 graphs that were shown previous.

1 CHAIRMAN ANGELLE: So, if it's on private
2 property and fits that description, that dam safety
3 requirement, registration permit, whatever, is so
4 you-all know from a potential flood, downstream
5 flooding incident, if there's a failure?

6 MR. KNOTTS: Yes, sir. It doesn't matter
7 whether it's public or private, it's all a matter of
8 safety in the event that the dam does breach and the
9 impact downstream of that water.

10 So the minimum design standards are for
11 design, construction, modification and operation and
12 maintenance. In that operation and maintenance, we
13 will perform acoustic surveys, underwater inspections.
14 We'll operate the gates on a periodic basis, just to
15 make sure that they are still functional, and develop
16 emergency action plans.

17 Right now in the state -- well, I put
18 that as February. It changes on a monthly basis -- we
19 have 547 regulated dams in the state of Louisiana. At
20 that time 45 were high impact, 58 were significant
21 impact, and 444 were low.

22 I do know that the significant, as we go
23 and evaluate them, it changes, depends on what's been
24 developed downstream. So the significant has gone up a
25 little bit, but I think the high has stayed the same.

1 The high and the significant impact dams
2 are inspected on an annual basis, and low impact dams
3 are inspected every five years. On that schedule, with
4 our number of dams, we're inspecting between 150 and
5 175 dams annually. The inspections include: Planning,
6 scheduling, field inspections, and post-inspection
7 reports.

8 So we'll look at the geographics of our
9 dams, the required frequency of inspection, and we'll
10 group them into sections, send folks out. They won't
11 just go do one dam at a time. We try to get as many as
12 we can for a time period that they're out.

13 Most of those dams are on private land.
14 So we contact the dam owners, make sure they know we're
15 coming, any other stakeholders that would have an
16 interest in that dam's inspection. Sometimes they have
17 lake commissions, sometimes other entities, state
18 entities, wildlife and fisheries. We always make sure
19 everybody knows we're going. And a lot of times the
20 DOTD district in those areas also participate. And we
21 send out confirmation letters to let everybody know
22 what date we'll be there.

23 So on the actual field inspection, we'll
24 verify the location and dimensions of the components.
25 The dimensions sounds kind of redundant; but when you

1 have a structure, sometimes the owner doesn't go there
2 very often. We take measurements to make sure that
3 nothing is actually moving, make sure that there aren't
4 any safety issues there. And we document anything we
5 find, collect additional information from dam owners,
6 other stakeholders that may be there, and we also look
7 at the downstream activities to develop inundation maps
8 and emergency action plans.

9 So we'll take all of that. We prepare
10 an inspection report documenting the deficiencies,
11 determine if immediate action is needed.

12 If immediate action is needed and it is
13 a safety immediate, imminent safety issue, the
14 department does have some other authorities that allow
15 us to do some things to remediate those safety issues.

16 Otherwise we'll distribute the report,
17 minor deficiencies to the owner and other stakeholders.
18 We'll prepare a breach analysis, revisit the inundation
19 map and emergency action plan to verify the hazard
20 class.

21 We distribute the emergency action plan
22 to the owner and stakeholders. We'll follow up with
23 them and we will provide dam owners with additional
24 information, and like I said, enforcement action if
25 required.

1 The emergency action plans, sometimes
2 when you build a dam, it's on private property, but you
3 don't really own the property downstream of you, you
4 might not be realizing the development that takes
5 place, and that's where the emergency action plan
6 hazard class can change as the years go by with a dam.

7 Contrary to popular belief, DOTD does
8 not own dams, however we do maintain dams, and
9 statutorily mandated to maintain 20. Unfortunately
10 many of those are getting old in age, 40 or 50 years,
11 and some have been poorly maintained due to lack of
12 funds through the years.

13 Just to name a few that are in some
14 critical need of repair: Lake Bistineau, Smithport
15 Lake and Cheniere Brake Dam. But we do have a little
16 good news. Cheniere Brake is currently in engineering
17 and design.

18 That dam is unique in that it is
19 integrated into a bridge. So we're actually doing the
20 bridge and dam design for a replacement structure, just
21 started earlier this year.

22 CHAIRMAN ANGELLE: Who owns those 20 that you
23 are required to maintain?

24 MR. KNOTTS: Typically those are lake
25 commissions or other local entities involved. They own

1 it, but we operate it and maintain it.

2 MR. McKINNEY: I have a question, please.

3 MR. KNOTTS: Yes, sir.

4 MR. McKINNEY: On the low-impact dams, notice
5 you have here 40 to 50 years on some of these here.

6 Is there a time -- excuse me. Is there
7 a timeframe in which these privately-owned low-impact
8 dams -- when did you start doing this monitoring
9 process?

10 MR. KNOTTS: Well, this program was created
11 in 1981, so we have been doing it for 30 years.

12 MR. McKINNEY: So, if a private individual
13 has a low impact, what we will say is a low-impact dam
14 that is older than 1981, do they need compliance on
15 these or what? How do you handle situations like that?

16 MR. KNOTTS: We continually get information
17 from various sources that people will say, Hey, they
18 have this dam or they have this pond or reservoir --
19 typically small -- that I found, but I don't think it's
20 in the state dam inventory.

21 We will actually go out, do a little
22 investigation, determine if it meets the criteria for
23 being in the state dam inventory. And if it is, we
24 will put it in. If it's not, then we'll just respond
25 back to the individual or entity that we have

1 investigated and it doesn't.

2 But there's no penalty for having it and
3 then we found out it's there and we go put it in
4 inventory.

5 MR. MCKINNEY: That's the point I'm
6 ultimately getting to.

7 In some of these cases -- and I expect
8 most of these cases -- and I'm thinking of one in
9 particular. Okay? That's the reason I asked this
10 question -- the timber growth is substantial on it. I
11 mean big stuff. So in theory, if you go in and remove
12 that timber, then in reality what you're creating is
13 the root system deteriorating and ultimately the
14 breaching of the dam. So you've got a dilemma, you
15 know.

16 And I understand or I have been told
17 there should be no vegetation on the dam.

18 MR. KNOTTS: That's correct.

19 MR. MCKINNEY: But you've got 50 or 60 years
20 growth there, you know, and you've got it. So what do
21 you do in cases like that?

22 As you say, you do not hold the
23 landowner responsible.

24 MR. KNOTTS: Yeah, we have to work with the
25 landowner. I mean, we -- regulations, federal

1 regulations, you don't have growth on the dam itself
2 all the way down a little bit past the toe, very
3 similar to the levees.

4 In that case, if it was privately and
5 small, we would have to look at it. But typically, we
6 would require that the woody vegetation be removed. If
7 that couldn't be done in a manner that still maintained
8 the integrity of the dam, it would probably be breached
9 and then repaired and then put back.

10 But thanks to the -- a little bit of
11 good news -- the State Capital Outlay Funds, the Lake
12 D'Arbonne Lake Commission with DOTD worked together,
13 and the existing spillway was recently repaired.

14 We also added an auxilliary spillway
15 with two 40-foot tainter gates that was completed in
16 early 2014. This is an aerial view of the new
17 alternate spillway at the bottom there. That's some
18 pieced-together photos of the construction of the new
19 tainter gates, and that's just some different views of
20 the same gates.

21 These tainter gates are the only
22 structures on reservoirs in the state that are designed
23 for flood control. All the other gates are just
24 designed for operation of the lake; but these two are
25 actually designed for flood control specifically.

1 So we get a lot of requests from
2 different entities, lake commissions and things, to
3 come open the gates, you know, have flooding. We've
4 worked through that earlier this year and got some
5 internal documentation.

6 We just felt that opening gates that
7 were not designed for flood control were putting the
8 department a little bit at risk, especially should
9 those structures be damaged during that activity. But
10 we have worked through that and finally found a way to
11 be able to do that for our lake commissions.

12 Real quick, you know, might be asking
13 why we do all of this. Consequences of dam failure are
14 fairly rare. But over the last 30 years there have
15 been 135 fatalities with \$2.6 billion in property
16 damage as a result of dam failures.

17 This is just a list I pulled together.
18 I'll talk a little bit about the two in Mississippi,
19 the top one and the bottom one.

20 Percy Quinn. Percy Quinn didn't have a
21 full breach. But during Hurricane Isaac, it had a very
22 severe slope failure. It came very, very close to
23 total breach. And through the -- you can see the
24 number of, amount of equipment and manpower out there
25 pumping the lake down. They did manage to hold that

1 dam together and repaired it subsequently.

2 One that wasn't so lucky was Big Bay
3 Lake, 17 miles southwest of Hattiesburg, 32 miles
4 north-northwest of Bogalusa. It was about an 1800-foot
5 dam, about 55 feet high, a thousand-acre lake,
6 relatively small. It was 42 feet at the dam.

7 By everyone's account that was a well
8 maintained dam, although it always did have some minor
9 seepage along the alignment and in the spillway
10 conduit. It had regular inspections by an engineer and
11 daily observation by maintenance staff.

12 In 2004, on a Thursday, the maintenance
13 staff noticed that it had a new seepage near the
14 spillway. They hadn't seen that before. Notified the
15 owner's engineer. Engineer goes out, looks, sees a
16 small boil, and advised that it be observed overnight.

17 Next morning he comes back. He noticed
18 that the boil was clear -- which means that it has a
19 clear path. It's no longer eroding soil. It's got a
20 clear flow path through the dam.

21 He left to go call the contractor. And
22 the maintenance staff called him back, said it was
23 rapidly increasing. So at noon he has a pencil-size
24 diameter. 30 minutes later it's four feet in diameter.
25 Ten minutes later the National Weather Service issues a

1 flash flood advisory for the two downstream communities
2 that were listed in its emergency action plan, and at
3 the same time they had a complete dam breach.

4 So there's the picture of the dam
5 breach, 385 feet wide, 230,000 cubic yards of material
6 loss. The entire lake drained in 90 minutes.

7 And it's kind of hard to read there; but
8 the flow path for that dam breach, which was a fairly
9 small dam, was 17 miles long, but the emergency action
10 plan only covered communities three miles downstream.

11 No one died. And by all accounts,
12 everybody figures that the reason no one died was this
13 was at noon and everybody was at work. But people did
14 come home and see their entire homes destroyed.

15 With that I'll thank you very much and
16 then take any questions.

17 CHAIRMAN ANGELLE: Chris, let's talk about --
18 appreciate the background on the dam safety. And
19 certainly that's a very important part.

20 With regards to the dam portfolio that
21 we have in the state, can you kind of give us an idea
22 of what -- those dams were constructed for a variety of
23 reasons: Flood control, I'm assuming some potable
24 water source. Can you kind of take us just through a
25 conversation -- because obviously we're definitely very

1 concerned about dam safety and would want to support
2 the things that we need to do. Obviously public safety
3 is very important.

4 But just to kind of manage the resources
5 and give advice to others, kind of take us through the
6 surface water dams -- let me back up -- the dams that
7 we have that we use perhaps for surface water
8 consumption, and how are those perhaps available to
9 help us with some of the groundwater shortages that we
10 have in some areas.

11 MR. KNOTTS: Most of the larger lakes that we
12 have are either surface water drinking use or sometimes
13 in a combination. Any time you build a lake, you're
14 going to have recreation, and the bigger ones are that.

15 The 444 low-impact, small, those tend to
16 be private, perhaps agricultural or just small dam
17 owner property. But the larger ones are surface water
18 and recreation primarily.

19 CHAIRMAN ANGELLE: And they were, you think,
20 constructed to solve what was a groundwater shortage in
21 a particular area way back when?

22 MR. KNOTTS: Historically they were not.
23 They were constructed -- if they were put in a place,
24 they were constructed where geography said it could be
25 constructed, and they were used for surface water,

1 drinking water purposes.

2 The reservoir priority program -- I
3 didn't mention it and we're still developing that. And
4 one of the things that I really wanted to focus with
5 that was siting future reservoirs in areas where
6 science said would recharge groundwater aquifers, in
7 trying to match up the surface geography with those
8 two, and funding that development.

9 But a lot of the more recent ones have
10 been surface water, economic development, recreation
11 components.

12 CHAIRMAN ANGELLE: So outside of that, does
13 your department have any specific authority to
14 manage -- is there any management going on of the
15 surface waters of the state that -- other than the
16 cooperative endeavor agreements that I think several
17 agencies have signed, a memorandum of understanding
18 that they are working together on -- do you all have
19 any authority whatsoever, for instance, when coastal,
20 the coastal restoration folks are looking to determine
21 volumes of water from Mississippi River flows and
22 managing that to make sure that they have the kind of
23 water that they need to yield the sediment that they
24 would want for a particular project?

25 Do you all have any -- do you have a

1 seat at the table? From a surface -- managing the
2 surface waters that the state of Louisiana owns, can
3 you tell us anything that you've got going on in that
4 area?

5 MR. KNOTTS: That's not in my area. And I
6 don't know anybody else in the Department of
7 Transportation, with perhaps the exception of the
8 navigable waterways, which is a small group. Navigable
9 waterways and ports is in the intermodal section.

10 But with respect to use of surface water
11 other than reservoirs and dams, I'm not familiar with
12 it.

13 And you said, if I have a seat at the
14 table, I would think it's this seat right here is the
15 one seat I have.

16 CHAIRMAN ANGELLE: So to your knowledge,
17 other than the cooperative endeavor agreements that DNR
18 and DEQ and Wildlife and Fisheries are working on for
19 folks who request a withdrawal of surface water from
20 the state of Louisiana, to your knowledge, that is the
21 only so-called surface water management?

22 I'm trying to post that up against what
23 Matt was talking about earlier from a groundwater
24 standpoint, because we're going to have some additional
25 conversations. So part of what I'm doing is kind of

1 setting up that conversation.

2 Under the groundwater withdrawals,
3 there's obviously notification requirements. We heard
4 about that. And in some cases the Commissioner has the
5 authority to say yes or no, depending on if it's an
6 area of groundwater concern, depending on what's going
7 on, the ability to impose a withdrawal restriction as
8 was talked about in 2011 in Caddo Parish.

9 So as you look at that and you post that
10 up against the whole surface water regime, you're not
11 aware of anything at DOTD that has any authority on
12 managing the surface water. It's really just kind of
13 collecting data and reporting it and making it
14 available as far as managing would go?

15 MR. KNOTTS: Well, the surface water use, we
16 are one of the commenting agencies. So I get all of
17 those and we comment back.

18 The only other surface water is, on the
19 20 that we operate, if those lake levels want to be
20 modified, we have to approve it. And a lot of times
21 those come from Wildlife and Fisheries for Aquatic
22 Vegetation Control or the Lake Commission for repair of
23 the structure.

24 MR. MCKINNEY: Question.

25 CHAIRMAN ANGELLE: Mr. Ted?

1 MR. MCKINNEY: Regarding the Lake D'Arbonne
2 Union Maintenance Initiative to extract potable water
3 from that lake, are you saying that your department is
4 involved in that ultimate decision in some way, form or
5 fashion?

6 MR. KNOTTS: On the Lake D'Arbonne lake, we
7 were party and participated in the operational scheme
8 for the structure to manage the lake level for flood
9 control.

10 MR. MCKINNEY: You're talking about managing
11 control of the lake; right?

12 I'm talking about extracting water for
13 potable use.

14 MR. KNOTTS: No, sir, we're not involved in
15 that.

16 MR. MCKINNEY: You're not involved in that?

17 MR. KNOTTS: No, sir.

18 CHAIRMAN ANGELLE: Ms. Gautreau?

19 MS. GAUTREAU: So not necessarily in your
20 department, Chris, but I do know that there are some
21 implications for stopping water surface flow with
22 regard to 401 water quality certification if we're
23 going to impact downstream supplies, as wells as on
24 certain streams the are like scenic streams in the
25 state. Those are some other considerations that would

1 go I guess into the management of structures or
2 inputting --

3 CHAIRMAN ANGELLE: That would be more -- just
4 adding to the conversation -- that would be more of the
5 environmental, that would be more of the environmental
6 concerns, as opposed to the authority to withdraw.

7 MS. GAUTREAU: Well, I think your authority
8 to withdraw would be dependent on potential impacts,
9 very different, very different.

10 CHAIRMAN ANGELLE: Sure.

11 MS. ZAUNBRECHER: When you were referring to
12 major diversions, is that what your thought was?

13 CHAIRMAN ANGELLE: Well, you know, one of the
14 things that I think we've all kind of thought
15 through -- and the LSU Law Institute produced a
16 relatively robust report on potential solutions. And
17 one of the things that many of us always thought is
18 that, if we had a particular groundwater shortage in an
19 area, but we had an excess of surface water in another
20 area, how could we use our surface water excess to take
21 care of our groundwater deficiencies and the
22 authorities by which to begin to use the resource.

23 MS. ZAUNBRECHER: How do you get that done?

24 CHAIRMAN ANGELLE: Who is in charge? Who you
25 has that authority? How do you go about doing it?

1 I think we've managed in a very
2 excellent way with regards to the demand that we had in
3 northwest Louisiana with regards to the need for
4 withdrawal of water for fracking wells. We instituted
5 a process that worked very, very well. We were able
6 to -- with the Commissioner's help and leadership, as I
7 recall, we were able to visit with companies and issue
8 guidance documents -- not requirements, because the
9 Commission didn't have that authority -- but guidance
10 documents guiding them to a surface water withdrawal
11 instead of a groundwater use for that particular
12 purpose.

13 And as I recall some of the numbers
14 going back were as high as 80 to 85 percent withdrawal
15 of surface water in that area, and that seemed to be a
16 smart policy. It's a smart policy only to the extent
17 that we had the authority to do it and would not have
18 any negative impact on too many surface water
19 withdrawals in one particular area that would have an
20 environmental and ecological impact.

21 So all those things, all those balls in
22 the air have to be managed. In our thought process, it
23 makes sense to continue to combine the management of
24 that in one agency, getting comments from others,
25 because obviously the left and the right hand have to

1 know what's going on.

2 COMMISSIONER WELSH: Mr. Chairman, the
3 Commissioner of Conservation does have general
4 authority to regulate the sustainability of the eleven
5 main groundwater aquifers in the state. So in the Act
6 there's different things that the Commissioner can do
7 establishing areas of groundwater concerns, things like
8 that, and so -- but that's limited to groundwater, but
9 we used that in several cases.

10 MR. BALKUM: Chairman Angelle, just to
11 clarify: The Department of Wildlife and Fisheries uses
12 this program to regulate water withdrawals from
13 associated water bodies, some 60 or 70 streams
14 statewide.

15 And quick question for Chris.

16 I think you mentioned during your
17 presentation that applicants entering into the DOTD
18 permitting process, the registration process, after
19 receiving an Army Corps of Engineers permit; is that
20 correct?

21 MR. KNOTTS: Right. Before you can build a
22 dam, you have to get a Corps permit and then our
23 permit. On the Corps permit, all of the resource
24 agencies comment.

25 CHAIRMAN ANGELLE: So, Collin, on the scenic

1 rivers, when you say the Department of Wildlife and
2 Fishery regulates the withdrawal, again that's a volume
3 withdrawal?

4 MR. BALKUM: Correct, we receive applications
5 when that water is to be withdrawn, and we're looking
6 at what are the impacts: Biological, scenic impacts,
7 and recreation.

8 CHAIRMAN ANGELLE: Right, but not so much on
9 the legal authority?

10 I guess what I'm looking at is, so what
11 the State has done with their cooperative endeavor
12 agreements is, in a sense, set up a process where
13 commenting agencies in non-scenic river sites are
14 bringing their comments to the table, and then the
15 Department of Natural Resources is saying either yes or
16 no, kind of modeling, if you would, that process that
17 you have.

18 In your instance, you've kind of gone
19 through that same process where you're looking at what
20 are the impacts and whatnot. I'm assuming that you are
21 then, in that process, assuming that the person who is
22 making that application for that withdrawal has some
23 legal authority to do so, and you don't comment on that
24 legal authority as much as you comment on the
25 environmental side.

1 MR. BALKUM: Correct.

2 SENATOR LONG: Mr. Chairman, if I might just
3 a make a general comment?

4 We're all here trying, of course, to
5 work through some of these very difficult issues that
6 are going to have a profound influence on our state in
7 any direction you want to go, environmentally,
8 economically. We have been in several meetings this
9 summer throughout the South dealing with water-related
10 issues.

11 I simply say that to acknowledge, as we
12 have worked through some legislative processes, that in
13 my role as the Chairman of Senate Natural Resources, we
14 have discovered that in Louisiana there are 21 agencies
15 or subagencies that have some type of regulatory
16 supervision over water. That creates of course a
17 tremendous amount of reasons to bring together as much
18 as we can commissions like the Water Commission, which
19 of course was the legislative act that I created and
20 the legislature supported.

21 Fast forwarding that: We're still one
22 of only nine states that does not have a comprehensive
23 water management plan. So that we don't lose focus on
24 what we're doing and of course we work through all
25 these issues, ultimately in Louisiana we're going to

1 have to address this issue of having a comprehensive
2 water management program.

3 I have talked extensively with Chairman
4 Angelle about this. He has given great leadership.
5 But we welcome input from the audience. And at the
6 appropriate time today, we would hope that some of you
7 would engage this Commission about your concerns.

8 But I can tell you this: With the new
9 federal Clean Water Act, it is going to add even
10 greater significance to what we do in Louisiana.

11 I mention this in closing, Mr. Chairman,
12 on these comments: Louisiana is one of only six states
13 that has been designated as a water surplus state,
14 meaning that when you look at the collection of water
15 that Louisiana has, it puts us in an abundantly unique
16 position to direct the economic development of our
17 state in order to be environmentally sound.

18 We're all environmentalists. People ask
19 me all the time about the environmental issues. We're
20 all environmentalists: We want clean water, clean air.

21 But I think we have a unique opportunity
22 in this state that we will never have again to get this
23 issue of water management correct, not only for the
24 next few years, but for years to come. It can be the
25 economic engine that drives Louisiana in a way that no

1 other state will have that kind of opportunity.

2 Thank you for allowing me to share that.

3 CHAIRMAN ANGELLE: Thank you, Senator.

4 Appreciate your leadership on that area.

5 And certainly being one of only six
6 states with a water surplus creates both an opportunity
7 and a challenge because, as we try to bring a
8 management regime that is based on sustainability so
9 that we can be one of those six states in that same
10 category a hundred years from now, part of the problem
11 and the concern -- and that's why it takes the grinding
12 through of these issues -- is to bring the public
13 along. Because it's hard, often cases it's hard to be
14 able, from a top-down strategy, convince folks that we
15 need to do this in a surplus time.

16 So obviously I think we found that not
17 all surpluses last forever, even the ones in the big
18 tall building across the street. Right?

19 SENATOR LONG: That's right.

20 CHAIRMAN ANGELLE: Okay. So, Chris, do you
21 have anything else that you want to add?

22 MR. KNOTTS: No, sir.

23 CHAIRMAN ANGELLE: Any members have any
24 questions for Chris in the surface water area?

25 MR. PRATT: Mr. Chairman?

1 CHAIRMAN ANGELLE: Yes, sir.

2 Mr. Pratt?

3 MR. PRATT: Yes, sir.

4 I was just interested, Chris, in what is
5 the status of the reservoir priority and inventory
6 program that was a phased project, and where are we at
7 on the next phase?

8 MR. KNOTTS: We completed phase one. We are
9 going to be seeking funds to finish that.

10 And what that program would do when
11 completed would allow the state to look at siting of
12 future reservoirs and the different -- and prioritize
13 the proposed siting of which -- one of those priorities
14 would obviously in my mind be a recharge of groundwater
15 aquifer in addition to all of the more traditional uses
16 for reservoirs.

17 MR. PRATT: Mr. Chair, I certainly think that
18 that should be a priority in our next session is to try
19 to see that next phase completed. I think it's all a
20 component to our Senator's concern on our comprehensive
21 plan and tying all that together.

22 Thank you.

23 CHAIRMAN ANGELLE: Thank you.

24 One of the things I also thought is
25 that -- and I know it was one of the things that we

1 began to address -- but to the degree that we can have
2 a fiscal policy that tends to reward a water management
3 policy, I think you would get many more folks who would
4 be willing to spend some of their own money on some
5 innovative solutions to the degree that we as a state
6 are participating; because again, there's no
7 requirement for them to fix their own problem because
8 they have an absolute right to, you know, withdraw in
9 some areas to a degree. And I'm beginning to have some
10 conversations whether or not we can use our fiscal
11 policy to reward folks, incentivize folks. I think
12 that's smart policy and kind of allows us to solve some
13 problems that otherwise won't be solved.

14 Any other questions for Chris?

15 Thank you very much. And again I
16 understand that you have to be somewhere else. Thank
17 you for being here.

18 MR. KNOTTS: Thank you, sir.

19 CHAIRMAN ANGELLE: Okay. Go to Item 7, which
20 is a report from the Louisiana State Law Institute
21 regarding Senate Concurrent Resolution 53 of the 2012
22 legislative session.

23 Is Ms. Dian Tooley here?

24 MS. TOOLEY-KNOBLETT: Where do you want me to
25 go?

1 CHAIRMAN ANGELLE: Right up on the front row.
2 Thank you so much for being here.

3 MS. TOOLEY-KNOBLETT: My pleasure.

4 CHAIRMAN ANGELLE: I'm sure of all the things
5 you had to do today, coming to the Water Resource
6 Commission was one of the best things you could
7 possibly do.

8 We'll recess for five minutes.

9 Oh, you're ready?

10 MS. TOOLEY-KNOBLETT: I'm ready.

11 Good morning. Is the sound okay?

12 My name is Dian Tooley and I have my
13 contact information on the board. Please, please feel
14 free to write down the mailing address, the email, and
15 the cellphone. I accept texts. Students text me all
16 the time.

17 And I say that because, as I'm going to
18 explain, the Louisiana State Law Institute is launching
19 the second phase of a water project, and it's the more
20 exciting of the two phases, and I am very interested in
21 getting feedback and I'm interested in maintaining a
22 dialog with all of you because you have the expertise
23 that I don't.

24 So I figured I would take minute or so,
25 tell you exactly who am I.

1 I teach at Loyola. I taught for 30
2 years --

3 You can go back to the other one. I'm
4 sorry.

5 I taught for 30 years. I was originally
6 hired to teach oil and gas law because I had practiced
7 oil and gas law for a couple of years, community
8 property, regulated industries, contracts; and I was
9 asked to move into the basic property areas. So I
10 taught property for almost 30 years and I have taken
11 over Professor Yiannopoulos's case work.

12 I got involved in Louisiana State Law
13 Institute in 1987 four years after I -- three years
14 after I started teaching. My mentor from LSU,
15 Professor Saul Litvinoff, was reviewing law sales, and
16 I found that I had both the passion and some facility
17 in assisting in the water forum.

18 Since that time I have served on at
19 least 25 law institute committees, various projects,
20 and so I was asked back in 2012 -- you can go to the
21 next slide now -- when the Law Institute was asked by
22 the legislature to study the legal issues that surround
23 both groundwater and surface water law and to recommend
24 or -- to recommend whether there were any needs for
25 revision and of course we could have at that point made

1 specific recommendations.

2 So when I took this task on -- I
3 certainly took environmental law in school, and I had
4 some, some dealings in practice, but I am not an
5 environmental lawyer. I am more of a property lawyer
6 and all-around civilian in terms of having a passion
7 for the way in which we legislate.

8 So I took this on and I figured that
9 probably, probably the two skills that I brought to the
10 table, or maybe three skills: First was that, even
11 though I worked for an oil and gas company, I don't
12 have any philosophical bent towards any particular
13 side. I am totally neutral. I want the best laws for
14 my state.

15 And having been -- the second thing that
16 I bring is I have been involved in a number of
17 projects, so I have a lot of experience in researching
18 and in drafting legislation.

19 So we assembled a wonderful committee.
20 We had both practitioners in the oil and gas area, in
21 the environmental area; we had administrators, and we
22 had individuals with the specific expertise in this
23 particular area. We also had some engineers and
24 interested individuals who we welcomed to attend our
25 meetings. And as the project went on, I reached out to

1 one or two individuals in the attorney general's office
2 keeping them apprised of the development of our report.

3 So what were we asked to do? We had a
4 very broad mandate to study the laws of Louisiana that
5 address rights to surface water and rights to
6 groundwater.

7 You can go to the next slide now.

8 But we also were apprised in the
9 concurrent resolution that the legislature was aware
10 that the legal regimes for both of these critical water
11 resources have yielded various and often conflicting
12 legal rules and therefore there was likely a problem.

13 Now --

14 You can go to the next slide.

15 We know that the legislature did not on
16 its own come to that conclusion; that, in fact, this
17 body in 2012 published a masterful report on both
18 surface and groundwater, and that the legislature's
19 enactment of Senate Concurrent Resolution 53 was its
20 reaction to the urgency and the compelling data that
21 was brought to the legislature's attention from your
22 report. And so --

23 You can go to the next slide. We're
24 going run out pretty soon.

25 So we were given a very broad mandate in

1 the "therefore" clause to study all the legal issues
2 that concerned both groundwater and surface water; but
3 we also felt that we were charged with the task of
4 exploring what seemed to be perhaps an imminent issue,
5 and that was -- and this was just discussed before I
6 got up here -- and that was whether somehow the
7 withdrawals of surface water could be averted by
8 shifting the focus on -- excuse me -- whether the
9 withdrawals of groundwater could be diverted from
10 having a shift to surface water. And under the present
11 scheme with the cooperative endeavor agreements, fair
12 market value is required, and so we were asked to
13 explore whether it would be permissible to permit the
14 non-compensated consumption of surface waters.

15 So in our report -- we were asked to
16 come back in 2013, but it was too big a task. There
17 was there were so many tentacles, that every time we
18 would get into an issue, we would find more.

19 So we did an extensive overview of
20 Louisiana's laws that govern surface water and
21 groundwater. And for the surface water, the laws are
22 bifurcated because we have, in our civil code, a
23 general principle that's been there for a long time
24 recognizing the state's power and rights over any
25 running water or the waters of any navigable water

1 body. But we also have somewhere hidden back in a part
2 of the code dealing with what we call "servitudes,"
3 which are rights less than ownership on land that you
4 don't own, provisions that have been carried down
5 unchanged since the 1825 code.

6 We then looked at the development of
7 Louisiana's law that governs groundwater.

8 So you can go to the next slide. We're
9 running out real quick because I did not get a chance
10 to do much before I got here.

11 So we found that there's very little
12 uncertainty governing the rights that the state has to
13 what Senate Concurrent Resolution 53 described as
14 "running surface water." This would be your running
15 water, whether or not the body of water is navigable;
16 your navigable water, your waters in your navigable
17 rivers. And of course anything that the state owns
18 would be within this as well, and so the state owns
19 this.

20 Jurisprudence cases have shown the right
21 of the state to take a public thing and to alienate it.
22 And so there's very little question that the state
23 would have the right to alienate waters that were
24 running waters because, even though these are
25 characterized as public, that the legislature has the

1 power to change discrete amounts by alienating them.

2 CHAIRMAN ANGELLE: Going back to the oil and
3 gas background, so it's my appreciation that the state
4 does not have the right to alienate maybe its water
5 bottoms or perhaps its minerals or ...

6 MS. TOOLEY-KNOBLETT: Well, that's correct.
7 And you see the reason for that is that the beds of
8 navigable rivers were elevated to constitutional
9 protection, as were the minerals.

10 CHAIRMAN ANGELLE: So the state -- excuse me.
11 So the State through its capacity as a state would have
12 the ability to alienate its water rights?

13 MS. TOOLEY-KNOBLETT: That's correct. That's
14 correct.

15 As a general proposition, putting aside
16 constraints that may be placed by the natural resources
17 laws of the constitution, there's a vast difference
18 between the running waters and the beds in rivers or
19 the bodies of water that is navigable. Because
20 obviously by having constitutional protection,
21 mandating the inalienability of the beds of those
22 navigable bodies of water, that takes away the power of
23 the legislature.

24 CHAIRMAN ANGELLE: Got it.

25 MS. TOOLEY-KNOBLETT: But for just ordinary

1 running water, there's no overarching constitutional
2 prohibition, so we found that this area was quite
3 clear.

4 You can go to the next one.

5 We then moved to riparian rights, which
6 is where I'm very sorry to say the PowerPoint ends.

7 Riparian rights are rights that
8 landowners whose property abuts running water have to
9 use that water. Now the running water may or may not
10 be part of a navigable body of water. There are some
11 water bodies that are not considered navigable but the
12 water is considered to rise, not stagnant. It is in a
13 state of movement.

14 Now since 1825, our law has permitted
15 the adjacent owner, which we call the riparian owner,
16 to use the water that is flowing through for both
17 agricultural purposes and other purposes.

18 Now before 1825, it was limited to
19 agricultural, but that clause "or other purposes" was
20 added. And so the committee firmly believed that there
21 are many ambiguities and unanswered questions regarding
22 the scope of riparian rights:

23 What other purposes?

24 How much water?

25 Can the riparian permit someone else to

1 take the water?

2 Can he sell the water?

3 And so the scheme that we have for
4 riparian rights we were very troubled by. And I know
5 the legislature was too, because in 2010, in
6 conjunction with the adoption of the legislation
7 allowing the cooperative endeavor agreements, there was
8 an amendment -- excuse me -- there was the enactment of
9 a revised statute that would permit the exemption of
10 the riparian rights and the transfer of those rights
11 for agricultural and aquacultural purposes to be exempt
12 from the cooperative endeavor agreement. So obviously
13 we and the legislature have already recognized that
14 there are a lot of problems.

15 And I'll talk in a minute about why
16 those problems have persisted. But sometimes when you
17 have a provision that is written in such broad,
18 ambiguous language, the courts come in. And sometimes
19 if you have no provision at all, the courts come in.
20 In fact, until we had a mineral code, the development
21 of Louisiana's oil and gas law was done strictly by the
22 courts, and they did it in what as a civilian I would
23 call the finest civilian style in terms of taking
24 provisions and extrapolating them to situations that
25 were not envisioned when the provisions were written.

1 And so we took a concept of a servitude,
2 which is a property right less than ownership, and
3 extrapolated that to minerals. We took the mineral
4 lease and took the provisions that were written for the
5 lease of houses and the lease of agricultural lands and
6 we extrapolated that. But unfortunately, when it came
7 to the courts' involvement in giving content and
8 contour to the provisions on riparian rights, even
9 judges that I generally admire did very little here.
10 And I will say also, there is very little
11 legislation -- excuse me -- very little jurisprudence.

12 But we were very troubled that, on the
13 few opportunities the courts had to try and resolve
14 some of these ambiguities, they did not even cite the
15 codal provisions. They cited common law sources and
16 they adopted a hands-off, laissez-faire approach. And
17 I was going to give you one example here.

18 One case that went to the Louisiana
19 Supreme Court involved, you had two landowners that
20 were both riparian. The landowner whose land was
21 upstream had a creosoting plant and the downstream
22 landowner was a farmer. So the downstream neighbor
23 brought a suit against the creosoting plant, asking the
24 court to require them to stop permitting the runoff of
25 the creosoting fluid into the river because it was

1 contaminating the water.

2 So the downstream river riparian owner
3 said: Number one, he has damaged me because it's
4 contaminated my crops and I would like monetary
5 damages; and number two, I would like you to prevent
6 him from doing this again.

7 And the trial court -- he asked for
8 2200, the trial court gave him 200. And he asked for
9 an injunction, and the Court said no.

10 The Supreme Court said, We think \$200 is
11 quite liberal, and the court was totally unsympathetic
12 and unwilling to grant an injunction.

13 So no content was added to these
14 articles, no clarification because the articles were
15 technically not even cited. So the judiciary has done
16 nothing to create greater clarity. So that's the
17 riparian rights.

18 Now when we get to groundwater -- oh,
19 there's one other case I'll mention really quickly.

20 There was a Second Circuit case
21 involving two riparian owners, and one of them brought
22 suit against the other because the defendant in that
23 suit was permitting his neighbor to pump water from the
24 water body, and he was using it for his own irrigation
25 purposes and he was not a riparian owner. But he was

1 also using it to -- apparently I guess the price of him
2 getting that right was he was washing the riparian
3 owner's dairy barn with the water.

4 So the neighbor who saw the water being
5 used for non-riparian land and for washing a barn asked
6 the court again to enjoin this, stop them from doing
7 this.

8 And the court said: Can't do that,
9 can't do that. Very little explanation, and again, no
10 development of what the contours of riparian rights
11 are.

12 CHAIRMAN ANGELLE: So in that case the
13 riparian owner had transferred his right to withdraw to
14 a second landowner, another landowner?

15 MS. TOOLEY-KNOBLETT: Correct. He permitted,
16 whether through a formal contract or through some sort
17 of reciprocity where he got cleaning services for his
18 barn, and the court did not address expressly the
19 propriety of that. The court gave a blanket -- because
20 it was a suit for an injunction rather than damages.

21 The other riparian owner, seeing this
22 happening, wanted the court to stop him from doing it
23 in the future, and the court said no. So indirectly
24 they permitted it, but not on the merits of the issue
25 of whether that's permissible.

1 CHAIRMAN ANGELLE: So the legislature's
2 statute/bill that specifically created -- I think you
3 addressed it earlier -- the right for a riparian owner
4 to transfer that right to another owner only for
5 agricultural purposes -- is that right?

6 MS. TOOLEY-KNOBLETT: Agricultural and
7 aquacultural purposes, that's correct.

8 CHAIRMAN ANGELLE: So that particular
9 legislation would almost be in the same area --

10 MS. TOOLEY-KNOBLETT: I certainly have
11 thought about that.

12 In 2010 the legislature adopted what was
13 designated as Revised Statute Title 9, Section 1104,
14 permitting the riparian owner to transfer rights,
15 quote, equal to his own, but only for purposes of
16 agricultural and aquacultural exploits in Louisiana.

17 Now there are some issues that the
18 report addresses, which I won't get into, as to the
19 further uncertainties as to: Well, if the rights are
20 equal his own, what rights does he have left? Are the
21 rights doubling?

22 But those are part of the myriad of
23 issues that still exist relative to riparian rights.

24 All right. So then we got to
25 groundwater -- and unfortunately I don't have a slide

1 on groundwater -- the only provisions we've had for
2 groundwater since 1825 is a general statement that both
3 civil law and the common law have. The common law says
4 basically, If you own land, you own up to the sky and
5 down to the center of the earth.

6 Louisiana is not quite that dramatic,
7 but it does, in its civil code, presently Article 90,
8 recognize that a landowner may not own what's beneath
9 his land, but he has the exclusive right to go beneath
10 his land to explore what's down there. And of course
11 that provision was for, part of the basis on which our
12 oil and gas law was developed.

13 But as far as how that provision applied
14 to groundwater, until the mineral code took effect on
15 January 1, 1973, the only provision at that point in
16 the code was the one that would grant the exclusive
17 right of the landowner to drill beneath his ground.

18 Now I mention as an aside that there was
19 a very interesting provision in the 1808 Digest that
20 was deleted in 1825. And that provision said, if there
21 were an underground spring that came up on your land
22 and that water flowed downstream or it flowed in such a
23 way and the municipality used it, they had to pay you
24 for it. And they took that out and said, That's a bad
25 rule. So that at least got taken out creating a much

1 more general principle without a lot -- with no
2 contours at all.

3 So fast forward to the early 60s, and we
4 have -- well, we had a couple of cases. I guess I
5 should mention the first one.

6 We had a Supreme Court case in the early
7 part of the 20th century. Now this case is quite
8 distinguishable from the other one because the case
9 involved two wells that were drilled from the same
10 reservoir. And for whatever reason, one of them was an
11 unproductive well, but it affected the water pressure,
12 and thereby, because it was not plugged and abandoned,
13 it reduced the recoverable amounts that the other well
14 owner could get.

15 And so the well owner whose own
16 production was being diminished by an unproductive well
17 that served no purpose, and by remaining unplugged
18 interfered with the water pressure, causing the oil to
19 move, asked the Court to make him plug and abandon it.

20 And frankly the Court's response was
21 that the landowner who had not plugged and abandoned
22 the well, he got no benefit at all, there was no reason
23 at all for him to not plug and abandon it other than to
24 damage his neighbor, and that concept is a civilian
25 principle called an abuse of a right.

1 When a right is not absolute and if its
2 exercise is solely to injure someone else, then it's
3 not a legitimate right.

4 Now, I mention that case only because
5 the court, before announcing the abuse of rights
6 doctrine as the basis for requiring the plugging and
7 abandoning of the well, did a survey of national cases,
8 cases in other jurisdictions, and declared that it was
9 crystal clear that we followed the rule of the other
10 states; that you have the exclusive right to drill on
11 your land, to get whatever was there. And some of the
12 quotations from the other cases expressly mentioned
13 subterranean water.

14 So even though that wasn't the basis of
15 the holding, it wasn't the issue of the case, you had
16 at this point in the early 20th century at least a
17 Supreme Court opinion that was quoting decisions of
18 other jurisdictions saying that subterranean water fits
19 in with the scheme of oil and gas.

20 But the actual only case that came up in
21 which you had a conflict between two landowners, both
22 of whom had land beneath which was a common reservoir,
23 was a 1963 case. And I'm going to give my editorial on
24 this: I think that case is a bad case.

25 What happened here was you had basically

1 a neighborhood and all of the lots were above the
2 Wilcox formation, and so all the neighbors were
3 participating with a well that allowed them to get the
4 fresh water from the Wilcox formation which is what
5 they used.

6 The oil company comes in and it needs
7 water for either secondary -- it just needs water to
8 inject in the well. And so it gets permission from,
9 not someone in this neighborhood, but another landowner
10 who also is above the Wilcox formation, and it's
11 drilling and removing the fresh water to place in the
12 well. And the families who were using the water to
13 live on brought suit complaining that, beneath the
14 Wilcox formation was a deeper, at a lower depth
15 saltwater, which was perfectly acceptable for the use
16 that was going to be made. And so they asked the court
17 to require the oil and gas company to drill a little
18 deeper and use saltwater rather than fresh water.

19 And the Second Circuit Court of Appeals
20 said: Oh, we can't do that. We have no authority to
21 do that. We have no authority at all.

22 Yet the court did say: Maybe the
23 legislature should look at this. Maybe the legislature
24 should come up with a scheme. But the courts are
25 without authority to establish any regulation by

1 judicial pronouncement. So they wouldn't touch it.

2 All right. So, in 1973 --

3 CHAIRMAN ANGELLE: Can --

4 MS. TOOLEY-KNOBLETT: Stop me at any time. I
5 just keep talking.

6 CHAIRMAN ANGELLE: No, it's great. You've
7 done a great job. It's been a great presentation.

8 Can you give us your comments why you
9 personally think that that was a bad case or bad
10 decision where the courts said they didn't have any
11 authority to prevent that from happening?

12 MS. TOOLEY-KNOBLETT: I think that the
13 earlier case on abuse of rights, even though premised
14 on the notion that you have an abuse of right when
15 there's no personal gain from your actions and just the
16 harm to the other could have been expanded by analogy.
17 And because I personally am not a judge, but I think
18 that the judge has to decide that case.

19 And even in the absence of express
20 legislative directive, the answer shouldn't be: Our
21 hands are tied. I think their hands could have done
22 anything they wanted.

23 That's just my opinion. I don't
24 represent anyone but myself when I say that. I thought
25 that the court punted on an issue that, had they

1 addressed, could have had a significant impact.

2 All right. We now get to one of the
3 more enigmatic levels of the groundwater, and that is
4 it wound up in our mineral code.

5 Now what is perplexing to me is that the
6 reporter of the mineral code -- and the project went on
7 for six years. And for the first five years, in
8 published articles and published presentations, the
9 reporter of the mineral code stated -- and I'm going to
10 quote here: "Ground and surface water have been
11 excluded from the ambit of our recommendations because
12 the considerations governing water use and water rights
13 are very different from those governing mineral law."

14 So for five years there was no intention
15 of subjecting groundwater to be within the scope of the
16 mineral code.

17 And four months before the project went
18 to the legislature in a quite unexpected turn, there
19 was an amendment to the article in the mineral code,
20 which is Article 4, saying what is within the scope,
21 and they added two words, "subterranean water."

22 Now, unfortunately -- I mean, I was able
23 to access all the minutes; but unfortunately the more
24 lengthy documents that would have given the
25 deliberations of the committee and perhaps provide an

1 explanation for the very dramatic policy change, those
2 documents were lost in a flood that took place in the
3 Law Institute office some time back.

4 But I was happy that I at least found, I
5 found the transcript of the meeting, even though it's
6 not that illuminating, other than it shows that it was
7 four months before.

8 So groundwater got ingrafted onto the
9 mineral codes despite the reservations that had been
10 expressed for five years.

11 So you look at the decision that
12 wouldn't require the oil and gas company to drill
13 deeper, and then you look at the mineral code, and
14 there's really nothing in it that gives much more
15 content, other than there's a provision that's never
16 been tested in the courts saying that, those with
17 rights in the common pool have correlative rights.

18 Again, that hasn't been explored.

19 So when we stood back and we looked at:
20 Okay, surface water -- the ownership of the surface
21 water and the right of the state to alienate it:
22 Crystal clear. The riparian rights and the extent to
23 which they can remove the water, what they can do with
24 it, whether they can transfer those rights: Very, very
25 unclear. And the courts had at least one or two

1 chances to clarify and did nothing.

2 Groundwater ingrafted onto the mineral
3 code without any consideration of the tremendous
4 differences between it and minerals, other than that
5 they are in a sense fugacious.

6 So basically, when we came to our
7 conclusions about the disparate regimes that this body
8 noted in the 2012 report, we were in total agreement
9 that these disparate regimes were a major impediment to
10 the kind of legislative landscape that we're going to
11 need in the future.

12 Now I won't get into all of the
13 constitutional parts of the report that led the
14 committee and the Law Institute to conclude that there
15 were severe constitutional issues relative to giving
16 away the surface water, the most significant of which
17 is Article 7, Section 14's prohibition of the donation
18 of state property. So I won't get into any of that.
19 I'll get into sort of the real meat of this, and that's
20 the recommendations.

21 So we, as a committee, found that the
22 state of Louisiana legislation, given sort of the broad
23 strokes on the rights to surface water versus
24 groundwater, were in fact disparate, we recognized that
25 the problem with the riparian rights is that simply,

1 other than the change in 1825, they have been carried
2 over. But we also found that in the 1978, or the
3 revision of that part of the code in the last several
4 decades, that the reporter for that revision, Professor
5 Yiannopoulos, that he had in fact noted in the
6 introduction to the project that the committee simply
7 replicated the older provisions of riparian rights
8 because they did not believe it was within the scope of
9 their mandate to revise them.

10 And here is what they said, that these
11 policy decisions -- he talks about all the issues that
12 still exist for riparian rights -- deserve exploration
13 and discussion; but this revision has to be limited,
14 and a change of policy would require implementation by
15 detailed water legislation. And if that project is
16 undertaken, then of course the principles we continue
17 should be reconsidered.

18 So Professor Yiannopoulos did not retain
19 the ambiguous and unhelpful riparian rights because he
20 liked them, but because he envisioned that someone else
21 would come along and there would be a comprehensive
22 study of water.

23 And interestingly, the reporter for the
24 mineral code, who four months before the report went to
25 the legislature was saying that groundwater didn't

1 belong in the mineral code, I mean, he had advocated
2 for years that water law is not really -- excuse me,
3 groundwater is not really the same. It should not be
4 governed by the same rules. It needs its own rules.
5 We need to study this more.

6 So we basically came to the conclusion
7 that there is no time better than the present, that the
8 legislature had asked for a recommendation, and so we
9 made the recommendation that the legislature give the
10 green light to the Law Institute proceeding with the
11 second phase, which would ultimately lead to the
12 development of an integrated water code. And so that's
13 where we stand now.

14 We have requested, and the resolution
15 echos our request, that the committee be an
16 interdisciplinary committee. We want people like you
17 guys on that committee because you have the expertise
18 in what Louisiana is doing now. You know where the
19 rules don't work.

20 We want the scientists who understand
21 hydrology. And I'm not saying that that's mutually
22 exclusive to the people of this room. But we want the
23 first part of this project to be another study, but a
24 broader based study, because we're now focusing on, not
25 what is, but what should be, and so understanding from

1 people other than the lawyers who read the statutes.
2 So to get the information from those of you who we hope
3 will come forward to help us, we can get a better
4 understanding of where the problems are.

5 Now that would then lead eventually to
6 the actual drafting which, as I see it, would not begin
7 until the study phase is completed.

8 The last thing I want to say -- it's in
9 the report -- but I think that it says volumes about
10 where we are. I mean, Louisiana is not the only state
11 that is having all these issues with the groundwater.
12 There have been a number of cases, most notable being
13 the Edwards case in Texas, where Texas attempted
14 through regulation to change the nature of groundwater
15 rights, and the Texas Supreme Court overruled it saying
16 it is an unconstitutional taking of property, which I
17 think will be one of the bigger legal issues we have to
18 face. Although I'm not that worried that we would get
19 a result like Texas, I think -- and the Texas opinion
20 in Edwards has been highly criticized. But we haven't
21 started that part of it.

22 The last thing I wanted to say is that
23 of course we know that litigation over water rights is
24 on the rise: States are suing other states. And the
25 legislation that I am deeply interested in right now is

1 the lawsuit that was filed in the last two years by the
2 State of Texas against the State of New Mexico relative
3 to the Compact of the Rio Grande River. And Colorado
4 has sought permission to join as a defendant in the
5 suit; the United States has been given permission to
6 join Texas as a plaintiff in the suit.

7 The basis of Texas's complaint is that,
8 even though New Mexico has -- under their compact,
9 their contract that the Congress has approved, New
10 Mexico has not taken a drop more from the Rio Grande
11 than the amount that was apportioned to it by the
12 compact; however, there is on the New Mexico side of
13 the Rio Grande an underground water reservoir. And
14 when water is withdrawn from that, it has the effect of
15 sucking in, so to speak, waters of the Rio Grande. And
16 so El Paso is having drought problems.

17 And the basis of Texas's suit is that:
18 Either their withdrawal of the groundwater is a
19 violation of the compact because it's having an adverse
20 effect on the amount of water that would have otherwise
21 been in the Rio Grande for us, our share; or the
22 compact should be interpreted to include any
23 underground water reservoir that communicates with the
24 Rio Grande.

25 And I am not a prophet, but I certainly

1 hope that the United States Supreme Court will give
2 recognition to the interconnectiveness of the
3 groundwater and the Rio Grande. And if I'm an
4 apologist in any way for my predecessors who wrote the
5 code and who wrote the civil code and the mineral code,
6 it's that we had no clue about hydrology, and our water
7 law reflects a sort of a lobotomized thinking that:
8 there's groundwater and surface water and never the two
9 shall meet. And now that we have been disabused of
10 that old wives' tale, our laws need to reflect the
11 truth.

12 Thank you.

13 CHAIRMAN ANGELLE: Okay. Any questions?

14 So again, just kind of repeating some of
15 the actions that have happened --

16 MS. TOOLEY-KNOBLETT: Sure. Uh-huh.

17 CHAIRMAN ANGELLE: -- so the Groundwater
18 Commission, recognizing that connection from which you
19 just spoke about, the need said that we needed to
20 engage those legal scholars to help with that. The
21 legislature adopted SCR -- was it 53 of 2012?

22 MS. TOOLEY-KNOBLETT: Right.

23 CHAIRMAN ANGELLE: -- and requested Louisiana
24 Law Institute to look at that. You have provided that
25 report.

1 I'm assuming that a copy of that has
2 gone to the President of the Senate and the Speaker of
3 the House?

4 THE WITNESS: Yes, yes. It went on April 2.

5 CHAIRMAN ANGELLE: April 2. All right.

6 So the legislature received that report.
7 All the members here I'm assuming have received a copy
8 of that in electronic version. The legislature
9 responded to that and said: Great, but that's not
10 enough. Now we want you to convene to begin the
11 process of adopting, drafting some comprehensive water
12 code.

13 MS. TOOLEY-KNOBLETT: That's correct.

14 CHAIRMAN ANGELLE: And so I'm assuming, as
15 you put folks together around the table, that that does
16 not have, as SCR 53 had -- SCR 53 seemed to have a
17 deadline of when the legislature wanted you to report.

18 MS. TOOLEY-KNOBLETT: Correct. This one just
19 wants reports.

20 CHAIRMAN ANGELLE: Updates, progress reports?

21 MS. TOOLEY-KNOBLETT: Progress reports, which
22 I did for this one in 2013. So again, this one --

23 I cannot envision how long it's going to
24 take, but it's too important to be rushed.

25 CHAIRMAN ANGELLE: I totally agree. I'm glad

1 to hear you say that.

2 The concern sometimes I have when these
3 resolutions are passed, some of them have been
4 introduced -- as many of us up here working with the
5 legislative delegation -- and then you end up getting a
6 deadline. And it is clear to me that -- and we'll talk
7 about perhaps a water budget in one of the later
8 items -- is to put a timeline on when we would deliver
9 or when you would deliver those recommendations I
10 believe would set everyone up for failure and it would
11 be a disaster. So I'm very, very pleased to hear that.

12 MS. TOOLEY-KNOBLETT: Right.

13 And I just want to say again that you
14 guys didn't get a whole lot of time to come out with
15 that March 2012 report, and that was a hell of a good
16 report.

17 CHAIRMAN ANGELLE: Thank you. Thank you.

18 Okay. So how do you move forward with
19 your process inasmuch as now the resolution has been
20 passed? How has the Law Institute worked to process
21 this request?

22 MS. TOOLEY-KNOBLETT: Well, we had a study
23 committee for the first phase, and the report lists the
24 members of the committee.

25 I do not envision that everyone who was

1 asked to serve on the first committee will be asked to
2 remain because we are opening the committee up for
3 inclusion of -- we don't need a bunch of lawyers. This
4 is a job for everyone who has something to bring to the
5 conversation.

6 So I have been contacted by a number of
7 people saying, "Oh, please, remember me." And I just
8 say, "It's not in my hands. Good luck."

9 But there will be in the next month or
10 two some consideration. And as I said, I would love
11 contact with you guys because we need your help too.

12 But I want to be inclusive so that we
13 have lots of different voices. We don't need a room
14 full of people like me. And yet I don't want the
15 actual working committee to be so large that we have to
16 go to a hotel room to find a conference room large
17 enough. I think at some point it gets unwieldy.

18 So I'm envisioning to have a group that
19 can fit in one room, even if it's a large room. But
20 I'm interested at various junctures in the process of
21 reaching out and keeping "the stakeholders" -- to
22 borrow that word that I don't necessarily like -- "the
23 stakeholders" apprised of it, because this is something
24 we want a hundred percent buy-in on. And so I really
25 do plan to either come around and talk about it or

1 solicit feedback, as I did for the other report.

2 As I said, some people in the attorney
3 general's office, I sent things to them before I
4 presented it and said: Do you have a problem with
5 this? Do you see this differently?

6 That was a very long and very sort of
7 unfocused answer. I apologize.

8 CHAIRMAN ANGELLE: Well, I suspect that one
9 of the reasons that this has not happened yet in our
10 state's history is, number one, because of the surplus,
11 excess of the property.

12 MS. TOOLEY-KNOBLETT: Absolutely.
13 Absolutely.

14 CHAIRMAN ANGELLE: And secondly, because of
15 the intellectual challenge that it is to go through
16 this process.

17 And you absolutely are right: It
18 affects everyone; where I suspect that in '73 when the
19 mineral code -- you said '73, correct?

20 MS. TOOLEY-KNOBLETT: '73 is when it took
21 effect. Yes, that's correct.

22 CHAIRMAN ANGELLE: I suspect prior to that
23 there were folks who were gathered in a similar fashion
24 grinding through a process to produce something which
25 took, I'm assuming, you know, a number of years.

1 MS. TOOLEY-KNOBLETT: It took them six years.
2 And again, they had a fairly developed body of
3 jurisprudence, which we don't.

4 CHAIRMAN ANGELLE: Right. Exactly.

5 So their starting point was perhaps a
6 little bit more advanced and it took six years.

7 And while it's certainly very, very
8 important to everyone in this state, that particular
9 code is, I think we would all agree that there are a
10 lot of folks who, in their daily routines of their
11 lives, would perhaps not really pay attention to a
12 bunch of smart folks who are meeting in some room
13 developing a mineral code because it really perhaps
14 didn't affect them in where they were in their lives
15 and their time. But we all would agree that this one
16 affects everyone, all four and a half, all 4.8 million,
17 whatever the number is today, of Louisianans: The
18 business interests, landowners, municipalities, local
19 governments, farmers, users, electric power generators,
20 on and on and on.

21 MS. TOOLEY-KNOBLETT: Absolutely.

22 CHAIRMAN ANGELLE: So it's an immense,
23 challenge.

24 Again, I thank you for agreeing to serve
25 in the capacity that you did and to be here with us

1 today. And we'll certainly let members go ahead.

2 And Ms. Zaunbrecher?

3 MS. ZAUNBRECHER: It was as an afterthought
4 that subterranean water was added? Is that what you
5 said?

6 MS. TOOLEY-KNOBLETT: It's not an
7 afterthought. It was number one a Copernican change
8 from total exclusion to total inclusion.

9 It occurred when the counsel of the Law
10 Institute was doing what appeared to be its last
11 look-through. And why it was injected, I have no clue.
12 I have some theories, but I'll keep them to myself.

13 Or I'll tell you when the mic is not on.

14 MS. ZAUNBRECHER: Thank you.

15 CHAIRMAN ANGELLE: Ms. Gonzalez?

16 MR. GONZALEZ: Yes.

17 Do you anticipate the committee looking
18 at laws in other states that already have --

19 MS. TOOLEY-KNOBLETT: Absolutely.
20 Absolutely.

21 MS. GONZALEZ: I mean, I know Louisiana has
22 unique laws, but obviously ...

23 MS. TOOLEY-KNOBLETT: Well, the truth is
24 that, in this area, our laws are not very different.
25 And part of that is that some of the development of

1 British water law was very much influenced by France
2 and by Roman sources. And I have some student workers
3 getting started on that. Mark Davis has some people
4 working on that.

5 We want to see, we want to understand
6 clearly what other states have done for those who have
7 done for those that have done --

8 MS. GONZALEZ: Ones that have been
9 successful? Not having to remake the wheel?

10 MS. TOOLEY-KNOBLETT: Correct. That is
11 exactly right.

12 And that is another reason why we don't
13 want to rush into the drafting stage, because it may
14 take trips places. You know, it certainly will take a
15 lot of legwork.

16 MS. GONZALEZ: Okay. Thanks.

17 MR. MCKINNEY: Question. Question.

18 MS. TOOLEY-KNOBLETT: Yes, sir.

19 MR. MCKINNEY: Is Louisiana -- and I think I
20 know the answer to the question, but I'm going to ask
21 it.

22 Is Louisiana law so different that it's
23 going to be such a challenge as opposed to say the
24 state of Arkansas or Mississippi or any of our
25 adjoining neighbors in dealing with water law?

1 MS. TOOLEY-KNOBLETT: Not at all. Not at
2 all.

3 As I said, there are among the other
4 states -- there's no unanimity of thought about whether
5 groundwater is owned, not owned, what the nature of the
6 rights are. There is no unanimity of thought on the
7 nature of riparian rights. So different jurisdictions
8 have taken different approaches.

9 The Western states have been more, they
10 have been more aggressive in developing laws because of
11 the scarcity from the beginning. The more water-rich
12 states, like Louisiana, have had a more laissez-faire
13 attitude because it's not really been an issue.

14 MR. MCKINNEY: Well, as a native Arkansan, I
15 am rather somewhat amazed at how aggressive they seem
16 to be currently in dealing with their water issues, and
17 the success and magnitude by which they are doing it,
18 and the quickness by which they are addressing,
19 revising, so on and so forth. And I just ask the
20 question.

21 MS. TOOLEY-KNOBLETT: Are you talking
22 specifically about Kansas?

23 MR. MCKINNEY: No. Arkansas.

24 MS. TOOLEY-KNOBLETT: Oh, I'm sorry,
25 Arkansas.

1 Yes, oh, I'm impressed with Arkansas
2 too. They are definitely -- I get the emails all the
3 time about the updates.

4 And we're going to look into all of that
5 as well, because anything we can avoid -- any mistakes
6 we can avoid and any tips we can get, we want to
7 collaborate. And I think that there's no impediment
8 from the vantage point of us being a civilian state.

9 CHAIRMAN ANGELLE: Questions?

10 Okay. Thank you very much for being
11 here.

12 MS. TOOLEY-KNOBLETT: Thank you very much.

13 CHAIRMAN ANGELLE: We're very much
14 appreciative of your work.

15 Okay. Item number 8, Report on
16 Statewide Groundwater Monitoring Networks, Mr. John
17 Lovelace of the USGS.

18 MR. LOVELACE: Thank you, Commissioners, and
19 good morning.

20 I think the last time we talked about
21 this was right at the outset of this program. We have
22 been into it for a year and a half now -- well,
23 actually two years. And I want to go over what we're
24 doing, why we're doing it, and why this is important.
25 It was touched upon several times during the previous

1 presentations and discussions.

2 It stems originally from one of the
3 recommendations, the findings by Ecology Environment
4 when they made the recommendations for a statewide
5 groundwater management plan. They did find that one of
6 the most significant issues in groundwater management
7 in Louisiana was a lack of comprehensive knowledge
8 about our groundwater levels, our water well
9 production, and our groundwater quality data. Although
10 we do have and have had networks in place for many
11 decades, the data were insufficient, they felt, for
12 proper management of this resource.

13 So there were a couple of fundamental
14 problems that we're trying to address or issues or
15 concerns, however you want to look at it; and the first
16 one is that groundwater levels have declined in some
17 parts of the state to levels where some folks think
18 that -- well, to the point where wells could go dry, it
19 becomes more expensive to pump, and these sort of
20 things need to be monitored. Problems are caused by
21 withdrawals, and so we need a robust monitoring network
22 to look at water levels throughout the state.

23 In some areas, in some of the aquifers,
24 there is saltwater, and the withdrawals and changes to
25 the flow scheme in the aquifers has caused saltwater

1 encroachment. So those are two of the things that we
2 have been looking at for a long time: Changes in water
3 levels, and saltwater encroachment in our aquifers.

4 And the third thing is relatively new,
5 and it's related to hydraulic fracturing as this
6 activity has taken off in Louisiana, and it's
7 guaranteed to pick up in other areas, areas other than
8 those that it's in now. It could adversely affect both
9 water supplies and water quality.

10 So part of our task was to specifically
11 address the issue of potential impacts of hydraulic
12 fracturing.

13 CHAIRMAN ANGELLE: And just to be clear,
14 John, on that last item, which I assume is a new item
15 for this commission: You have no evidence that that
16 has happened? There has been no issue with regards to
17 the groundwater from any hydraulic fracturing; correct?

18 MR. LOVELACE: No, sir, that's correct. We
19 have not seen any issues in Louisiana. And pretty hard
20 pressed to find it in other areas of the U.S. Although
21 there is a lot of speculation and anecdotal evidence,
22 when you really start looking for it, it's hard to
23 find.

24 So I'm not sure how familiar everyone is
25 with our groundwater resources in Louisiana, but we

1 have a lot of groundwater here. Almost every area of
2 the state, all those colored areas, there are one or
3 more aquifers. In some areas there are as many as ten
4 aquifers, layer-caked on top of each other. So there's
5 very few places in the state where we don't have
6 groundwater.

7 And because it's so prolific throughout
8 the state, it is heavily used for all purposes. And
9 pretty much every city/town in Louisiana is using
10 groundwater, except the very large cities where there
11 is not enough water there, groundwater there to meet
12 their needs. In a lot of cases, they are either
13 supplementing surface water or wholly on surface water.

14 So this is just a quick list. You can't
15 read all of it. But there's 45 aquifers that we're
16 looking at for this program. These aquifers are
17 regionally or locally extensive. Most of them cover at
18 least a couple of parishes. Several of them cover up
19 to a dozen parishes or more.

20 So when we got into this monitoring, we
21 are looking individually at each of these aquifers,
22 trying to decide: Do we have good coverage, water
23 level coverage? Are we hitting the recharge areas? Do
24 we know what's happening around the pumping centers and
25 areas where there is no pumping? Can we tell a good

1 story from what we have in these aquifers?

2 And the overall objective, as I said, is
3 to provide the type of comprehensive information on our
4 groundwater resources that bodies like you and other
5 water managers and planners are going to need to manage
6 these resources.

7 So we have a five-element approach to
8 this program. The first is looking at our water,
9 enhancing our water, existing water level network; the
10 second one was updating potentiometric maps.
11 Potentiometric maps are simply snapshots of water
12 levels within each aquifer; enhancing our existing
13 chloride network; initiating a water quality network in
14 the area where there's going to be hydraulic
15 fracturing, and then estimating water use on an annual
16 basis for Louisiana.

17 So step through each of these elements.
18 I gave you a little bit of information about why the
19 water level network is needed. We need to understand
20 the short and long term changes in water levels that
21 are going on in each of the aquifers to understand how
22 pumpage and other influences are affecting these
23 aquifers.

24 So our objective and our approach was
25 essentially to increase monitoring throughout Louisiana

1 and fill in a lot of holes in the existing network.

2 This map shows you the network that
3 existed prior to 2013, all the green dots on the
4 network; and then the darker, the blue dots are wells
5 that we have begun monitoring during and since 2013.

6 You can see we had added a lot of wells
7 in the Chicot aquifer in southwest Louisiana,
8 especially in the Lake Charles area, where they have
9 had water issues for decades there and our monitoring
10 network had gotten pretty thin.

11 We had a lot of wells in southeast
12 Louisiana too where we have typically eight to ten
13 aquifers beneath all of these areas, and we had very
14 few monitor wells in some of them.

15 We added a lot of wells up in central
16 Louisiana in the Sparta, and over in the northwest, in
17 the Wilcox aquifer, which overlies the Haynesville
18 Shale and has been having issues.

19 But we looked closely at all the
20 aquifers, made maps, looked at where there the pumpage
21 was, where there's wells, and tried to get really good
22 coverage in each individual aquifer.

23 And so we expanded our network. We had
24 279 wells previously. We're now monitoring 473 wells.
25 We collect water levels quarterly, which gives us

1 good -- shows us typically seasonal fluctuations,
2 whether or not those occur in that particular aquifer,
3 and gives us a pretty good record for the year.

4 But the quarterly measurements don't
5 always show you the highs and lows, and you may miss
6 some things on short-term trends that occur during the
7 year. So we've also put in equipment into 32 wells to
8 collect hourly measurements, to report hourly
9 measurements in these wells in 19 of the aquifers. And
10 these kind of give us a big picture of what's happening
11 in between those quarterly measurements, so we can
12 extrapolate out from these few wells as to what's
13 happening in the rest of the system.

14 And all of this data are available on
15 USGS websites and searchable websites. I'm going to
16 show you one here. It's called the USGS Groundwater
17 Watch Network. And this is a national page, which you
18 can go into just Louisiana.

19 And the wells, these are all the wells
20 that we're monitoring water levels in. And they are
21 color-coded to indicate whether the current, the most
22 recent water level measurement at the well is at, above
23 or below the normal for that well. And you can see the
24 green, a lot of the wells are in green on there
25 indicating normal conditions. Although there are quite

1 a few that, in that burgundy, which indicate that they
2 are much below normal.

3 The colors didn't show up too well on
4 here. There are a lot of gray wells, indicating that
5 the wells are not ranked. These are virtually all of
6 the wells, the bulk of the wells that we just added,
7 started monitoring. They will not show up in colors on
8 this network until -- this particular web page until we
9 have at least ten years of data for these wells.

10 And what we want to get out of this, the
11 importance of it is water levels in each well tell a
12 story about what's happening in the aquifer. And I
13 chose two wells. These are water levels over time in
14 two wells here in the Baton Rouge area that are
15 screened in the 2000-foot sand, and we have been
16 monitoring these wells since the 1940s.

17 The green line on there is from a well
18 that's very close to the Baton Rouge industrial
19 district. It's located just east of there. And you
20 can see, between 1940 and the early 70s, water levels
21 fell about 300 feet, about 30 feet per year, in the
22 industrial district at this particular well.

23 In the early 70s the state realized the
24 need to get a handle on management of our resources
25 here in Baton Rouge and they formed the Capital Area

1 Groundwater Conservation Commission, who has now put
2 some limits on pumping, some moratoriums, got the users
3 together. And you can see that water levels in this
4 aquifer have been relatively stable, recovered a little
5 bit, since the 1970s. But you can see the actions
6 there of the directing act of pumping and then the
7 response to management actions.

8 And the other line is from a well that's
9 on the other side of the parish. It's far from the
10 pumping. But you can see how the pumping in the
11 industrial district has affected water levels at this
12 well too. It's a regional issue that's pretty much
13 centered on Baton Rouge and particularly in the
14 industrial district.

15 So the second element was to update
16 potentiometric maps. Like I said, these are our water
17 level maps. They give us a snapshot in time of what's
18 happening in the aquifer. They're sort of like a
19 topographic map or a contour map, if you're familiar
20 with those. We go out and collect a lot of water
21 levels and then connect the dots.

22 And with that, with these maps you can
23 see where there's cones of depression, you can figure
24 out which way the water is flowing, how fast it's
25 flowing. And if you can compare these two maps done at

1 different times, you can see and map out where the
2 water levels have changed across the aquifer.

3 The biggest issue that we've had, we
4 have been producing these maps over time, but we have
5 not have a regular schedule for them. So maps for some
6 aquifers are 30, 40 years old.

7 One of the findings of the Commission
8 was we need more frequent potentiometric maps. So our
9 approach was to come up with a schedule where we're
10 updating potentiometric maps for all of our major
11 aquifers on at least a 10-year basis. So we're trying
12 to collect data and create potentiometric maps for two
13 to four aquifers on an annual basis over the next 10
14 years.

15 And this is a schedule for it, the
16 tentative schedule just throughout there. We've
17 decided to look initially at areas where shale
18 fracturing is occurring or is anticipated to occur in
19 the near future.

20 So during the first year, we selected
21 the Carrizo-Wilcox Aquifer and the Avahoula aquifers,
22 and those maps are being prepared for publication now.

23 And this past year we have been looking
24 at the aquifers, shallower aquifers in southeast
25 Louisiana, which would be impacted most by pumpage for

1 hydraulic fracturing. And those are the 4 and 600-foot
2 sands in the Baton Rouge area and the Upland Terrace
3 and Ponchatoula aquifers.

4 And we're going to go ahead and step
5 through each of the aquifers, aquifer or aquifer
6 systems after that. We basically made this schedule
7 looking at, you know, what had been done most recently
8 and our perceived need for updated maps of these
9 aquifers.

10 This is just an example of a map for the
11 Carrizo-Wilcox aquifer. It's color-coded. The color
12 coding is a little bit backwards on here. Actually the
13 red is areas where there's high water levels and the
14 green is where there's low water levels. And that's a
15 little difficult to see, but you get the gist of it,
16 that we kind of have a topography of the water level
17 surface. The water flows from areas of high levels to
18 the low levels.

19 And we can take this map and compare it
20 to measurements that we made back in 1991, and these
21 are measurements made at the same wells, and we can
22 color-code those and show you where water levels have
23 declined, which are all the red and orange dots on
24 here, or where they have risen in the Carrizo-Wilcox.

25 And this is what we've done also for the

1 Catahoula aquifer in Central, Louisiana.

2 And to go back to the 2000-foot sand
3 here in Baton Rouge, just illustrating the importance
4 of these maps, you can see there's basically a bull's
5 eye over the industrial district; and water from all
6 areas of the aquifer are now flowing towards this
7 pumping center, which is the industrial district.

8 And it's important to know which way the
9 water is flowing on here because of the feature in
10 Baton Rouge called the "Baton Rouge fault."

11 It runs through Central Baton Rouge,
12 separates the downtown from the LSU area. And
13 basically we have saltwater in most of our aquifers
14 south of the fault. And the pumping north of the fault
15 is slowly bringing that saltwater across into our
16 freshwater system.

17 So if we know which way the water is
18 flowing, we can anticipate which way the saltwater is
19 going to flow once it comes across the fault.

20 Basically, right when it gets north of
21 the fault, it's going to start flowing west, and it's
22 going to flow west almost all the way to the river, and
23 then it's going to make a beeline north towards the
24 industrial district.

25 And that's the reason for a third

1 element of this study was to monitor chloride
2 concentrations. Chloride is the major ion in
3 saltwater. It's easily analyzed and it's conservative.
4 So that is what we use: Collect samples, we send them
5 into a lab. They tell us what the chloride
6 concentration is, and that's how we know where there's
7 saltwater in our aquifers.

8 We have an existing network, but we
9 added about 50 wells to it, expanded it by essentially
10 50 percent, and that's going to give us a better idea
11 of where saltwater's encroachment is occurring in the
12 state.

13 We added a lot of wells in the southwest
14 Louisiana, particularly in the Lake Charles area and
15 the rice-growing areas where there have been and are
16 ongoing concerns about saltwater encroachment.

17 We added some wells in the New Orleans
18 area and over near Slidell, where there is saltwater.
19 We don't know if it's encroaching, but it's been there.
20 We've delineated saltwater plumes. That is a huge
21 growth area, the Northshore in this case. And so we're
22 trying to have a kind of early warning to see if that
23 saltwater does start to move.

24 CHAIRMAN ANGELLE: John, are these wells in
25 addition to the wells that you showed earlier or this

1 is just --

2 MR. LOVELACE: Yes, these are in addition to
3 it.

4 CHAIRMAN ANGELLE: Different sites?

5 MR. LOVELACE: Yes.

6 Some of them are the same sites, but,
7 you know, they are a combination.

8 I should have said that all of these are
9 existing wells. We did not drill any new wells.

10 We go out -- when we identify a location
11 that we're interested in, we go talk to the well owner,
12 see if the well is suitable for collecting water
13 levels.

14 A lot of pumping supply wells, they pump
15 all the time. They don't want to shut them off so you
16 can get a static water level. But they are more than
17 happy to let you come get a sample for chloride
18 analysis.

19 We try not to do too many public supply
20 wells for this, because they are already being
21 monitored by the Department of Health and Hospitals.
22 So we look at irrigation wells. We have -- USGS has
23 some wells out there. But, you know, we get whatever
24 we can in an area to provide the best coverage.

25 I would like to say, we expanded from 96

1 wells to 146 wells, and we're essentially monitoring in
2 11 aquifers where we have known or suspected saltwater
3 encroachment; and we collect these samples semiannually
4 in the fall and in the spring.

5 And what we're hoping to see -- or
6 perhaps we don't want to see but we want to be able to
7 detect -- is a situation like this: These are two
8 public supply wells in the downtown Baton Rouge area in
9 the 2000-foot sand. And we had one initial point, the
10 well at the top, EB630 back in the 60s. But we really
11 began monitoring both of these wells in the 90s. And
12 we immediately started seeing saltwater encroachment in
13 the upper one; and shortly afterwards, by about 1998,
14 saw saltwater encroachment occurring in the other one.

15 So this told us that there was indeed
16 saltwater moving across the fault in the 2000-foot
17 sand, and it was following our projected path and was
18 moving northward through the downtown area toward the
19 industrial district. And we were able to, using that
20 basic early warning information, go out and do
21 additional sampling and to find where a plume was
22 moving northward.

23 And so it isn't a great map, but
24 basically, where you can see the bend in I-110 just
25 north of where we're projecting the chloride plume to

1 be now, and it's expanded from where it was back at
2 Acadian near the interstate in 1966 and continued to
3 grow in westward and then northward.

4 So then the fourth element was
5 initiation of the monitoring network to look at
6 possible water quality changes in aquifers that could
7 be impacted by shale fracturing activities.

8 Our plan was to go into these areas and
9 monitor specifically where we could domestic wells,
10 because it's household wells, pretty much in rural
11 domestic areas, they are home supplies. Again, we
12 didn't feel too much of a need to go to public supplies
13 because typically they are already being sampled on a
14 regular basis by Department of Health and Hospitals.
15 Also, the domestic wells are typically shallow wells.
16 The homeowners don't spend nearly as much money as
17 public suppliers to put in a deep well that's going to
18 last forever. So being shallow and being put in by a
19 variety of different well drillers, they may be more
20 susceptible to issues like surface spills of frack
21 fluid. So those are what we looked at.

22 And our plan was to select a hundred
23 wells, and we have done that. We're still sampling the
24 wells annually and having the samples analyzed for pH
25 conductance, a variety of inorganic ions; but more

1 specifically, for dissolved organic carbon, gas
2 oxygenates, and BTEX as indicators of the possible
3 contamination by frack fluids or some petroleum product
4 related to, you know, potential well blowout or leaking
5 casing.

6 As we get these results back, we look
7 through them, we compare them to the previous years.
8 And if we do see problems, we will notify the well
9 owners and possibly go out and do some more sampling
10 and additional investigation.

11 We are just kind of wrapping up our
12 initial sampling. We just wrapped up the initial
13 sampling of this during the previous quarter and are
14 just getting a lot of the data back now. So we haven't
15 really had a lot of data there that we've looked at yet
16 to see if there are existing problems in these areas.
17 But it will also provide us with baseline information.

18 A lot of the area that we're looking at,
19 there has been no shale fracturing activity. So we'll
20 know what was there before they came in.

21 And these are the areas that we wanted
22 to concentrate on: The area northwest Louisiana,
23 Haynesville shale. That has already been pretty
24 heavily developed but there will be additional
25 development.

1 If you're not familiar with
2 shale-fracturing activities, they typically are coming
3 in and putting -- leasing sections, and putting in six
4 to seven wells per square mile in this area, and it's
5 pretty intensive.

6 We are also looking at the Tuscaloosa
7 Marine Shale, which extends across central and
8 southeast Louisiana, and then the Brown Dense Shale.
9 There has been very little activity in these two.
10 There has been some exploratory assessments of the
11 Tuscaloosa Marine Shale.

12 And these are the locations of the wells
13 that we've selected to sample. They are primarily
14 domestic wells. We try to get a good spread on them.

15 And the fifth element of this program is
16 to estimate water use in Louisiana on an annual basis.
17 We have been doing this on a 5-year basis since 1960.
18 And there's always that question of whether the fifth
19 year is an extreme year or not -- Is it a drought year?
20 Is it a wet year? Are we getting, you know, this
21 average?

22 And so we wanted to, you know, really
23 improve our estimates by doing it on a more frequent
24 basis and also help us to understand what the current
25 water uses are and what the water use trends are.

1 So we're going to continue to use the
2 same approach we have been doing on a 5-year basis. We
3 contact every public supplier, industry and power plant
4 in Louisiana and ask them to report their pumpage to
5 us, all recorded data; and then we estimate based on
6 other information: Water use for irrigation by rural
7 domestic populations, livestock and aquaculture. And
8 then we tabulate this data by use, source, parish,
9 aquifer, surface water basin; and we have the results
10 for 2012. We're wrapping up the 2013 assessment, and
11 they are all available on our local website.

12 And this is what we saw for 2012. The
13 results were fairly similar to 2010. The dark red is
14 surface water withdrawals in Louisiana, and the
15 blue-green is groundwater withdrawals.

16 Show you the trends over time since
17 1960: Groundwater has been relatively stable. There's
18 a pretty big decline in surface water withdrawals
19 between 2005 and 2010, and that was primarily
20 attributed to decreased industrial withdrawals. You
21 can see, it increased slightly there between 2010 and
22 2012.

23 I just want to show how this data ties
24 to the other data that we're collecting. Again, here's
25 this graph from well EB90 in the Baton Rouge area in

1 the 2000-foot sand.

2 And we actually have really good pumpage
3 records from the 2000-foot sand. Going back into the
4 1940s, we have estimated some of those values in there;
5 but we, USGS, has been compiling data from Baton Rouge
6 Water Company, Exxon, formerly Ethyl, GSU and Entergy
7 for a long time; and we have been able to put together
8 this pumpage record shown here in the bar charts. And
9 you can see that there's a direct correlation between
10 pumpage and the groundwater. Groundwater declines and
11 then rebounds, and fluctuations at that particular
12 well, indeed through the 2000-foot sand.

13 So knowing what your pumpage is really
14 gives you, tells you what's going on in the aquifer and
15 tells you why you're seeing those water level changes
16 that you see. And having this data also lets you
17 pinpoint where the pumpage is going on.

18 The Capital Area Groundwater
19 Conservation has been collecting pumpage by well since
20 the 1970s; and using that data and our data, we can now
21 go in and pretty much tell you how much water is being
22 pumped out on a well-specific basis in a lot of parts
23 of the state.

24 And you can see, based on this, that
25 green area there is the industrial district, and it is

1 still controlling the movement of water in the
2 2000-foot sand because that's where the pumpage is.
3 That's why our potentiometric surface looks like it
4 does and the flow patterns are like they are.

5 So that's in essence what we have been
6 doing with this program. The state is extremely
7 valuable to us. And I think, for management of the
8 water, it allows you to assess the impact of past
9 development, planning for future development, detecting
10 and delineating problems as they occur, and then
11 develop plans and tools to address the problems.

12 We have most recently been involved in a
13 modeling study of the 2000-foot sand, and it's been, I
14 think it's been a really good study. We have been able
15 to investigate various management alternatives and
16 potential solutions from looking at future scenarios.
17 And it's all because we have this really good record
18 here in the Baton Rouge area because, primarily because
19 of our close proximity, and because the Capital Area
20 Commission has been collecting a lot of data at the
21 same time.

22 So I'm very pleased that DNR has funded
23 this enhanced network, and it will end at the end of
24 2015. The bulk of the monitoring that we're doing is
25 funded for three years, and I'm hoping -- and it took a

1 lot of setup to do this, a lot of on-the-ground looking
2 at wells and investigation. I'm hoping it will
3 continue past that point.

4 CHAIRMAN ANGELLE: Thank you, John.

5 So the contract that you have with the
6 state is for a certain set of deliverables, of which
7 you've kind of gone through the kind of things that you
8 were doing.

9 MR. LOVELACE: Yes.

10 CHAIRMAN ANGELLE: And that runs through, you
11 said, December of 2015, or perhaps maybe July, June 30,
12 2015?

13 MR. LOVELACE: It does. Well, it was for
14 three years of data. We did get a late start on the
15 water quality collection. It was a very intensive
16 field investigation of finding wells. We started out
17 with a water level network and then chloride network,
18 so we got a later start on the water quality network.

19 We will have three years of data for
20 virtually everything by the end of 2015, except we will
21 be collecting the last of the water quality sampling in
22 the shale fracturing areas in the first quarter of
23 calendar year 2016.

24 CHAIRMAN ANGELLE: So when we did this
25 originally, obviously you thought it was very

1 important. There was really no financial resources
2 kind of laying around. We were able to work on the use
3 of some funds that were I think penalties or fines that
4 had been accumulated on the federal level and then
5 shared with the state. Is that correct?

6 MR. REONAS: That's correct. Yes, sir.

7 CHAIRMAN ANGELLE: So there obviously is a
8 finite number of dollars that we were able to access
9 there. Nonetheless, it was very important for those of
10 us that work on this to get started and, you know,
11 again, have the most expansive network monitoring
12 program we could.

13 I'm hopeful that all of you will join
14 with me at a later point here within the next 30 days
15 of signing a letter that we would send over to the
16 various appropriators and folks that we need to
17 requesting in this next budget cycle, as those budget
18 requests are coming together, perhaps from the
19 Louisiana Municipal Association, perhaps the Louisiana
20 Police Jury Association, perhaps from the Farm Bureau,
21 perhaps from every single group that we can kind of
22 muster, that we have to find the resources in this next
23 budget cycle to be able to continue this; or all we
24 basically did was got started and then, you know,
25 aborted our process.

1 For me personally, I can't think of a
2 better thing that we need to be working on from a water
3 management standpoint of making sure that we have the
4 right data. Right data gives us a chance to instill
5 confidence in the folks that we serve and to make the
6 changes or recommendations that we think we need to
7 based on science and not on politics. So I'm hopeful
8 that all of you -- and by the way you're shaking your
9 heads, I think that everybody agrees -- that we need to
10 do that.

11 Anybody have any questions for John?

12 Okay. Seeing none.

13 Go ahead, Matt.

14 MR. REONAS: Mr. Chairman, I was going to say
15 that we will send out an email notice to all the
16 commissioners about posting these presentations online.
17 We'll have those posted so that each commissioner can
18 review those on their own or at their leisure.

19 CHAIRMAN ANGELLE: I think it would also be
20 again really good, as you develop your database -- and
21 I know you said the local governments, police juries,
22 mayors, parish presidents, whatnot, you know -- there's
23 a lot of stakeholders up here that are represented.
24 Everybody is interested in this.

25 Any way that you can get the word out

1 that this kind of information is available, I just
2 think this is awesome work.

3 MR. LOVELACE: I just also invite anyone that
4 has an interest in a particular aquifer or area -- I
5 just sort of blurred through it all here -- but if you
6 want some more detailed information, feel free to
7 contact me.

8 Sorry I didn't put my contact
9 information up there.

10 CHAIRMAN ANGELLE: We'll find you. We can
11 find you. When things are bad, we know how to find
12 you.

13 So, John, just to kind of summarize:
14 There's an effort that the feds have, federal
15 government through USGS is, you know, in every state to
16 do the kind of things that you do; and the state
17 basically supplemented that with a financial
18 contribution. Is that correct?

19 MR. LOVELACE: Yes.

20 CHAIRMAN ANGELLE: And do you believe that
21 the network that we have now is, you know, is it
22 adequate? Is it what -- do we need to --

23 MR. LOVELACE: I think it's a pretty robust
24 network.

25 There are some areas where we simply

1 couldn't find any wells to monitor; but you know, the
2 rest of it, I think it's good.

3 MS. GAUTREAU: I have a question.

4 CHAIRMAN ANGELLE: Sure, Ms. Gautreau.

5 MS. GAUTREAU: This is great information.
6 Thank you, John. Should be useful in so many fronts.

7 I apologize if I did miss it. Is there
8 an estimate of how much of a supplement you would need
9 in order to move forward with fleshing out a network,
10 doing the work you talked about into the future?

11 And I guess related to that, as an
12 example when you were talking about the order of
13 aquifers in which you're developing some of this
14 information, is that capacity limit, funding limit, or
15 both, in order for your 10-year projection I think is
16 what you were thinking?

17 MR. LOVELACE: That was based on consistent
18 funding over the entire period, funded at the level, I
19 think it was around 900,000 a year for three years to
20 do this.

21 MS. GAUTREAU: So theoretically, if you
22 received a bigger infusion, once you could potentially
23 accelerate what you're doing -- or it's not
24 necessarily. Is there a direct correlation?

25 MR. LOVELACE: Not necessarily. We do have

1 manpower limits and the federal government is trying to
2 downsize right now.

3 MS. GAUTREAU: So capacity as well as
4 funding. Thank you.

5 CHAIRMAN ANGELLE: So I think the contract
6 that we signed again had a 3-year period. What was
7 really good with that, Karen, was that we had a source
8 of funds that we had access to that could be used only
9 for very, very narrow things.

10 My hope is that the state recognizes the
11 need. In 2001, I guess, when we began to go down the
12 road of standing up this whole groundwater-type
13 management, there really hasn't been a bunch of
14 financial resources that have been put at it. I get
15 it; I understand. Everybody is fighting and scrapping,
16 and money doesn't solve all the problems. But it takes
17 resources to get data.

18 And so my hope is that we would then now
19 be able to move to a point where some state agency
20 would have a line item that would be reflective of
21 funding a network program on an annual basis and be
22 able to get this kind of information in front of the
23 appropriation committee. Because quite frankly, I
24 think once you see it, you believe that it's a
25 priority.

1 MS. GAUTREAU: Absolutely. And I was just
2 wondering, in terms of if we had opportunities to talk
3 to some of the appropriators or the rest of the
4 legislators at the appropriate time, if we had an idea.

5 Are you envisioning something that
6 totals about the amount that we invested, to supplement
7 it over the last three years?

8 CHAIRMAN ANGELLE: Yeah, my hope is that
9 staff would be able to kind of grind that through. And
10 within the next 30 days again perhaps, you know, send
11 around a proposed letter for us to execute that would
12 have that dollar amount made into it with specific
13 deliverables.

14 Again, I think everybody is interested
15 in deliverables, not fluff. And you all have done a
16 good job with that.

17 To me this is one of the more robust
18 presentations we've had on the things that we're all
19 kind of yearning that we need to be able to see so that
20 we can report back to the stakeholders that we
21 represent that, you know, it takes time to get there.

22 The state has been absent at the table
23 for a long period of time up until 2001. You know,
24 there really wasn't a whole bunch of any management
25 whatsoever, other than registering wells. And now I

1 see, you know, some really good, good action. Folks
2 from 2001 did a really good job. We have I guess gone
3 through three governors since 2001 and everybody has
4 embraced it. I think it's just a matter now of putting
5 it, you know, ramp it up a little more.

6 MR. MCKINNEY: If I could add from the Sparta
7 end: It's been amazing the data that Ben McGee and
8 that group that have been there have collected, even on
9 over into the Arkansas group that's working
10 collaborative with the State of Louisiana to monitor
11 those wells up there. It's great data.

12 And in reality, guys, it must continue.
13 There's no doubt about it.

14 CHAIRMAN ANGELLE: Okay. Thank you, John.

15 Item Number 9 is a Report from the
16 Surface Water Monitoring Network from Doug Carlson with
17 LGS.

18 And as Doug approaches, again, you
19 recall that originally when this group was set up, it
20 was the Groundwater Resources Commission. We changed
21 that to the Water Resources Commission, gave ourselves
22 some authority -- or the legislature gave us some
23 authority over surface water. It made sense to expand
24 some of the things that we were doing to the surface
25 water, and Doug is going to take us through that.

1 So the contract, looking to the DNR
2 staff, we had a contract with USGS on groundwater
3 monitoring; and we have a contract with LGS on surface
4 water monitoring; is that correct?

5 MR. REONAS: Yes, sir.

6 CHAIRMAN ANGELLE: All right. Thank you.

7 Welcome, Doug. Thank you for being
8 here.

9 MR. CARLSON: I thank you for having me here.

10 I would like to just briefly go through
11 it.

12 As you can see from the list of --

13 CHAIRMAN ANGELLE: Excuse me. Just pull the
14 mic a little bit closer to you. Thank you.

15 MR. CARLSON: Okay.

16 As you can see from the list of people
17 that are listed there, it has been an activity for
18 almost all of us at LGS -- and we appreciate this
19 opportunity to do this -- I'm just going to briefly
20 touch on some of the work that has been done.

21 Could I have the first slide?

22 There's essentially four parts to this
23 study that has been done. And two parts involve
24 inventory of current existing resources. Essentially
25 we were asked to inventory access points to public

1 surface water bodies, such as a series of programs and
2 such, and then also an inventory of public dams. And
3 maybe some of what I'll talk about might answer some of
4 your earlier questions.

5 Then we are asked for two other projects
6 that were more ongoing, longer projects in the sense
7 that they are monitoring of some select lakes in
8 Louisiana that could be useful as reservoirs, and then
9 the development of stream rating curves. And then I'll
10 just briefly summarize at the end. Thanks.

11 There's 357 -- 377 reservoir public boat
12 ramps. It turns out about two thirds of them are
13 concrete, so they are already essentially developed
14 operations.

15 Then there's a number of undeveloped
16 ones that could be maybe finished in a more permanent
17 matter, such as shell or dirt. Some are noted as
18 "mixed" or "other." Essentially there's more than one
19 essentially ramp to access a particular site. It turns
20 out that most of these that have been noted are owned
21 by parishes rather than the state itself.

22 The bottom figure: Some of them are
23 owned by cities, state agencies own them, and then a
24 very small number by the federal government. A few are
25 other cooperatives and other units of governments own

1 those.

2 Next.

3 In terms of dams: There were 64 public
4 dams that were in the list. Approximately half of them
5 are state-owned. The records: Local-owned are about a
6 quarter, then the federal, about a 6th; and then the
7 records don't indicate who owns the dams. It's just
8 that it's noted as a public dam apparently, and then
9 one is a cooperative.

10 They all happen to be earthen structures
11 that are noted. There are some that simply do not
12 describe in the existing records what the structure is,
13 but they are probably most likely earthen.

14 And then I think most interesting here
15 is the use. And this is the primary use of the
16 resulting reservoir and the dam structure. Setting up
17 the reservoir for recreational use, about half of them;
18 and then roughly equal amounts for fish and wildlife
19 purposes. Another set is for flood control, about 60,
20 and then smaller shares are used for public supplies,
21 irrigation. And hydroelectric turns out there's one
22 dam, that's Toledo Bend.

23 Next, please.

24 The reservoirs that sit behind these
25 dams vary greatly in size. Though most of the public

1 reservoirs are fairly large. And this is dividing it
2 up in terms of the number of reservoirs rather than the
3 actual volume of water behind them. A little over 50
4 percent are between 1000 acres and 10,000 acres, or
5 about one to 10 square miles roughly.

6 Toledo Bend happens to dominate. It's
7 very much larger than anything else. It's about 10
8 times larger than the next one, which is Lake
9 Bistineau; and it has 43 percent of the surface area
10 available on all these public reservoirs.

11 In terms of water available in
12 storage -- and this is the average amount that was
13 noted for these particular structures -- Toledo Bend
14 has almost three-quarters of all water available, and
15 30-times-plus what's behind Bayou D'Arbonne Lake
16 outside of Farmington. So it dominates.

17 But a lot of them are smaller features
18 and they tend to be typically about 10 to 15 feet deep
19 is the reservoir behind most of these features.

20 Next, please.

21 Now the ongoing part that really we just
22 got started and really should continue, I hope, beyond
23 the current contract period is the monitoring of four
24 different reservoir sites for water levels: Black
25 Lake, Lake Bruin, False River, and Henderson Swamp

1 Control Structure in the Atchafalaya. These structures
2 are all as contracted. They have been put in. There's
3 about roughly a year's worth of record now already
4 recorded on these in terms of water level.

5 Next please.

6 And it turns out, not surprisingly,
7 Black Lake and Henderson Lake are essentially connected
8 to the river systems, and since result there's a fairly
9 wide variation of water level in these reservoirs.

10 It turns out the Henderson Lake
11 Structure unfortunately was vandalized when one of our
12 staff went and checked it. It was destroyed, and so we
13 had to start over basically there. We're in the
14 process of reinstalling that structure now. In fact,
15 hopefully within the month it will be done and ready to
16 go.

17 Each structure, I note the gauge levels
18 here. They have been also tied into absolute water
19 levels as well with the survey that was subsequently
20 filed.

21 False River and Lake Bruin are
22 essentially oxbow lakes along the Mississippi River.
23 Although they are relatively isolated from surface
24 water systems, they actually do participate with the
25 Mississippi River. It's all one big alluvial system,

1 and there's an interaction between the river, the
2 groundwater and these other lakes in this case being
3 shown here, and there's rises and falls with the
4 Mississippi River itself.

5 Next, please.

6 Most of the work that I've been doing
7 personally is dealing with the development of rating
8 curves. These are 51 sites selected. We looked at 60
9 altogether. Some of them were dropped because they
10 were physically isolated, we couldn't get at them. Or
11 they were estuarine sites that didn't indicate a
12 free-flowing stream or essentially water was moving in
13 one direction.

14 If you get south of I-10/I-12, a lot of
15 the streams in that area tend to be estuarine. They
16 flow in and out with the tides actually or with storms.

17 So these are essentially free-flowing
18 streams going in one direction.

19 The 51 represents about a 70 percent
20 increase on the preexisting ongoing set of USGS records
21 where the records are gauged and there is a discharge
22 value noted. And we have to develop these curves at
23 these 51 sites, so it's a significant increase.

24 Next one, please.

25 The 51 sites include about a dozen here

1 in the Baton Rouge area, local streams. They could
2 provide maybe possible sources of water to augment the
3 various aquifers possibly, and so we've focused in on
4 some of these as well.

5 They are all existing USGS sites in
6 terms of water level, but they just have not developed
7 in general gauging curves from rating them.

8 Next, please.

9 I have two instruments that we're
10 working with. Essentially there's a thing called a
11 River Surveyor Instrument Device for large streams, and
12 then for small streams a Flow Tracker.

13 Essentially -- next, please.

14 The River Surveyor is essentially a
15 sonar system attached to a foam boat. It's
16 three-by-two-foot-sized boat. It's pulled back and
17 forth across the stream. The top left figure is one
18 way of doing it. The sonar comes out of the bottom of
19 the instrument, below that tower. It essentially
20 measures the depth. And then in three different
21 directions it measures also the velocity of moving
22 water, essentially a Doppler arrangement.

23 You can also do this from a bridge deck.
24 And this is the technique that's most accessible when
25 streams are in flood condition, such as shown in the

1 bottom two figures, shown as you work your way along
2 the bridge and along the existing gauge and tower.

3 Next, please.

4 The Flow Tracker is designed for small
5 streams. Essentially it measures water velocity, again
6 another sonar system. You have to measure your
7 position with a -- this is all low-tech here, just
8 simply measure the lateral position by tape and then
9 also the depth.

10 The pole that the instrument on the
11 bottom left corner is where the probe is, that pole is
12 marked off in increments of depths. So you measure the
13 depth using that pole, and then a position, and then
14 figure out the area and determine discharges.

15 So what ultimately developed -- next
16 please -- is a series of discharge results, shows kind
17 of the progress so far. The Flow Tracker is red with
18 small streams. The Surveyor is in large streams in
19 blue. We're more or less on target.

20 The contract suggested we have six
21 measurements at each stream. So far we have reached
22 that targeted goal for 48 of the 51 streams. There's
23 three that were behind schedule, 25 that were ahead of
24 schedule. So we are moving along on the contracted
25 pieces quite well.

1 Next, please.

2 The ultimate goal is to develop rating
3 curves, essentially come in four different types. If
4 you have the misfortune of missing large discharges,
5 such as in Shettleworth Bayou up near Shreveport, you
6 end up with all low-flow, discharges are small and the
7 gauge levels are crowded together. Notice the range of
8 gauge level on the X axis is less than a foot. There's
9 not much rain.

10 Most streams in Louisiana tend to be
11 about 10- to 20-foot range, so you'll end up with the
12 other three figures more likely.

13 Red Chute is an example of a linear
14 feature. But many of the streams don't have an
15 exponential curve, and that's ultimately what most
16 streams are.

17 I've actually gone back through all of
18 the USGS field records on their dataset, run through
19 their 70 streams, and the bottom two curves are more
20 likely. That's because most streams have an inner
21 channel that's fairly narrow; and then the small, wider
22 flood plain channel that, every time you add a foot of
23 elevation of your water level, you end up with a great
24 deal more recharge in the sense, essentially an
25 exponential increase of discharge with again a water

1 level. And so ultimately we'll develop 51 of these
2 curves to augment the pre-existing set already.

3 Next, please.

4 So far, in terms of the contract, we
5 finished the portion that asked for the inventory on
6 dams and access points. The monitoring of the streams
7 is on schedule, as it should be. And we're going to
8 get back to the fourth site once we take care of that.
9 Unfortunately it was vandalized. And the progress is
10 on schedule for developing rating curves.

11 Next, please.

12 However, the work for the last two
13 points on rating curves and monitoring really isn't
14 completed. It would be an unfortunate thing if support
15 failed because, for the rating curves and monitoring
16 need to continually keep track of things, ideally for a
17 rating curve, you should have 15 observation points as
18 kind of an international standard. And I noticed with
19 the USGS records, they typically keep this up every few
20 years. They go back to sites and keep refreshing,
21 because the morphology of your channels can change --
22 as the surface land use in the watershed changes, it
23 can actually change the stream itself. So these things
24 need to be continually refreshed and monitored, so it
25 would be ideal to continue the program in terms of this

1 portion of the work as well.

2 So that's all I have to say. I would be
3 glad to field any questions.

4 CHAIRMAN ANGELLE: Thank you, Doug.

5 A couple of questions.

6 The work that you were doing -- actually
7 I probably want to bring Kyle and Vince into this
8 conversation.

9 I realize that you contracted with us to
10 do things. Does this in particular have any value,
11 especially on those rating curves, for DEQ and Wildlife
12 and Fisheries in your work?

13 MR. CARLSON: Well, I would say it's good for
14 Fish and Wildlife possibly because you ultimately will
15 get a handle on the amount of water available; and then
16 you could probably use that information for development
17 of reservoirs, maybe selecting your sites possibly for
18 the recharge work you talked about in your aquifers and
19 possibly other uses.

20 So to know the volume of discharge would
21 be useful, I think, for the setting up of reservoirs of
22 set sizes and such, I would believe, for Fish and
23 Wildlife, and certainly for irrigation.

24 CHAIRMAN ANGELLE: Well, I guess I'm looking
25 specifically also at withdrawal permit applications,

1 say at DEQ for permit withdrawals.

2 I'm assuming the whole rating curve is
3 part of what you-all have to do. I'm not sure that's
4 in any of your areas of expertise, but I'm trying to
5 get that conversation going here.

6 MR. BALKUM: I would say this is a tool we
7 haven't used in the past.

8 CHAIRMAN ANGELLE: You haven't?

9 MR. BALKUM: No, we have not. It certainly
10 seems that it could be very beneficial.

11 CHAIRMAN ANGELLE: Okay. So what we want to
12 make sure is that, although you contracted with the
13 Department of Natural Resources for this deliverable,
14 we have to absolutely make sure that it's available to
15 all of the decision makers in the state. It's
16 important to Wildlife and Fishery, it's important to
17 DEQ, I'm assuming.

18 MR. SAGNIBENE: And we might could use that
19 in our forecast also, but I don't think we have to
20 date. We could have.

21 CHAIRMAN ANGELLE: So, you know, Matt and
22 Gary, let's make sure we create a triangle right here
23 for at least those two resources. Ag and Forestry may
24 have a need for it, I'm not certain. But let's just
25 make sure that everybody knows about it and can access

1 it and can use it.

2 And any of the things that we're doing,
3 Doug, are you all driving any -- Vince, this also
4 pertains to you -- are you all grabbing any water
5 quality?

6 MR. CARLSON: Well, it wasn't officially put
7 in the contract, but I'm actually independently working
8 on some of the local streams and looking at water
9 quality as well. That certainly would be a very useful
10 exercise, but it wasn't stated as part of our work, but
11 I've actually independently started on local streams.

12 CHAIRMAN ANGELLE: So we're getting it for
13 free. I like that better.

14 Hold on. Hold on.

15 MR. BALKUM: Any feature that's on the stuff
16 we do, as long as it's cleaning the air and improving
17 the water quality, is important.

18 CHAIRMAN ANGELLE: Well, part of what I'm
19 doing -- maybe the scientists can help me here -- is
20 that, again, over time as Dian and her group are
21 beginning to look at, you know, changes in the law, if
22 perhaps the legislature embraces that over a period of
23 time, if we're talking about surface water being a
24 useful tool to help solve some groundwater
25 deficiencies, obviously the availability, the volume of

1 the water, the capability of that body, what can a
2 stream yield is certainly important. And so your data
3 I think was very, very good.

4 But, you know, I think we have to be
5 able to also know over time is the water quality --
6 although it may be processed, people are going to want
7 to know that we're starting with a pretty healthy
8 product.

9 And so to the degree that we can chart
10 the quality of the water in these particular streams as
11 they may be, you know, selected in future years to be
12 the source for reservoirs or whatnot, to me just seems
13 to be a whole bunch of commons sense.

14 MR. CARLSON: Yeah, we could certainly grab
15 samples and analyze them.

16 I've done a very small study locally;
17 but it would certainly be worthwhile. Because two of
18 these focus areas tend to be around Shreveport/Bossier
19 area and then around the Baton Rouge area, which is a
20 couple of urban areas with a certain amount of stress
21 on groundwater resources in both areas. So certainly
22 it would be a very ideal addition to augment a little
23 support to analyze samples as well. I think it would
24 be very appropriate, yes.

25 CHAIRMAN ANGELLE: So may I might suggest

1 that perhaps a phonecall next week with DEQ, Wildlife
2 and Fisheries, DNR and yourselves to see what we might
3 be able to do, to take something that perhaps is on the
4 five-yard line and maybe get it a little bit further
5 down the field, with just that little bit of tweaking.

6 I think there's a lot of things at play
7 here, if we could just kind of make sure everybody is
8 on the same page.

9 Would you all be willing to do that, set
10 that phonecall up?

11 MR. REONAS: Yes, sir, we can do that.

12 CHAIRMAN ANGELLE: Okay. Thank you very
13 much.

14 Yes, sir. Any questions?

15 MR. PRATT: Coming back to that, I think the
16 part that I saw was that would be part of the component
17 of eventually we have to establish what our end stream
18 flow standards are if we're going to inundate or
19 withdraw.

20 In addition, Doug, if we can go back to
21 your inventory slide, I think we had -- just so that we
22 don't get confused and misleading -- but when you look
23 at the Toledo Bend Reservoir and the size and the
24 percentage of water is held in it, we only have half of
25 that. 50 percent of that water does belong to Texas.

1 MR. CARLSON: Okay.

2 MR. PRATT: So I think that, before we
3 publish any of this, you need to clarify that.

4 I wish it were all of ours. And if we
5 can find a way to do that, then that's even better.
6 But I think we do need to be cognizant of that fact.

7 MR. CARLSON: Okay. Well, the chart is noted
8 by the -- I can certainly cut that number in half and
9 send you an electronic version if you would like me to
10 do that.

11 MR. PRATT: Sure.

12 MR. CARLSON: But I just noted that the
13 volume was given --

14 MR. PRATT: It is. But I think for the
15 general public, when they see that, though, they start
16 perceiving. And perceptions sometimes do become a
17 reality.

18 MR. CARLSON: Okay. Certainly could have all
19 those numbers.

20 CHAIRMAN ANGELLE: Yes, I think certainly an
21 asterisk about ownership being split with the state of
22 Texas.

23 And, Jim, if you could perhaps get him
24 some information.

25 MR. PRATT: Well, it's 50/50.

1 CHAIRMAN ANGELLE: But get him perhaps the
2 compact document or something that is the reference
3 document.

4 MR. PRATT: Will do.

5 But other than that, again, back to your
6 stream investigations there, Mr. Chair, I see that
7 being valuable to our overall comprehensive plan needs.

8 Thank you.

9 CHAIRMAN ANGELLE: Absolutely.

10 Thank you very much.

11 I'm sorry? You want to break?

12 I was going to continue to push through,
13 but we have been requested to have a break. We're
14 going to have a 10-minute break.

15 You know, for those of you who want
16 lunch, I understand the cafeteria is available. It is
17 now about 10 minutes to one, and we will do it -- we
18 will come back at 1:05.

19 (Brief recess taken.)

20 CHAIRMAN ANGELLE: Okay, we'll go ahead and
21 call the meeting back to order.

22 Go ahead. Call Item Number 10. Our own
23 member, Mr. Ted McKinney, will give us a report on the
24 management activities in the Sparta district.

25 MR. MCKINNEY: Mr. Chairman, before we get

1 started on our main presentation today, you had asked
2 Matt to see if we couldn't have a pre-presentation on
3 the Union/Lincoln Water Supply Initiative there in the
4 northern part of our state.

5 This particular initiative is dealing
6 with the Lake D'Arbonne Lake there and potable water
7 from that lake. But we have one representative from
8 that initiative here in the audience that I'm aware of,
9 and that's Richard Durrett back there. He is a project
10 engineer for this project, and I am not affiliated with
11 this project other than I'm reporting as you had
12 requested. So if you have any pertinent questions to
13 ask about the project, Richard would be the gentleman
14 to do that. Okay?

15 But this project -- prior to this
16 project, the legislative body of the State of Louisiana
17 enacted the Sparta Groundwater Conservation District in
18 1999. And of course, as we are all aware, that Sparta
19 was in a declining mode and still basically is to some
20 degree; but we have had some positive response from
21 what's been going on up in our part of the state up
22 there and south Arkansas.

23 But I do want to emphasize that it's
24 exciting to see the well levels coming up. There's no
25 doubt about that. But you have to realize that we're

1 dealing with cones of depression in that part of the
2 country up there that are really beginning to recover.
3 So we're not really out of the woods by any means.

4 So although people get excited about
5 hearing about that -- and I have heard more than one
6 person to express that -- I just want to emphasize
7 we're not there by my any means. Okay?

8 But 1999, upon establishment of the
9 Sparta Commission, shortly thereafter in 2002 they
10 hired consultants and had some reporting done on the
11 plight of the Sparta. And they came back with three
12 basic recommendations for the 16-parish area which the
13 Sparta is involved with in the northern part of our
14 state, and that would be, for them to reduce pumpage in
15 the Sparta by 18 million gallons a day would just
16 stabilize the Sparta in our region there. But for
17 future growth and for the bringing back of the Sparta,
18 we needed to extract -- we need to reduce on our
19 pumpages by 30 million gallons a day. Another
20 suggestion by the research people at that time was that
21 we needed to develop alternative sources for future
22 needs.

23 The third -- and one that we're talking
24 here basically at this moment in time -- is that we
25 needed to use Lake D'Arbonne as an alternative supply

1 of water for the Union/Lincoln area.

2 Now about three years after that or four
3 years after that, there was the forming of the
4 Union/Lincoln Regional Water Supply Initiative that was
5 created. And basically what that was was four
6 entities -- the City of Farmerville and the City of
7 Ruston, along with the parishes of Lincoln and Union --
8 went together to form this nonprofit 501(c)(3) entity
9 to begin to try to come to some kind of conclusion as
10 to what to do about these recommendations. And of
11 course their approach was to take the one of trying to
12 utilize the lake.

13 So its core objective by this initiative
14 is to try to find solutions for extracting water from
15 this 15,000-acre lake to be used by the City of
16 Farmerville, which is adjacent to the lake, and the
17 City of Ruston, which is some 30 miles to the south.
18 Since the inception of this initiative, there have been
19 studies and reports on the validity of this approach.
20 There has been a lot of talk, as you can well imagine
21 among the locals, about extracting water from this
22 lake.

23 All of the scientific data and all the
24 reports that have been done have reflected that there
25 is no significant impact on the lake in extracting

1 water from it for potable use by these three entities.

2 And now I just wanted to give you a
3 brief account of that, and I have been asked by the
4 Sparta Commission to enter into the minutes the Sparta
5 Resolution in support of that. And each of you have in
6 your packets that particular resolution. And that
7 resolution has some more details in it than what I have
8 just mentioned here.

9 But whether we're dealing with this
10 \$100 million project or we're dealing with the very
11 simple financial needs of the Sparta aquifer and the
12 Sparta Commission, we must find solutions to fund these
13 projects.

14 And as I have repeated over and over,
15 Mr. Chairman: Sparta gets no dedicated funding, so we
16 have to do it on our own.

17 And so that's all I'm going to say about
18 that initiative. You can look at that resolution and
19 pick up some more data on that.

20 But I want to introduce to you today
21 Lindsey Gouedy, who is our educational administrator
22 for the Sparta Commission, our educator -- I don't know
23 what her official title is. But anyway she gets the
24 job done, okay, and has been doing that for four years
25 I think it has -- five years.

1 And she's going to present a brief
2 overview of where we are with the Sparta Commission and
3 the educational initiatives that we have done with
4 that.

5 And so I'll turn it over to Lindsey.

6 CHAIRMAN ANGELLE: Thank you.

7 Welcome, Lindsey. It's good to see you
8 again.

9 MS. GOUEDY: Thank you. Good to see you as
10 well.

11 I'm going to try and be very brief -- I
12 know we're on timeframes -- of what we have expanded
13 and contributed on our Education Outreach programs in
14 north Louisiana over the last five years.

15 Education Outreach did not begin in 2009
16 when I was hired. I just found some interesting ways
17 to expand it and to continue it in our area that is
18 experiencing such dire focuses on our water.

19 If we'll continue forward, my first
20 point that I really would like to address with you-all
21 is our Education Outreach Programs that we implement in
22 north Louisiana known as our Water Fest Events. These
23 we focus on our fifth graders in a number of parishes.
24 And as you'll see coming through the screen, I have
25 each of my Water Fest Events are coordinated to follow

1 the education system, the State Board of Education
2 system, with goals and objectives the way that each
3 school board would require them.

4 You can go on through, push them on.
5 And you're welcome to read through those.

6 Stated directly as the school board
7 would require: The learner will explain reasons why
8 conservation of water is necessary, and you can
9 continue through the objectives as well.

10 Of course this has changed over the last
11 year or two with Common Core to "I can" statements, but
12 these are more of the old-fashioned.

13 If we'll continue pushing through.

14 All of the activities that we do at
15 these events -- this is a full day of interactive
16 lessons that each student, each fifth grader in the
17 parish participates in, comes out. We have lots of,
18 lots of great information.

19 All of the information, all of the
20 activities that these kids go through are correlated,
21 both with the old grade-level-expectation standards
22 that the state went by and the updated Common Core and
23 Next Generation Science standards.

24 All of the activities that we do at our
25 events come from something called "Project Wet," which

1 I have a copy of the old book right here. This is a
2 wonderful curriculum base that we use and pull from to
3 be able to implement something that the teachers can
4 take back to their classrooms. Whether they are north
5 Louisiana, south Louisiana, it's a great curriculum
6 guide.

7 Recently, in conjunction with the
8 Department of Agri-Forestry who promotes Project Wet
9 for the State of Louisiana, we've recently worked with
10 them to correlate the entire book with the entire
11 curriculum guide to Common Core/Next Generation Science
12 Standards. So that's a huge thing for environmental
13 education in our state. It's a great tool. I would
14 encourage it as the Department of Natural Resources
15 continues to move forward with their educational
16 activities and programs.

17 We can move forward.

18 Currently our programs that we
19 coordinate extend through four parishes in north
20 Louisiana. Now this is not limited to the education
21 that is put out there on water conservation in north
22 Louisiana. Of course these Water Fest events began
23 over a decade ago now with Claiborne Parish kind of
24 spearheading this activity. Robin Bridges and Teresa
25 Reilly now both were very instrumental in beginning of

1 some of these efforts that we have worked very hard to
2 expand. And, in fact, Miss Teresa still promotes and
3 coordinates these activities today in her own parish
4 through the Ag Center.

5 Jackson, LaSalle and Winn Parishes also
6 have a program similar to ours that the Duck group puts
7 on, as well as Ouachita Parish has a different kind of
8 activity similar to ours. I believe that's through
9 NRCS.

10 We focus with Lincoln, Union, Bienville
11 and Webster Parishes. Again, these are
12 school-board-sanctioned events. These are during
13 school hours that the kids come out.

14 Over the last few years, we have
15 actually been able to coordinate twelve events,
16 reaching over 6000 students and approximately 200
17 teachers with this material, with this information. So
18 we are step by step trying to reach as many folks as we
19 can.

20 But what's more important is, we're not
21 just reaching 6000 kids. We're reaching 6000 homes
22 times however many folks are in that house, not to
23 mention when they go to their grandparents'. And these
24 kids do turn into the water police, which is of course
25 our goal.

1 We have a great -- move forward. We
2 really have a great network of folks in the state that
3 come out and support us and help us. Without that
4 network we could not do these events. These events are
5 more than just getting the kids out there. It's
6 getting the people with the knowledge to come out and
7 teach the kids.

8 As you see, we have a list of:
9 Agri-Forestry, LDEQ, the Ag Extension Program, Capital
10 Water District Program, D'Arbonne Watershed, SciTech,
11 the police juries, USGS, USDA, Rural Water Association,
12 Trailblazers, Forest Service, NRCS, Louisiana State
13 Parks. And if anybody is in the audience that I didn't
14 mention, I do apologize. But we have such a great
15 support group in Louisiana for these programs that it
16 could easily be expanded with the right push and enough
17 manpower.

18 You can move forward.

19 Of course these programs do cost, not
20 only in time, but monetary. Our main expenses for
21 these, of course, are overnight accommodations, meals
22 for the presenters. We do send all of our participants
23 and presenters with tee shirts, as well as event
24 signage.

25 Each of these events costs approximately

1 \$5000. Again, I would echo, these are funds that we've
2 raised ourselves. These are funds that are not
3 contributed by any state agencies to us.

4 The school boards do, however,
5 contribute in-kind expenses. They cover lunch costs
6 for the students, as well as bus transportation. And I
7 will also add in that the police juries in Lincoln --
8 well, Lincoln Parish Police Jury has donated the
9 Lincoln Parish Park now for four years at no cost to
10 us, and that's the entire park. So that is a huge cost
11 in-kind contribution there. That value is around
12 \$1500.

13 And if we will move forward, I will show
14 some images of our event. These are some examples of
15 the what the kids are doing. They are participating in
16 interactive relays that gives them a great simulation
17 of what it would be like to go and get their own water.
18 We have kids that get to look at microorganisms in
19 telescopes. Lots and lots of really great lessons that
20 they take out. They're not just about water
21 conservation; there's is water, water biology, water
22 wall. We have a lesson in water wall. We cover lots
23 of ground with this education program.

24 We're not only teaching these kids about
25 turning off the tap; we're teaching these kids about

1 how to make choices sitting in your seats in 20 or 30
2 years, because that's sadly where we could be. There
3 will still have to be decisions made that these kids
4 are going to have to make and that's what we're trying
5 to position them for.

6 Move forward.

7 Our big fund-raising event -- to
8 follow-up our education program, our big fund-raising
9 event is so-called the Sparta Shoot, sport clay
10 competition. And we have just completed our third
11 event. This has actually turned out quite successful
12 for us to be able to fund our education programs.

13 These have taken place in Ouachita
14 Parish the last two years. We've had great response
15 from lots of industry in north Louisiana that wants to
16 be involved.

17 Move forward.

18 Again, this is our main source of income
19 for these programs, so we pull lots of sponsors. You
20 can see our sponsor tiers there. And we have a lot of
21 support base from our oil and natural gas industries in
22 north Louisiana. Devon Energy that actually been the
23 title sponsor for this event for the last three years,
24 and they have recently been sold to a different
25 company, and we do hope that that same environmental

1 stewardship will extend to this new company.

2 Move forward.

3 CHAIRMAN ANGELLE: Excuse me. Who is that
4 new company?

5 THE WITNESS: Linn, L-I-N, Linn Energy. Yes,
6 sir.

7 CHAIRMAN ANGELLE: I'm sure that if you send
8 a letter to Commissioner Welsh requesting their
9 continued support, Commissioner Welsh could follow that
10 letter all the way to Linn, perhaps would go a long way
11 in getting that process renewed for you. No
12 guarantees, but --

13 MS. GOUEDY: Sure, absolutely. Every help is
14 wonderful.

15 Of course, as I was saying a minute ago,
16 the Ouachita Parish -- we have had this event in
17 Ouachita Parish the last two years in which the sheriff
18 there, Jay Russell, has donated the facility, Ouachita
19 Parish Shooting Range. If you've never been there, it
20 is a wonderful facility, wonderful site, and a huge,
21 huge contribution from them.

22 Move forward.

23 The competition itself, of course, there
24 are expenses there for us, as you can see listed.

25 Move forward.

1 Each team, it's a \$500 fee for a
2 five-man team. This last year we had 92 participants,
3 we had I think 18 teams, and then two showed up the day
4 of just wanting to shoot.

5 Of course we pull in lots of items for
6 raffles. This was an idea that really has expanded
7 because it was a way for us to raise funds to do what
8 we need to do, but also for a unique way to reach a
9 group of individuals that otherwise wouldn't be
10 reached.

11 Through some of our efforts that we will
12 discuss in a second, but the newspaper, with television
13 advertising, with our website, you know, those are so
14 easy to skip over and pass by. But especially having
15 so many folks come out and just getting to visit with
16 them for five minutes about our cause and that they are
17 contributing to our cause is a huge deal. So we are
18 all about looking at unique marketing opportunities in
19 north Louisiana.

20 Of course we have our Sparta website
21 through Donnie Bell Design, Incorporated out of Ruston.
22 They have done a great job. And we try and definitely
23 keep our events up to date and our statistics up to
24 date.

25 Move forward.

1 Continuing back on those public service
2 announcements that we have: Television, newspaper. We
3 actually took 45 seconds of the video that the Sparta
4 Groundwater Commission and DNR had developed a number
5 of years ago. We took 45 seconds, put together a
6 wonderful video which we actually had running in
7 theaters in north Louisiana, and that proved to be very
8 successful as opposed to putting it on public
9 television. How many of us actually use public cable?

10 I know in my neck of the woods it's
11 mainly satellite; you're not going to get cable. That
12 also gives an opportunity for folks who would otherwise
13 be able to turn the channel, they are bored waiting for
14 a movie anyway, so they are going to get the
15 information. And that was a wonderful campaign that I
16 would love to see come back and expanded.

17 CHAIRMAN ANGELLE: Do they allow political
18 ads during that time period?

19 MS. GOUEDY: That would be worth asking
20 maybe.

21 We've estimated over the last few years,
22 we've received over \$500,000 in PSA donations in north
23 Louisiana to be able to get our information out.

24 And then I will just briefly -- we've
25 got two samples of our public service announcements

1 that have run in the newspapers, talking about just
2 everyday conservation techniques that I know all of you
3 are very familiar with; but just trying to reach the
4 common, everyday person who just sees their water still
5 coming out of the tap.

6 Upcoming events: We'll just update
7 you-all on what we have already on the agenda.

8 Our Lincoln Parish Water Fest and our
9 Union and Bienville are already on the calendar. We
10 would love to see any and all of you there that would
11 like to come and see what is that we're doing in north
12 Louisiana.

13 Both of these events, October, 2 and 3,
14 and 9 and 10, will be at Lincoln Parish Park, a great
15 facility. Call me and let me know. I will make sure
16 you have wonderful accommodations. But we would love
17 to see you-all there. This is a program that could be
18 expanded across the state, should be expanded across
19 the state for every parish to be able to have an
20 interactive lesson for water.

21 And then of course our Fourth Annual
22 Sparta Shoot; if any of you-all are shooters, we would
23 love to have you-all come out and participate in the
24 sporting clays competition next year. Our registration
25 form will be up close to the first of the year.

1 And ending thoughts, I'll conclude
2 briefly here: Our numbers, as you can see, in 2000, we
3 were looking in north Louisiana daily usage, 68 million
4 gallons a day, close to 70 million. 2012 data has us
5 down to 56 million gallons a day. That's over a
6 10-million-gallon-a-day decrease.

7 There are other contributing factors
8 there. But the important thing there is, while we have
9 been vamping up our education outreach programs in
10 unique ways and in historical ways, we're seeing
11 success. And that success is one thing we would like
12 to encourage and help and be a part of across the state
13 and continuing in north Louisiana.

14 And with that, I will be happy to answer
15 any questions that anyone may have.

16 CHAIRMAN ANGELLE: A couple of questions,
17 Lindsey.

18 How is the work that you do, how is that
19 work funded?

20 MR. McKINNEY: Well, that's what I was just
21 fixing to mention.

22 CHAIRMAN ANGELLE: You have been waiting all
23 day.

24 MR. McKINNEY: When the Sparta Commission was
25 established, it was established with the blessings of

1 the various parishes and municipalities in the area of
2 need. And some of them stepped up and began making
3 contributions on an annual basis.

4 Well, unfortunately, as time goes by,
5 their remembrance of those contributions have dwindled.
6 We have dropped off significantly. We have had some in
7 the mails as recently as I guess the last week or so.
8 But the bottom line is Lindsey is the only paid
9 personnel of the Sparta Commission. And if it were not
10 for these other -- for these entities paying what they
11 do pay currently, we wouldn't be able to be in business
12 now.

13 Now the point that we need to emphasize
14 is that this \$5000 per event that she talked about
15 doing and this Sparta Shoot, those are funds that she
16 and Rick Holt and a bunch of all the other givers have
17 got in there and raised to put those on.

18 Now you made a point -- you may not
19 remember it -- but several years ago in this very room,
20 you gave an example of how you learned to wear a seat
21 belt, and it was through your grandchildren, I believe.

22 CHAIRMAN ANGELLE: Children. We don't want
23 get ahead of ourselves.

24 MR. McKINNEY: Great, great grandchildren I
25 thought.

1 CHAIRMAN ANGELLE: You're not helping
2 yourself.

3 MR. MCKINNEY: But the point being is it was
4 your children that made you wear that seat belt.

5 So it's these kids that find out, you
6 know, you brush your teeth and turn the water off. And
7 so it is of the utmost importance that we continue this
8 educational program.

9 And if it were not -- and it is a huge
10 commitment on behalf of the school board systems to do
11 that because they are setting aside a total day out of
12 their schedule to allow their children to do this, the
13 fifth graders. So it's very, very important, and we
14 thank them greatly for doing that.

15 CHAIRMAN ANGELLE: Okay. So what I would
16 like, Lindsey, if you could email to me perhaps what
17 would be kind of a sample budget that you think would
18 be something that each area of the state could
19 perhaps -- each aquifer area of the state I guess could
20 perhaps, what would be the minimum necessary to fund to
21 have a Lindsey in other areas?

22 While I'm very appreciative we have got
23 Matt at the Baton Rouge level, I think it's very, very
24 hard to get this kind of message out from a central
25 place.

1 The reason I think it works in your area
2 is because you've got some very interested, passionate
3 people that you're their messenger that lives there,
4 and, you know, you're bringing all the energy and the
5 firepower to it. And ultimately you either win or you
6 wear them out and they just give up and say, okay,
7 we're going to do it your way. And that's coming from,
8 you know, I'm very appreciative of that.

9 One of the things that we've all got to
10 do, for instance, me and Ms. Zaunbrecher in south
11 Louisiana, we've got to go find the resources from our
12 parish governments to fund a similar, you know, Lindsey
13 2.0 in those areas, and other folks are going to have
14 to do the same.

15 So if you can just send me something, I
16 would be appreciative of that. That's one thing.

17 MS. GOUEDY: Yes, sir.

18 CHAIRMAN ANGELLE: And while this is the most
19 important message, this obviously is where it's at, I'm
20 wondering if you have any baseline data that shows what
21 the penetration level or awareness level of what the
22 Sparta issue was in 2000?

23 MS. GOUEDY: As far as the education?

24 CHAIRMAN ANGELLE: Yeah.

25 MS. GOUEDY: And that's something that we've

1 worked on, developing with some surveys.

2 The first group of kids that I had in
3 2009 come through these water fests are now going to be
4 freshmen -- they are going into 10th year,
5 10th grade year -- which is generally when you see
6 environmental science. So that's one thing that we've
7 evaluated, going back and meeting with those same kids
8 at the same point.

9 I do take an opportunity following the
10 event to visit with the teachers, to visit with -- and
11 historically we've done written surveys with the
12 students, kind of a pre- and post-: What did you get
13 from this? What do you remember? What was your best
14 part? What are you going take away from this?

15 But as far as hard data, what are the
16 numbers of kids conserving, families conserving in the
17 home versus today, that hard data is not there.

18 CHAIRMAN ANGELLE: Okay. So 10th graders
19 through 6th have already seen it?

20 MS. GOUEDY: Yes.

21 CHAIRMAN ANGELLE: And 11th and 12th haven't?

22 MS. GOUEDY: They weren't there for it.

23 CHAIRMAN ANGELLE: Right.

24 So what I would be interested in not so
25 much the metrics of what have they consumed, but I

1 think you have a group that's kind of a captive
2 audience, which is your 11th and 12th graders who
3 have not gone through this, and it would be interesting
4 to perhaps -- and I'm willing to work with you to try
5 to find some funding to -- because I think it's
6 important for the rest of the folks who are thinking of
7 writing a check that you can show them some awareness
8 levels. All I'm interested in awareness. Awareness
9 leads to changed behavior.

10 And so, if we could perhaps find a way
11 to poll or survey 11th and 12th graders and see if
12 they know a little bit less, if you would, than the
13 10th graders, inasmuch as the 10th graders have
14 been through the program. And I don't know if that's
15 the right way, but perhaps we could have a phonecall
16 and kind of look at it; because there's going to be a
17 period of time where you're going to lose your
18 opportunity to create that baseline.

19 MS. GOUEDY: Well, even pulling from other
20 regions. You have other areas of the state where the
21 media is not as full with water issues as we are in the
22 north.

23 CHAIRMAN ANGELLE: Right. So go to other
24 areas and survey 6th graders and see what they know
25 against your 6th graders and then be able to compare.

1 That's probably a better example.

2 I think it's important that we get out,
3 get some data there because, again, as we're asking
4 people to invest in these programs, you probably
5 have -- you absolutely have the most successful, most
6 continuous program in the state. And if we can show
7 that there are some metrics that make sense, I think we
8 can get some investors along the way.

9 MR. McKINNEY: I think it's obvious that Ben
10 McGee of USGS could take those figures and show you
11 other things that impacted that, you know. I mean, the
12 closing of the paper mill in Bastrop, for example, you
13 know, and so on, so forth.

14 But that is very subjective; what you're
15 asking is very subjective and can be done, but
16 difficult to do. But this would be the only window of
17 opportunity to probably do it with the two classes
18 remaining.

19 CHAIRMAN ANGELLE: Yeah, I'm certainly not
20 suggesting that what is known is all impacted by
21 education.

22 MR. McKINNEY: I don't suggest --

23 CHAIRMAN ANGELLE: If we did that, I think we
24 would be selling snake oil.

25 MR. McKINNEY: Right.

1 CHAIRMAN ANGELLE: But what I am saying is
2 that, if there's -- again, not has the behavior
3 modified, has the awareness come up? If the awareness
4 has come up, we're building a brand. Before people
5 actually purchase, right, you've got to get the brand
6 right. So we're trying to get the brand, and you're
7 helping us with that brand. Let's go see what the
8 reflections are of folks who have kind of been through
9 the program. Okay?

10 Questions?

11 MR. MCKINNEY: I might add one thing to the
12 Lincoln/Union initiative.

13 They have requested 4.3 million in
14 capital outlay for this year. Right now there's
15 \$250,000 in there being considered. Again, money,
16 money, money. It's like everything else, people, we
17 need it, we really need it desperately.

18 CHAIRMAN ANGELLE: Regarding the Lake
19 D'Arbonne, as I recall, this Commission actually
20 adopted a resolution to support that?

21 MR. MCKINNEY: I think you did.

22 CHAIRMAN ANGELLE: Thank you very much.
23 Appreciate it.

24 Okay. Item number 11, John Jennings
25 with the DEQ, who also is a member and works with the

1 Capital Area Groundwater Conservation District, to give
2 us a report on the Groundwater Model and Management
3 Activities for the Baton Rouge Area Aquifers.

4 Good to see you, sir.

5 MR. JENNINGS: Thank you.

6 CHAIRMAN ANGELLE: Thank you.

7 MR. JENNINGS: Chairman, if you would indulge
8 me just a moment, I would like to thank Commissioner
9 Marlborough for the aid and assistance that you provided
10 to DEQ and particularly, Mary Gentry -- just the names
11 that are here -- and the work they have doing in Bayou
12 Lafourche. It was good to get some help and things are
13 looking better now there. So thank you.

14 Yes, what I want to talk about is the
15 management plan that we've developed and has been
16 approved in the Southern Hill Aquifer System. First of
17 all, I would like to point out that the Southern Hills
18 Aquifer is a very large aquifer system and extends from
19 Vicksburg, Mississippi, all the way down to Lake
20 Pontchartrain. And the area of concern that we deal
21 with here are those five parishes you see up there:
22 The Pointe Coupee, East and West Feliciana, East and
23 West Baton Rouge. And that's the area that the Capital
24 Area District has authority to work in.

25 Well, I got ahead of myself.

1 You can also see the uses of the water
2 here. That's domestic, agricultural, light business,
3 and industrial purposes. About 150 million gallons a
4 day is drawn from it, mostly here in East Baton Rouge
5 Parish. The two biggest users are public supply and
6 industrial, as you might imagine.

7 Also the aquifers here in Baton Rouge
8 are made up of 10 individual sands. You put all those
9 together, along with the ones included, make up that
10 Southern Hills system.

11 John Lovelace alluded to this earlier in
12 his presentation, that the pumping began in the early
13 or late 30s, early 40s and declined; and the water
14 level, you know, really got to be an issue in the 70s.
15 And that's when the Capital Area District was formed.
16 And this slide also showed that that decline has
17 leveled off, and if you look closely, in some cases,
18 has begun to turn and go the other way.

19 The other issue then with this is
20 saltwater encroachment.

21 And you can go to the next slide.

22 It basically impacts -- two of the main
23 aquifers here that are pumped are the 2000-foot and the
24 1500-foot sands. And it's our intent and our goal to
25 manage this resource here to provide the water for the

1 Baton Rouge area and the capital area, you know, into
2 the future and, you know, that it's available and clean
3 water.

4 What our plan does, the plan we
5 developed is an umbrella plan. It gives an overall
6 structure of how we intend to manage these ten sands.
7 We've entered into contract with USGS to develop models
8 to monitor all ten of these sands.

9 You can go to the next slide. You can
10 skip that one too. I think everybody knows our makeup.
11 And the next one.

12 But as we look at these sands and we get
13 the data, we always talk about monitoring as one of the
14 main things that has been mentioned today is data
15 collection. And as data is collected, provided to the
16 USGS, and they are able to develop the models. They
17 have two already, as I said, you'll see later on,
18 available to us.

19 We've initiated pumping restrictions
20 within the two sands. We get quarterly pumpage data
21 from the participants here. We monitor that to make
22 sure that the pumping limits imposed are being met, and
23 they are. We've not had a single quarter or a year
24 that's exceeded these limits since they have been put
25 in place recently.

1 CHAIRMAN ANGELLE: And the pumpage limits --
2 I'm sorry -- were put in place by the district?

3 MR. JENNINGS: Yes, that's correct.

4 CHAIRMAN ANGELLE: So the management of the
5 district, the board of directors, whatever the number
6 is, basically adopted a plan that had limitations on
7 pumpage, and that stuff is reported to you-all on a
8 regular basis?

9 MR. JENNINGS: Correct.

10 CHAIRMAN ANGELLE: Okay. So you have data
11 that shows that those pumping limitations have produced
12 a benefit, a recovery benefit, or perhaps a slowdown in
13 what was originally happening?

14 MR. JENNINGS: Well, the pumping limits first
15 imposed was in 1970.

16 CHAIRMAN ANGELLE: 19-- ?

17 MR. JENNINGS: '70 or '71, early 70s. And
18 from that time, yes, the steady decline of the water
19 level has stopped, it's leveled off. Again in the 80s,
20 I believe it was the 80s or 90s -- yes, in the 1990s,
21 that's before my participation, additional limits were
22 put in place, and then more recently in the last two
23 years.

24 CHAIRMAN ANGELLE: And so those pumpage
25 limitations are on specific users, specific industries?

1 MR. JENNINGS: It's on the wells that we
2 registered, which are the large volume -- or that we
3 permit, actually. We don't register them, we permit
4 them. And it is on those that are permitted because of
5 they are large volume, large use wells; and we limit
6 within a certain area, you know. Whoever meets those
7 categories or, you know, size limits, then in that area
8 that's the limits we post. Not necessarily going to
9 each individual well owner and say, You've got to pump
10 this much here. It's just within that area, that's
11 what it needs to be or what it has to be.

12 CHAIRMAN ANGELLE: All right. So if you were
13 there in 1970 or '71 and you don't need a permit, you
14 get to pump as you did in '71? It's when you an apply
15 for a new permit that that pumpage limitation is put
16 on?

17 MR. JENNINGS: No. It's put on everyone
18 within the sands that -- we have different limits
19 within different sands, and I don't have that detailed
20 information in front of me.

21 CHAIRMAN ANGELLE: Right.

22 MR. JENNINGS: But regardless of when your
23 well was put in, if you meet those requirements as a
24 high volume well, then you, as an entity, have to
25 participate in reducing your pumping limits.

1 CHAIRMAN ANGELLE: So you-all obviously use
2 science to help -- and I realize some of this started
3 before your time -- but science has been the thing that
4 you use to basically --

5 MR. JENNINGS: Right. It's always been. Now
6 that's what we are doing is using these USGS models,
7 using these models they developed, and the ones they
8 will be developing over the next ten years, to run
9 various pumping scenarios. And that's how we got to
10 the most current pumping limits is we ran pumping
11 scenarios on the 2000-foot, and I think we're working
12 on the 1500 now.

13 CHAIRMAN ANGELLE: So if you would allow me
14 to try set an analogy here that I could perhaps follow
15 a little better?

16 So what I kind of sense is that the
17 aquifer is a patient; and the team, the capital area is
18 the group of professionals that are going to treat the
19 patient, if you will, and come up with a treatment plan
20 that includes a variety of things, including
21 limitations and whatnot, all designed to get the
22 patient better?

23 MR. JENNINGS: Yes.

24 CHAIRMAN ANGELLE: So what I'm trying to
25 drill down on is, from where we are today, obviously

1 those things have helped. I'm trying to determine if
2 they have been aggressive enough to get the patient
3 where we need to get the patient.

4 MR. JENNINGS: Well, that's what we hope to
5 find with the models that we run; because we run the
6 models, it suggests certain treatments, if you will
7 with the patient, and then we impose those. We look at
8 it, take the patient's vitals. If they are improving,
9 continue. If not, then there's something else that
10 needs to be done.

11 Like I say, we're on two of the ten
12 samplers. We're pretty much good, good for our
13 modeling on the 2000. 1500 should be developed pretty
14 soon.

15 You can go to the other slide and I can
16 give you a schedule.

17 CHAIRMAN ANGELLE: Yeah. Before you do that,
18 again I'm not -- none of my questions are trying to
19 place blame, because we all got -- we all can show up
20 when it comes to blame being passed out. So that's not
21 it at all.

22 What I'm trying to look at, one of the
23 slides that John Lovelace showed earlier was the 1966,
24 and then the 1970, and then the 1975, and you get the
25 continued expansion.

1 So I'm trying to determine, in a tactful
2 way, in spite of those aggressive management efforts,
3 in spite of doing those things and checking the vitals
4 and so on, so forth, the area of saltwater intrusion
5 has continued to grow. Has it grown at a declining
6 rate?

7 MR. JENNINGS: Well, to answer that question,
8 honestly I don't know because we don't have enough data
9 right now to say that it's slowing down.

10 The movement of that plume is slow. So
11 to say that that movement has slowed down, increased,
12 whatever, from the time that we have been monitoring,
13 or from the time that we've imposed these restrictions,
14 there's really not enough data to say, yes, it started
15 to do this.

16 That's one of the things -- there's two
17 types of models that are being run on the 2000-foot is
18 the availability, how much groundwater there is; the
19 other one is the saltwater.

20 CHAIRMAN ANGELLE: So, the pumping -- I'm
21 sorry -- the pumping restrictions were first placed in
22 you said 1970.

23 MR. JENNINGS: In the early 70s, and that was
24 because of the groundwater decline. The more recent
25 ones and other actions that were taken in the 90s were

1 to deal with the saltwater encroachment.

2 CHAIRMAN ANGELLE: Got it. So there's not
3 enough data there to yield whether or not we are
4 slowing that down?

5 MR. JENNINGS: Well, we believe we can
6 through these models. By instituting, running these
7 different scenarios, there's a lot of different ways
8 that you can, you know, turn pumps on, turn them off in
9 this area, that area. You can shut down the industrial
10 pumping altogether and it shows that the saltwater
11 plume would head directly toward the pumping supply
12 pumping wells. So that's really not an option at this
13 time, you know.

14 But spreading out the location of the
15 wells, as wells go out of service, or if it was severe
16 enough and we got to the point to say, okay, you stop
17 pumping and you can't use this, you have to relocate
18 your well or your well field, I mean, those are all
19 options of things to be looked at.

20 CHAIRMAN ANGELLE: Right. So if we go back
21 to the previous presenter, they had a slide that again,
22 that was on volumes, that was on withdrawals, and they
23 showed 62 million and 52 million. That was the metric.
24 And I know that that's what they were measuring.
25 That's the important thing they were measuring.

1 You have some of that data. I get that.
2 I understand on that.

3 You have in addition each year, not only
4 just groundwater volumes, but is the saltwater issue?

5 MR. JENNINGS: Saltwater, correct.

6 CHAIRMAN ANGELLE: Are there any metrics at
7 all associated with measuring saltwater intrusion and
8 movement so that the public can get a feel one way or
9 the other whether or not those efforts are yielding a
10 slowdown?

11 MR. JENNINGS: Well, I believe we do. In
12 answering that, we have historical data that shows the
13 progression of the plume. Anything beyond that point
14 is modeling, is subjective.

15 You know, we believe it's based on
16 scientific data. And by running these models based on
17 how the wells are pumped, how much water is pumped from
18 that, we can show how the progression of that plume is
19 progressing, is pulling back.

20 CHAIRMAN ANGELLE: I don't mean to belabor
21 the point, but my last question -- and I understand
22 what you're saying about the modeling. And I'm not a
23 scientist, so you're going to have to help me here.

24 So what I'm kind of looking at is you
25 have got historical measurement, so that's a definite

1 measurement of a place and a time. Right?

2 MR. JENNINGS: Right.

3 CHAIRMAN ANGELLE: And if we look at the last
4 measurement, while the modeling tells us, perhaps if we
5 did all this, we could slow it down, do we have
6 anything that shows that it has slowed down?

7 MR. JENNINGS: I don't believe we do. You
8 can back me up on that.

9 But I also believe that it's not been
10 enough time to reflect that.

11 CHAIRMAN ANGELLE: Since the last time we
12 measured it?

13 MR. JENNINGS: Measured it, that's correct.

14 Also, you know, you're talking about
15 measuring something that's 2000-foot deep.

16 CHAIRMAN ANGELLE: Right.

17 MR. JENNINGS: So if you have a well here
18 that is inputting, and you have here a well that's not,
19 and that's a mile away, you know, there's not enough
20 money to go and put monitor wells along the way to say,
21 well, sure, it's not here. We projected it to be
22 there, but it's not.

23 It's something, it's really difficult to
24 predict; and you need good numbers, good science. And
25 you need, you know, people such as some of the doctors

1 at LSU that are running their own models on it; and
2 some of those reflect or are paired exactly with what
3 USGS has been doing. It's almost an overlay of one
4 another as to the plans that we want to put in place
5 and how it affects the saltwater plume.

6 CHAIRMAN ANGELLE: My hope is that you don't
7 take this as you as are a witness and being
8 cross-examined today. I'm trying to get a conversation
9 going here. I'm trying to find a metric. I absolutely
10 believe that the public understands metrics, and trying
11 to yield a metric out of this conversation, if we are
12 going the right direction, we need to talk about we're
13 going in the right direction, and we need to redouble
14 our efforts to do what we need to do to get there.

15 But again, all this stuff is somewhat
16 hard to project to the public if we're not kind of
17 talking the same language. So I'm more trying to get
18 on the same language. So again, please don't take it
19 as a cross-examination.

20 You're looking at me and saying: I've
21 handled bigger guys than you. Don't worry about it.

22 MR. JENNINGS: No, I just have my game face
23 on. That's okay.

24 CHAIRMAN ANGELLE: You got your game face on.
25 Okay. All right.

1 MR. JENNINGS: But I would like to, just to
2 run through the end of it.

3 CHAIRMAN ANGELLE: Absolutely, sir.

4 MR. JENNINGS: At least through the list of
5 aquifers that we're modeling and scheduled for that, so
6 there should be a list coming up.

7 There we go.

8 Back to the fact of, you know, the funds
9 and availability: We do have a schedule in place,
10 money available from the Capital Area, from DOTD, East
11 Baton Rouge Parish, East Baton Rouge Public Works,
12 USGS. I believe that's all. I may miss someone. But
13 anyway, they have committed funds.

14 We have an agreement with USGS to work
15 this schedule, and it is flexible. You know, if we see
16 that we need to move the 200-foot sand down and put the
17 thousand foot sand up in the schedule, whatever, we
18 have that flexibility to be able to do that.

19 And like I said, our management plan is
20 in place. And our board, just like this board, has
21 members that come and go, and the goal of that plan is
22 that we stay in place, regardless of who is sitting in
23 those chairs and making decisions on it; that that
24 scientific data is coming in, it's handled and managed
25 in the best way possible, and the best decisions are

1 made to provide ample water, groundwater for, you know,
2 into the future.

3 Pretty much this just goes through how
4 we look at the data of each sand.

5 You can go on to the next one.

6 So I'll take any other questions at this
7 time.

8 CHAIRMAN ANGELLE: So when we go to the next
9 item -- I know it will be another presenter -- the
10 scavenger well that the Baton Rouge Water Works Company
11 did, is that kind of a function of your management plan
12 or is that something that they decided to do?

13 MR. JENNINGS: Well, it was in discussion
14 between the Baton Rouge Water and Capital Area.

15 Of course it had to be, you know,
16 someone with deep pockets to be able to put that in
17 because that was very, very expensive. And that is one
18 of the management functions. And probably the
19 preferred one is a combination of installing an
20 additional saltwater scavenging well and public
21 reductions within the 2000-foot sand, because that one
22 is in the 1500-foot sand.

23 And from looking at the models and
24 trying different pumping scenarios and inserting the
25 scavenger well within seems to get the best result long

1 term, protecting the other wells in the area, and
2 having available groundwater for the future.

3 CHAIRMAN ANGELLE: So getting those vital
4 signs and comparing those vital signs to the previous
5 vital signs is just so important for our conversation.
6 At the end of the day, we all want to go to the back of
7 the book and see: Okay, yeah, it ends the process;
8 yes, they working; yes, they are meeting; yes, they are
9 grinding through it, and yeah, they are spending money.
10 What are the results?

11 Again, as you know, having served the
12 public, the public is very interested in the results.

13 MR. CAUSEY: Mr. Chairman, one question I
14 have is, talking about those vital signs, I guess sort
15 of my general appreciation is that you're not going to
16 necessarily stop the saltwater migration.

17 I think we're just trying to get to --
18 maybe you could help me understand -- more of a
19 steady-state scenario where your pumpage and the
20 migration, perhaps with scavenging, allows you to
21 continue to use the aquifers to the extent possible.
22 Right?

23 MR. JENNINGS: Still going to have saltwater
24 migration --

25 CHAIRMAN ANGELLE: Jake, before we do that, I

1 guess I'm supposed to say: How do we define success?
2 If it's not stopping it and it's going to continue, at
3 what continuing rate, continuing rate do we say, Job
4 well done?

5 MR. CAUSEY: Yeah. Well, that's kind of my
6 question to the Capital Area Commission. What exactly
7 is that?

8 MR. JENNINGS: I believe that would be having
9 the ability to control or remove the salt moving across
10 the fault, because it's there. It's not -- I don't
11 think anything you could do at this point that you
12 could actually push it back through the fault.

13 If you're managing the amount of
14 withdrawal from the north side of the fault, then you
15 can slow down that movement through the fault. A well
16 placed scavenger well can capture that so it doesn't
17 affect wells beyond the fault. So you have again back
18 to good water and a proper amount of water, and I think
19 to me that's success.

20 Now I know at some point you have to
21 have a number, you have to have the chart at the back
22 of the book to say the chloride level went down in
23 public supply well number whatever. It used to be 250,
24 now it's 4.

25 And I think the guys from the Owen &

1 White can give you some indication as to what a
2 scavenger well can do, so that may help with the back
3 of the book.

4 CHAIRMAN ANGELLE: Who sits on the
5 groundwater commission from -- is it John? Matt?

6 MR. ADAMS: Yes, sir.

7 CHAIRMAN ANGELLE: So as you kind of listen
8 into this conversation, hopefully we can at the next
9 meetings, as you kind of represent the state, DNR I
10 guess, I think we've got to start driving towards some
11 metrics that summarizes what John said.

12 I hear him. He's spot on.

13 But Jake and I are searching, and the
14 others are up here searching for: What is success?
15 How are we measuring that success? And if we're not
16 there, what resources do we need to do it?

17 Because when we distill it to that
18 level, then we get folks who can help us achieve that
19 success. Otherwise it's just a conversation going on
20 in some stone building in downtown Baton Rouge.

21 MR. REONAS: Yes, sir, I agree.

22 I think, you know, the ultimate goal,
23 the mission statement, you know, in terms of dealing
24 with saltwater intrusion is to stop saltwater intrusion
25 from progressing further than where it is right now. I

1 mean, that's kind of the end; that should be the goal,
2 the line of success, the one that the Office of
3 Conservation has mandated -- not mandated, but has
4 staked out, as look, this should be the end goal,
5 recognizing, of course, that you're talking about,
6 again, you're talking about a decade's long process,
7 and it's been ongoing for decades.

8 But at this point in time, right now,
9 that we know we have probably the best, clearest
10 picture of what that saltwater intrusion looks like and
11 the best projection, because we do have all that data
12 now from the observation wells, the monitor wells. We
13 have all that information right now, we can project
14 that; that if we continue pumping at this amount in
15 this particular well, then this saltwater will approach
16 at this rate. And we can project that and model it,
17 and it's pretty stark.

18 I mean, you talk about the industrial
19 district, you also talk about public supply. You know,
20 there's both. There's too much pull, as the
21 Commissioner Office says: Too many straws in the same
22 coke bottle pulling from too close to an area.

23 And you can look at the big
24 potentiometric maps USGS puts out, as you know, and the
25 closer you get into downtown Baton Rouge, the deeper

1 that cone of depression goes.

2 CHAIRMAN ANGELLE: Right. So I get the fact
3 that we have a goal, everybody signs up for the same
4 goal. The modeling kind of tells us what we need to do
5 to be able to get there.

6 The remaining question that the public
7 is begging to be answered is: Are those management
8 tools and decisions working? As opposed to the model
9 projecting that they are going to work, are they
10 actually working?

11 MR. REONAS: Right.

12 CHAIRMAN ANGELLE: You know, again, there's a
13 lot of comparisons. The one I think is simple would
14 be, you know, the poll shows that candidate A is going
15 to beat candidate B, but we've got to have the election
16 to determine who is going to be the winner.

17 MR. REONAS: Well, at this point Capital Area
18 has embraced the scavenger well concept in the 1500.

19 CHAIRMAN ANGELLE: Absolutely. And I under
20 the process and I appreciate it, and I know that you're
21 filling in the blanks by we're doing this, we're doing
22 this. I'm totally supportive of that. I want to gold
23 star award all those things.

24 Give me a number, give me something,
25 that -- and if we can't, then I need to perhaps try to

1 reinvent or rethink how this Commission is going to
2 communicate to the public that your Louisiana
3 groundwater -- the Water Resource Commission is
4 meeting. It's holding other folks accountable. And as
5 a result -- and if there's not, we need to double-down
6 or we need to get other people or other things.

7 Again, don't get lost in the process,
8 because that doesn't get us where we need to be.

9 Anybody else? Jake, you're shaking your
10 head.

11 MR. CAUSEY: I mean, I agree completely. And
12 I guess, certainly I guess there's monitoring and
13 things that have to occur.

14 But I guess one question that I had was,
15 the plan or strategy that was I guess selected to be
16 implemented now, I guess the model shows that that
17 would accomplish the goal of bringing the saltwater
18 migration to a stop, or did it only show that it would
19 delay it or slow it?

20 MR. JENNINGS: I believe, if I'm correct,
21 that by reducing pumpage and installing the scavenger
22 well, that it would capture that and keep it from
23 reaching other wells, and it would stop it, you know,
24 where it's at.

25 CHAIRMAN ANGELLE: Okay. So we won't know

1 that for a period of time into the future?

2 MR. JENNINGS: That's correct.

3 As I'm using the table with my hands
4 earlier, because of the distance from one well to the
5 next, it just takes some time for the water to move and
6 you wouldn't know until it was there. Or either you
7 would know it's not there in the next 50 years, it's
8 not there.

9 MR. CAUSEY: The scavenger well you're
10 referring to is not the Baton Rouge Water Company
11 scavenger well, but a new scavenger well?

12 MR. JENNINGS: Well, both of them. One is in
13 1500-foot sand the other is in the 2000.

14 MR. CAUSEY: I'm just curious. So the one
15 that I guess is proposed, is a proposed scavenger well
16 for the 2000?

17 MR. JENNINGS: A proposed scavenger well for
18 the 2000.

19 MR. CAUSEY: And that's in the slides or not?

20 MR. JENNINGS: There's not a picture of it.

21 MR. REONAS: The one that's operational now
22 is in the 1500. And Roy and Randy will provide that.

23 MR. CAUSEY: Talking about the 2000.

24 MR. REONAS: Right.

25 MR. OWEN: Mr. Chairman, I think that what's

1 missing from this discussion is the fact that the
2 scavenger well that is now in existence and in
3 operation is intended and is doing the job of
4 intercepting the plume, not -- we've never proposed
5 that that scavenger well will stop the saltwater
6 intrusion in the 1500-foot sand. But we are
7 intercepting and I believe that we are stopping the
8 progression of the plume toward the public supply wells
9 further north.

10 CHAIRMAN ANGELLE: And how are you measuring
11 that for you to be able to say we believe we are
12 intercepting and slowing or capturing the plume? What
13 metrics do you have?

14 MR. OWEN: We take daily chloride
15 measurements of the water.

16 CHAIRMAN ANGELLE: Right. So that is
17 something that can again be put in a format that can
18 instill confidence in the people in this area --
19 because that has a huge impact on a lot of discussion,
20 has a huge impact on economic development, health and
21 welfare, and to the degree that that is happening --
22 and I know that the Baton Rouge Water Company, at
23 considerable expense, invested in that scavenger well,
24 which is -- part of the conversation is that it's
25 serving -- it's a private investment that in a lot of

1 ways is serving a public purpose.

2 MR. OWEN: That's correct.

3 CHAIRMAN ANGELLE: And, you know, that to me
4 is another great way of contributing. There are other
5 folks who are getting the benefit of that scavenger
6 well who are not contributing to it.

7 MR. OWEN: That's right.

8 CHAIRMAN ANGELLE: Okay.

9 COMMISSIONER WELSH: I think one thing that's
10 not been mentioned is the concept of saving the Baton
11 Rouge aquifer drinking water and the industrial sand,
12 both, what we've designed is a short-term plan and a
13 long-term plan. I mean, if you look at it like that,
14 the scavenger well that Mr. Owen has drilled and using
15 would be part of the short-term plan to extend the life
16 of your infrastructure; and new development would be
17 away from that, you know, for the long-term use, and
18 phase out the Lula Street area.

19 MR. OWEN: Well, Lula Street probably has a
20 finite life, but the projections are that this
21 scavenger well will extend the useful life of the Lula
22 well system by about 50 years.

23 COMMISSIONER WELSH: And that would be
24 considered short term?

25 MR. OWEN: Right. Well, depends on your

1 point of view.

2 CHAIRMAN ANGELLE: Well, again that's a great
3 headline: Scavenger well to increase by 50 years.
4 That's a prediction based on the best science.

5 And it would be really important
6 again -- and I know I'm perhaps at the risk of
7 repeating myself way too much -- it would be important
8 if someone made a decision that, or projection that 50
9 years, that the life would be extended 50 years, 50
10 years is the sum total of some incremental years. And
11 it would be important at some point, whether it's year
12 one or year two or year five, to be able to get a
13 number that shows: We are on our way to a 50-year
14 extension.

15 And if not, maybe we could do something
16 about it before we get to year 45 is kind of what I'm
17 thinking about. Make sense?

18 MR. REONAS: Mr. Chairman, a large part of
19 what the evaluation of Capital Area is focused on and
20 of course that's depending a lot on the readings from
21 the Baton Rouge Water Company, the progression of the
22 scavenger well, to see if it's operational, what the
23 numbers are coming out at. And again, it's early yet.
24 It just went into -- I think the engineers can kind of
25 give you an overview, Roy and Randy.

1 But, you know, so it's early yet in
2 terms of: Is it working, is it not working. And I
3 think at the point, if it's working, you continue with
4 it and you build around it.

5 If it's not working, then you go to plan
6 B. And I think that is, that's part of the evaluation
7 process.

8 CHAIRMAN ANGELLE: Do you have any questions?

9 John, do you have any additional slides?

10 MR. JENNINGS: You can run through them.
11 They all pretty much have been discussed.

12 So, no, that was it.

13 CHAIRMAN ANGELLE: Okay. Thank you very
14 much. I appreciate it.

15 Thank you, Matt. I appreciate it as
16 well.

17 We're going to go to Item 12, which is
18 an update on the Baton Rouge Water Works Scavenger
19 Well, and we've got Randy and Roy here; right?

20 MR. HOLLIS: Yes, sir.

21 CHAIRMAN ANGELLE: Thank you for being here.
22 It's been a long day.

23 We now have had a Water Resource
24 Commission that is in its seventh hour.

25 MR. HOLLIS: Mr. Chairman and Commission,

1 ladies and gentlemen, I appreciate the opportunity to
2 be here and I'm honored to be here.

3 My name is Randy Hollis of Owen & White,
4 and I bring with me Roy Waggenpack, also with Owen &
5 White. And hopefully we can answer some of the
6 questions that you just asked as we go through this
7 presentation.

8 Hard numbers: The scavenger well is
9 actually an interceptor well. We're intercepting the
10 saltwater as it's moving forwards and moving
11 4000 pounds a day of salt that heretofore has never
12 been removed. So we are intercepting it and removing
13 it from the aquifer.

14 Now unfortunately groundwater moves like
15 molasses, and that's the problem we have of finding --
16 we all want an instantaneous answer to something. I
17 promise you, I want to know if this thing is working.
18 It will be several years before we can definitively
19 know the impact.

20 But what we do know today is we are
21 removing 4000 pounds of salt every single day that has
22 not been removed from that area before.

23 CHAIRMAN ANGELLE: You're disposing of it in
24 an injection well?

25 MR. HOLLIS: No, sir. We actually have a

1 permit, or actually a Letter of No Objection from the
2 DEQ and we're disposing of it in the Mississippi River.

3 Now let's not be confused: This is not
4 saltwater like the sea, which is 35,000 parts per
5 million of chlorides. These chlorides are about a
6 thousand parts per million chlorides, so we're talking
7 about one 35th the amount. So we're not dumping pure
8 saltwater into the river by any means. So it's a very
9 dilute -- if anything, it's a brackish water.

10 It's higher than that we can use
11 domestically. The limit on that is 250. But that's
12 why we need to remove it so that we protect these
13 wells.

14 So I do appreciate the cooperation we've
15 had throughout the past several years from DHH. Jake
16 and his group have been really good because this is a
17 potable water well, in combination with a saltwater
18 well. It's been great to work with DEQ, USGS, DNR.
19 Every agency has worked together with us to put this
20 project in motion and we do appreciate the cooperation.

21 Let's go through. Okay. What I will
22 cover today is a little bit of the background of where
23 did we get the information to design this.

24 There have been many studies made of the
25 saltwater intrusion into Baton Rouge, a lot of

1 theoretical models. All those have been very good.
2 Baton Rouge Water Company actually commissioned two
3 separate studies: From one Layne Hydro, which is a
4 division of Layne, the large well-drilling group, and
5 also Dr. Frank Tsai at LSU.

6 It was our job, Roy and myself, to take
7 all these theoretical models and all this information
8 and put it together into a nuts and bolts solution, to
9 actually drill two wells -- two wells that have never
10 been drilled this close together that we know of in the
11 country -- to actually intercept saltwater and produce
12 freshwater at the same time.

13 And so that's what we have accomplished
14 here. And I think the data that you'll see at the end
15 of this -- although we're engineers, we like to say the
16 data looks very exciting, and we'll show that to you at
17 the end of this.

18 We'll go through some of the analysis,
19 how we physically constructed the well --

20 There we go. Thank you.

21 -- the start-up of the well. And then
22 we've got some data that will show the chloride
23 concentration and the flow for the well couple.

24 Okay. Now you can go.

25 What was the objective? The fault is a

1 long fault along Baton Rouge that follows about I-10.
2 In a minute I've got a slide that will show you that.
3 Our objective was to intercept the saltwater in the
4 1500-foot aquifer that was migrating northward from the
5 Baton Rouge fault toward the Lula, the North Street --
6 North 45th, and the Government Street potable well
7 fields. So that was our specific objective was to
8 protect mostly Lula and then the other two well fields
9 from saltwater intrusion.

10 Okay. What is the premise? The premise
11 of our project was to construct a freshwater well
12 pulling freshwater from the upper part of an aquifer in
13 combination with a saltwater well pulling saltwater
14 from the lower part of the aquifer that will allow a
15 much greater capture of saltwater than simply the
16 installation of a single saltwater well in the same
17 aquifer.

18 Now that's a lot of words. What does
19 that mean? We could have put in a single well. But if
20 you put in a single well to capture saltwater, the zone
21 of influence is very limited.

22 By coupling the saltwater well with a
23 freshwater well, we're actually pulling more of the
24 saltwater toward the saltwater well provided the
25 aquifer stays stratified. And that's a very key

1 component of this. And I'll show you a slide in a
2 minute. That means that saltwater is a little more
3 dense, it stays on the bottom. Freshwater is on the
4 top. And if we pump at the right amount with each of
5 these two wells, we hope to keep those zones totally
6 separate, stratified, and pulling together
7 horizontally. And that is something that no one has
8 attempted before, and that's why this is such an
9 exciting project. And I'll show you some of the data
10 from that.

11 Okay. Give credit to Layne Hydro. Some
12 of theirs Ph.D.s that worked on this, Rhett Moore and
13 Vic Kelson, did a very good job of it. They are a
14 division of Layne.

15 Next slide.

16 We have to give credit to Frank Tsai,
17 Dr. Frank Tsai at LSU, who worked with us also on his
18 reports and analysis.

19 Okay. This is a slide showing the fault
20 line through Baton Rouge. You've seen this before
21 today. The fault line runs approximately along I-10 in
22 Baton Rouge. And that's freshwater one side, saltwater
23 to the south.

24 What you'll see above the areas in
25 circles, you'll see the Government Street wells in the

1 circle to the right in the middle; and in the upper
2 part, you'll see a circle and that is the Lula Street
3 wells.

4 Okay. This is a cross section of the
5 aquifers in Baton Rouge, the 10 aquifers that John
6 mentioned a minuted ago. And it shows in blue the
7 freshwater.

8 The recharge area is at the top in the
9 left around Natchez. That's where the water fell
10 approximately a thousand years ago in some estimates
11 and has been going through the groundwater all the way
12 down to Baton Rouge.

13 We'll see the fault line, the vertical
14 line there; and on the right of that fault line is
15 saltwater. It's mostly brackish water -- we all use
16 the word "salt," but it's brackish. And what's
17 happened is that water is coming across the fault and
18 it is coming into the freshwater aquifers.

19 Okay. These are some projections in the
20 1500-foot sand, USGS, Dan Tomaszewski, in his report.
21 And this shows the progression of the saltwater plume
22 in the 1500-foot sand. Remember this is theoretical,
23 you know. We have very few monitoring wells and most
24 of this is theoretical.

25 We do know it has reached Lula because

1 one of the wells at Lula does have a high chloride
2 concentration, Lula number 19. But you can see, 1966
3 is the first green line there, 1977, 1992; and then the
4 top line right at the Lula Street pump station is 2005.
5 So that's the progression of the saltwater plume coming
6 in.

7 Okay.

8 CHAIRMAN ANGELLE: And we do not have any
9 data after 2005 that could allow that particular
10 graphic to be expanded?

11 MR. HOLLIS: We may, but I don't know --

12 MR. WAGGENSPACK: Back up one.

13 If you'll notice, part of what John's
14 conversation was about, you need the monitoring wells.

15 Look at the dots. There's no dots
16 between the yellow and the top one up at Lula, so you
17 have no monitoring. That's all projected.

18 You need those monitoring wells to see
19 where that line goes. We don't know what the chlorides
20 are way to the west. We don't have a monitoring well
21 over there to take it out to let us know.

22 So it's those monitoring wells, money to
23 monitor what you want. If you want progression by
24 years, it takes money.

25 John before us with DEQ was talking

1 about that. You don't have the data. You don't have
2 the physical structure there to get the data.

3 CHAIRMAN ANGELLE: Right. And so the state,
4 the public has a vital interest in knowing that.

5 MR. WAGGENSPACK: Correct.

6 CHAIRMAN ANGELLE: And you do as well?

7 MR. WAGGENSPACK: Correct.

8 CHAIRMAN ANGELLE: And obviously your asset,
9 or the asset of your client is the ability to be able
10 to produce fresh water and sell it; right?

11 MR. WAGGENSPACK: Correct.

12 CHAIRMAN ANGELLE: So you say that again?
13 You said there are no dots?

14 MR. WAGGENSPACK: The dots are either wells
15 or monitoring wells. That's where we collect the data.
16 In the yellow down below the 1977 -- John Lovelace
17 probably knows the numbers better than I do -- there's
18 not a monitoring well between that one, all the way up
19 to the Lula station. The nearest monitoring well is
20 over to the right at Government Street, which is some
21 of the Government Street public supply wells.

22 MR. HOLLIS: But let me chime in here.

23 You asked if there's any other data. We
24 monitor the data at the Lula station frequently. We
25 know the chlorides at Lula. So the 2005 is simply the

1 date that it hit the Lula station. So it hasn't left.
2 It's still there.

3 CHAIRMAN ANGELLE: Okay. Maybe I'm asking an
4 engineering question that you just said.

5 But inasmuch as the Lula station, the
6 Lula field is where there is, you know, obviously maybe
7 a withdrawal, it just doesn't have the ability
8 engineering-wise, scientific-wise, to go any further?
9 I mean, it would stop at the Lula station, wouldn't go
10 any further; right?

11 MR. HOLLIS: Well, the cone of depression is
12 the Lula station. So it's pulling everything toward it
13 like a giant magnet. And so it will not move any
14 further north than that because that's freshwater
15 coming from the north to the south. So it will stop at
16 Lula.

17 The problem is will the concentration
18 get so high at Lula that we can no longer use those
19 wells?

20 CHAIRMAN ANGELLE: So it's really not so much
21 that it will go past Lula. The question is can we do
22 things to have it actually recede or recede in
23 concentration levels.

24 MR. HOLLIS: Correct.

25 CHAIRMAN ANGELLE: And receding in

1 concentration levels, by your body language, seems to
2 be where you believe that engineeringly our solutions
3 are.

4 MR. HOLLIS: We will show you that we can
5 intercept the saltwater to some extent. We cannot pull
6 it back from Lula.

7 CHAIRMAN ANGELLE: Right.

8 MR. HOLLIS: So the water that has passed the
9 scavenger well that we have put in, that will continue
10 to go to Lula. It's gone. It's going to get there.
11 And the projection is it will be about five years
12 before you'll see a major impact on the Lula station
13 because groundwater moves that slow.

14 MR. CULPEPPER: Okay. Excuse me,
15 Mr. Chairman.

16 It seems like you could really use two
17 or three monitoring wells in the western part of that
18 plume; is that right?

19 MR. HOLLIS: We would like to have a hundred.

20 MR. CULPEPPER: But it looks like that's
21 where the real data gap is; is that correct?

22 MR. HOLLIS: Correct, yes.

23 MR. CULPEPPER: How much would it cost for
24 three? Do you have any idea?

25 MR. HOLLIS: Monitoring wells are kind of

1 like a test well; you could be looking up to 75 to
2 \$100,000 apiece to put them in.

3 Okay. This was the area of the study. And
4 this shows you: Green is the recharge area, which is,
5 as you can see, is in Mississippi. And then what
6 you'll see is the triangle area down at the bottom.
7 And this is the very intensive part of the study. The
8 brown area is an area of very low transmissivity. It's
9 an area that's kind of like a clay or a sand that
10 doesn't transmit water that well. So you can see,
11 we've kind of got an area where the water won't go
12 through too well to the west of us, and that just shows
13 you the area of the study of the models. Okay.

14 This is an earlier one that shows the
15 approximate flow across the fault. Now, this is a flow
16 of about 900 gallons a minute that was estimated some
17 20 years ago, and everyone has kind of hung on that
18 number. That's a theoretical number. I wish we had a
19 flow meter. Nobody knows what the true flow across the
20 fault is, but that was an estimate. And that is the
21 projection of the saltwater plume for 2005.

22 Okay. This was the solution that was
23 developed, to put in a one-million gallon interceptor
24 well. And the area in red that you'll see is what
25 could be captured by putting in one single well, a

1 million gallons a day in that area, which would capture
2 the majority of the salt heading in that direction.

3 It's not going to capture all of it, by any means, but
4 enough that it will save the wells and give us about a
5 50-year life at the wells at Lula. Okay.

6 This piece of data is something I really like
7 to see because the question was: Is the aquifer
8 stratified? And what you'll see on the bottom right at
9 number 1955, that is the bottom 17 feet of the aquifer
10 when we went in and tested it, and it shows the
11 chloride concentration at 1955.

12 The number right above that of 722 is only a
13 6-foot layer above that lower one which shows the
14 chloride concentration of 722, and then the number
15 above that, ND, says that it was non-detect in the
16 upper part of the aquifer.

17 So what we're seeing in this data, what's
18 really exciting is that the aquifer is stratified.
19 We're seeing no chloride at the top and we're seeing
20 the high concentration of chlorides at the bottom.

21 Okay. Now this simply shows freshwater in
22 the top and the brackish water in the bottom in an
23 ambient condition in the 1500-foot sand. Okay.

24 Theoretically what we would like to do is put
25 in a water well that would pull the flow horizontally

1 into the freshwater and pull the flow horizontally into
2 the brackish water and not mix the two at all;
3 therefore, capturing as much of the saltwater as we can
4 and pulling in freshwater. That's the concept of a
5 coupled well is we're putting a saltwater well and a
6 freshwater well right on top of each other.

7 Normally that is never done because you don't
8 want to get the up-coning or the down-coning; but the
9 theory is, can we pull the water in at the proper ratio
10 to keep these two stratified?

11 We did that -- and Roy will get into that in
12 a minute -- the pumping systems we used were VFDs, so
13 we can actually control these pumps to regulate the
14 flow up and down, to try and keep it stratified. Okay.

15 In reality here's what we had to install. We
16 couldn't install one screen vertically all the way
17 down, so we had a screen in the upper part of the
18 aquifer, we have a second screen in the lower part of
19 the aquifer, and they are actually separated
20 horizontally by about 15 feet because you can't drill
21 them right on top of each other.

22 But to think that we went down 1600 feet and
23 we had them separated horizontally by only 15 feet, I
24 have to give a lot of credit to Layne for doing a very
25 good job of keeping those wells separated and working

1 as well as they are.

2 MR. WAGGENSPACK: And to give you a
3 perspective what was actually built: That sand is
4 approximately a hundred feet thick. They put 30 feet
5 of screen in the saltwater aquifer down at the bottom
6 and put 40 feet of screen up in the upper part of that
7 aquifer. So we've got 70-foot of screen in an
8 approximately hundred-foot thick sand.

9 MR. HOLLIS: So they are only separated by
10 30 feet. Okay. Next one.

11 All right. I'll turn it over to Roy for
12 a minute here and talk about construction.

13 MR. WAGGENSPACK: Well, we were just going to
14 go quickly over construction.

15 As Layne was doing the report and coming
16 up with the theory, the water company quickly had a
17 target area in which to try to find land to drill these
18 wells on.

19 I wasn't involved in land acquisition.
20 I do know it took year, year and a half to actually
21 find the site.

22 This is the actual site that was finally
23 they could get, purchase the property. The large
24 street at the bottom is North Street, and it's 31st and
25 32nd Street are the two streets going toward the top

1 of the page to the north.

2 That's how the wells were drilled. The
3 potable production well was to the south, toward North
4 Street. And we had to label the saltwater well --
5 there's not a registration in DNR for saltwater wells.
6 It's a dewatering well. We're trying to draw the water
7 table down, draw that saltwater level down in that
8 area. It's registered as a dewatering well.

9 Next slide.

10 Just to give you some idea: That was
11 the site. It was an old subdivision. The homes have
12 been gone for years.

13 The tree to the left was a community
14 congregation area in this neighborhood. The water
15 company wanted to be a good neighbor. The well driller
16 wanted that tree gone. Well drilling is a lot easier
17 on a clean site. The water company wanted -- actually,
18 Mr. Owen -- wanted to save that tree and work around it
19 try to get these two wells in. We did. We got an
20 arborist in and saved that tree.

21 Next slide.

22 Some of the construction problems with
23 the well -- just drilling the wells and the concept of
24 the wells is the easy part. Taking potable water and
25 putting it into the distribution system, which is right

1 there on North Street, is the easy part. We do that
2 every day in the utility business.

3 The hard part of this project, which you've
4 already raised the question, was the saltwater well and
5 what are we going to do with the saltwater once we get
6 it out the ground. Nobody wants it. If you know
7 somebody wants to buy it, Mr. Owen will gladly sell it
8 to them, I imagine.

9 We had to design a pipeline and work through
10 the permitting process and we started looking at
11 Capitol Lake, to dump it into Capitol Lake. That was
12 waived and passed over.

13 We worked it out with the highway department
14 and DEQ to take it to the Mississippi River -- and DNR.
15 So that's the pipeline route that left that North
16 Street site, taking it over to the Mississippi River.
17 So that's through city streets, going under state
18 highways, going under the interstate, going under the
19 railroad, and getting into the drainage system right at
20 the batture we put it into the Mississippi River.
21 That's the pipeline route.

22 We had to cross Capitol Lake. As you-all all
23 know, the shape of Capitol Lake looks like the Capitol.
24 We had to do a boring underneath Capitol Lake there to
25 get to our discharge point. Finding a discharge

1 location was tough.

2 CHAIRMAN ANGELLE: So it has no value,
3 commercial value because its chlorine content is too
4 low?

5 MR. HOLLIS: Right, right.

6 MR. WAGGENSPACK: And the transportation cost
7 to get it to whoever wants it too would be another
8 problem.

9 MR. HOLLIS: Because it does have chlorides
10 in it, every part of that pipeline is built PVC,
11 non-corrodible materials. So there's no dark alarm
12 danger or anything. It's all plastic, PVC,
13 polyethylene.

14 MR. WAGGENSPACK: Next slide.

15 Another quick slide just to show you the
16 construction on that site. There's the rig actually
17 set up by that tree to drill the first of the two
18 wells.

19 Next one.

20 The saltwater well is all stainless
21 steel. The casing pipe, the pump, everything, every
22 component in there is stainless steel for corrosion
23 purposes.

24 Next one.

25 And then just real quickly, to run

1 through here, the development of a well, if you have
2 never seen a well developed, that's air lifting water
3 and developing the screen to get the mud out of the
4 screen and all. It's a pretty violent reaction. We
5 thought it was a neat picture. We'll run through
6 these. Everybody has been here a long time.

7 The same thing, that's the water being
8 discharged from the well.

9 You can go to the next one.

10 There's the finished product of the two
11 wells. The public supply production well is the one on
12 the left, the saltwater well is the one on your right.
13 I think we have about two pictures of this.

14 That's the site finished with the
15 control building to the right.

16 Randy wanted to bring that up. We have
17 variable frequency drives on these submersible pump
18 motors, and we can vary the speed of the motors to vary
19 the production that these wells put out to get us close
20 to that total, that 900 gallons a minute or a million
21 gallons a day, whichever in that range, 7 to
22 900 gallons a minute. So that's it.

23 Next one. We'll get to some results
24 here at the end.

25 Again, I'll let Randy run through some

1 of the results that we've come up with.

2 MR. HOLLIS: And these wells are fairly new.
3 This is February of this year, you'll see the data. So
4 it's just gone into production this year.

5 And you'll see on the left, the North
6 Street production well. The upper part is freshwater
7 sands, and you'll see chlorides running from 124 to
8 135; and that's the upper part of the aquifer.

9 And the secondary limit on chlorides is
10 250, so that is a great production well and that water
11 is being used for production in Baton Rouge. It's not
12 being wasted.

13 What you'll see in the middle column is
14 that's the lower part of the aquifer. And that's the
15 very bottom, that's the scavenger well. And these are
16 discrete samples that were taken, and you'll see 573
17 down to 1491. So here again we have our
18 stratification.

19 With those screens only being 30 feet
20 apart, we've got 120 at the top, and basically that's
21 600 at the bottom.

22 And then on the right you'll see
23 Progress Park Observation Well. That was a well that
24 Baton Rouge water drilled, and that's kind of our
25 monitoring well that's located between here and Lula,

1 between this station and Lula. And that shows the
2 discrete sampling from that well, which is located
3 about a 10th of a mile away. Okay.

4 This is the data. And this shows you,
5 the green at the top, the chlorides from the scavenger
6 well. We started about 1100 or so; and as you see as
7 we're going along, we have settled down now to about
8 830 parts per million of chlorides. And so the wells
9 have really stabilized now. We do have the VFDs, we
10 can control the pumpage rate, but we want to do this
11 very slowly. It's not something that you tweak every
12 minute or every day.

13 So we've tried to maintain a very
14 consistent flow rate with the wells to see how it was
15 performing. And what is exciting about this, the blue
16 line at the bottom is the chlorides in the freshwater.
17 We started out originally about 150, went up to 200;
18 and what we've seen since then in the most recent data
19 is we're seeing chlorides now about 100 to 105 or so.
20 So what we're seeing is a continuing decline in the
21 chlorides in the freshwater. And here we are pumping
22 saltwater 30 feet away.

23 And so we can gradually -- we could make
24 an interpretation of the data. At the top the
25 saltwater looks like its increasing slightly. So the

1 concept of this well of having stratification in the
2 aquifer and being able to pump two wells together for
3 the sole purpose of increasing the capture zone of the
4 saltwater appears to be working really well, and so
5 that's the data that we have.

6 It's encouraging. We won't know for
7 several years the impact, but we do know for a fact
8 we're removing right at 4000 pounds of salt every day
9 from this system.

10 CHAIRMAN ANGELLE: Do you have any data that
11 shows what's happening at the Lula Street?

12 MR. HOLLIS: Yes, we do.

13 And Baton Rouge Water I'm sure can give
14 that you from the Lula Street wells. I would love to
15 say we're encouraged, it looks like its declining
16 there; but that would simply be speculation because,
17 theoretically, we shouldn't see a major impact for five
18 years. But it looks like we are seeing some impact
19 there.

20 MR. OWEN: I think it's too early to measure,
21 but we do know this: That the indication -- and this
22 is very slow -- the annual increase in chlorides at
23 Lula at well number 19, which is kind of the sentinel
24 well, has been very slow, but it's been an annual
25 increase of about 10 milligrams per liter of chlorides.

1 Insofar as being able -- we have not
2 seen an increase in those chlorides since this well was
3 begun.

4 CHAIRMAN ANGELLE: Okay.

5 MR. OWEN: And that's the best method we have
6 now, except the metric in the production well is now
7 going down on the chloride content, that production
8 well and the scavenger well.

9 CHAIRMAN ANGELLE: So the production well
10 that's next to the scavenger well, that water is
11 eventually put into the distribution system?

12 MR. HOLLIS: Oh, absolutely, chlorinated with
13 chlorine and ammonia used in the system, just like any
14 well in the system.

15 CHAIRMAN ANGELLE: Is it displacing any
16 volume that was coming from Lula or it's in addition
17 to?

18 MR. WAGGENSPACK: Well, displacing because
19 they are not running Lula as hard --

20 CHAIRMAN ANGELLE: I'm sorry?

21 MR. WAGGENSPACK: It's displacing as a
22 substitute, because the production they had there is a
23 reduction at Lula.

24 MR. HOLLIS: And these wells are being run 24
25 hours a day nonstop.

1 CHAIRMAN ANGELLE: And over a period of time
2 if you are able to reduce chlorides at Lula because of
3 what you're doing here, and you have a demand in the
4 Greater Baton Rouge Area for additional water
5 resources, would you then be able to return and use
6 Lula as a functioning asset?

7 MR. HOLLIS: Lula is a functioning asset now.
8 It's continuing to be used.

9 CHAIRMAN ANGELLE: Well, I guess I didn't
10 understand the answer.

11 MR. WAGGENSPACK: In the water production,
12 they are turning wells on and off all day long based
13 off of demand and filling tanks. And Dennis would be
14 better to speak about it.

15 But wells are used according to where
16 the demand is, and all they have done is shifted that
17 slight amount, because the production at this
18 production well, as you can see on the right there, is
19 just under 500 gallons a minute.

20 CHAIRMAN ANGELLE: I guess I thought I
21 understood when I asked the question about, is Lula in
22 operation, and you said no, this is a replacement.

23 MR. WAGGENSPACK: No, no. The 500 gallons a
24 minute is all that's being replaced. There's many
25 millions of gallons still going out of Lula every day.

1 CHAIRMAN ANGELLE: Okay.

2 Any other questions?

3 Again, I think this is good information.
4 You know, the Commission is going to continue to seek
5 that kind of data and those metrics so that we can
6 speak to stakeholders on what's going on. The more the
7 merrier. The information that you can provide I think
8 helps us to do our job, and we need to be transparent
9 to the community. To the degree that you can help us,
10 it's very important.

11 MR. HOLLIS: Yes, sir. Thank you.

12 CHAIRMAN ANGELLE: Okay.

13 The final scheduled item is item 14.
14 And Mr. Chip Groat with the Water Institute of the Gulf
15 is here to make a presentation. Thank you so much for
16 being here. I know you've kind of sat through the
17 entire agenda.

18 Again, we appreciate the work that you
19 have done in the past for Louisiana and currently with
20 the Water Institute of the Gulf.

21 MR. GROAT: Well, thank you, Mr. Chairman.

22 You know, in show business, the headline
23 act is the last act, the one next to closing; so I'm
24 honored by my position on the agenda.

25 CHAIRMAN ANGELLE: Don't take too much

1 credit. I'm not sure how that happened.

2 MR. GROAT: Thank you.

3 Thank you. It is a good opportunity to
4 have sat here through the session because I learned a
5 lot about all the things that are going on. And one of
6 the things I'll say about the Water Institute is that
7 our role in water resources, beyond what we're doing in
8 coastal areas now, if there is one, will be to try to
9 fill gaps to help meet unmet needs. And certainly
10 there are a lot of needs that are being met. And part
11 of the challenge is determining those that need to be
12 met.

13 Just for those of you, we're not a
14 household word. We've only been around two and a half
15 years, February of 2012. We are a 501(c)(3)
16 not-for-profit independent applied science
17 organization, and were really created by three-fourths
18 of the state of Louisiana who was particularly CPRA
19 interested in creating an ongoing capability to bring
20 applied science and high quality science into the
21 Coastal Restoration and Protection Program.

22 Baton Rouge Area Foundation, who had
23 similar ideas, and as did Senator Landrieu, and so
24 understandably we have focused now on the fact that the
25 kind of organizations we are makes us independent and

1 that we have aspirations for not only bringing that
2 expertise into the coastal program in Louisiana, but
3 also around the world, modeled somewhat on the Altaris,
4 [phonetic] the Netherlands' organization that has done
5 that.

6 But we are different from universities
7 in the sense that we are really oriented towards the
8 practical application of science and engineering, and
9 that it should benefit society in some way. So basic
10 fundamental research is extremely important, but our
11 job is to do more of the applied types of programs.

12 I would use this as a lead-in to say
13 "water" isn't our middle name. It's our first name,
14 Water Institute of the Gulf. And while CPRA is
15 certainly most interested in seeing us develop our
16 capabilities to support their activities, Baton Rouge
17 Area Foundation, Senator Landrieu had some thoughts
18 that water meant water, without saying exactly what
19 that meant. So we're in the process right now of
20 applying our work and our program, and funding is
21 coming from things that are of interest to CPRA. And
22 we're very happy to do that, and we see that as a key
23 part of our future certainly. But we are exploring
24 what water means in the Water Institute of the Gulf's
25 name and ultimately in its program.

1 There are three things that characterize
2 our work in the coastal and Mississippi Delta area that
3 I think is important, and one of those is integration.

4 You see coastal deltas and coastal
5 communities and water resources in the center there;
6 but in the outer ring we try to bring together, not
7 only in-house capability to provide information, data
8 and understanding, but also the ability to bring a lot
9 of different components together. So that integration
10 of others other than ourselves into this process is
11 extremely important.

12 Also, the other thing that we're focused
13 on -- and it will extend into what I'll talk about in
14 the water -- is that it's a matter of getting knowledge
15 into action. And you all know watching sometimes the
16 science community is not always the best in
17 communicating to those other than itself. And so how
18 you turn what we gain in understanding and what others
19 have gained in understanding into the action that
20 supporting agencies anticipate; in other words, into
21 good decisions for good projects and good activities.
22 So we're committed to being effective communicators, as
23 well as being effective scientists and engineers.

24 And then finally -- and this is the key
25 part of what we do in anything we do -- is we certainly

1 don't claim to have, nor will we ever have all the
2 expertise that's needed in whatever area we work in.
3 We depend on linkages, partnerships and collaborations
4 with private sector, with academics, with federal and
5 state agencies, and with NGOs. In fact, these
6 partnerships are extremely important in doing what we
7 do.

8 42 percent of the money we receive to do
9 coastal work goes back out the door to partners and
10 collaborators, so it's an extremely important
11 dependence for us.

12 There are two or three areas I wanted to
13 briefly run through for you. Where we are, exploring
14 opportunities that add dimensions that relate directly
15 to water resources, and one of those is directly
16 related to the fact that we were employing, able to
17 employ Kai Midboe in this area.

18 Tying science -- tying law and policy to
19 good science is something that can be done from a
20 distance or it can be done internally. And if the
21 Water Institute has developed, as we think we have,
22 strong capabilities in that applied science area, how
23 can you be effective in making sure that it does get
24 translated into law and policy? And how can you link
25 law and policy research to technical capabilities?

1 So one of the things Kai has encouraged
2 us to do -- and we're in the process of doing -- is to
3 recognize that in Louisiana, at LSU, at Tulane, and
4 certainly at Loyola as you heard this morning, and at
5 Sea Grant, there are legal forces that work on policy
6 and legal aspects of good science and good application
7 of science.

8 And we're not proposing to build an
9 internal staff in this area but, as we have with our
10 partners and our collaborators, the idea is that, if we
11 could be a catalyst or an operating base to bring those
12 people together to deal with law and policy issues and
13 to work effectively towards infusing good science into
14 those law and policy issues, then we will have done
15 something that hasn't been replicated in many places;
16 not only hasn't been replicated in Louisiana, but
17 outside of Louisiana and outside the Gulf and perhaps
18 outside the U.S. So there are national opportunities
19 here if we can pull this off and international
20 opportunities to make Louisiana an example of how good
21 law and policy are based on good science and good
22 engineering, and we've brought those under a common
23 umbrella.

24 A second area is trying to identify gaps. We
25 heard a lot today about some really excellent work

1 that's going in the USGS and the Office of Conversation
2 and various organizations, and certainly the Nature
3 Conservancy, in gathering information about Louisiana's
4 water resources. And that information base is
5 extremely important if we're going to effectively
6 manage those resources.

7 But we also heard, Mr. Chairman, from you and
8 I think from Dian that the process of deciding what the
9 management scheme is going to be and how it's going to
10 be implemented is not something that's done overnight.
11 It's something that has to be done in a very studied
12 way.

13 And our point of view in this is that this
14 good management does depend on a firm technical base.
15 And do we know everything that we need to know to do
16 good management? And if there are areas where we
17 don't, how do we set the priorities to gather that
18 information?

19 And we're not proposing in any way the Water
20 Institute would be that instrument, but we might help
21 identify things that are important to be done where
22 more funding might be needed by the USGS or the Office
23 of Conservation for more monitoring and more modeling
24 of information.

25 So we proposed a thoughtful process of

1 looking at the basins across the state, the groundwater
2 and the surface water basins, identifying where there
3 are perceived or real management needs in the future,
4 determining where we do have information available
5 that's adequate and where we don't, and using that as
6 the basis for making recommendations about the kind of
7 gaps that need to be filled to know the kind of water
8 code that this Commission anticipates being the key
9 player in. So that is an operation that we think is
10 extremely important.

11 And I think you used the word earlier,
12 Mr. Chairman, budget. We have to understand our water
13 resource pays in a comprehensive way. There's a story
14 in Texas, when they were launching into their water
15 management plan, their water planning plan, that they
16 went to the governor, Governor Bush at the time. They
17 said, Look, Governor, we've had draughts. We have some
18 severe issues here that need to be dealt with. We need
19 to plan for them very carefully if we're going to use
20 our freshwater resources adequately, and we're looking
21 for your support.

22 Governor Bush supposedly turned and said:
23 Gentlemen, just how much freshwater does Texas have?
24 They kind of looked at him blankly and it turned out
25 they really didn't know. We knew a lot about certain

1 areas, didn't know a lot about others.

2 So we didn't want to be in that position
3 where good regulation, good policy, good implementation
4 of laws are lacking because we didn't have an adequate
5 technical base. So we want to see data as a parallel
6 part, the budget part, in development of the code. We
7 would like to help move that part along.

8 And finally we're engaged in a process that
9 recognizes I think the point that Senator Long made
10 very dramatically: There are only six states where
11 water is seen as a surplus. Most states are fighting
12 over water.

13 And so how do we celebrate the fact that
14 Louisiana, while it has challenges and it has
15 competition for its water resources in various areas
16 and so it's not a perfect world; but on the par, on the
17 whole, we are blessed with an adequate supply of fresh
18 water. And the stories that are in the newspapers
19 around the country are generally about drought in
20 California and Texas, about the water wars in Atlanta,
21 which is an area that was considered well watered at
22 one time.

23 So how do we take the good story of our
24 resources and make it part of our economic development
25 scenario? And we're piloting in the capital area an

1 effort to bring people together who depend on water to
2 work, to live and to play, and let's in a sense
3 celebrate the fact that we've got water. Sure, we've
4 got management issues, a lot of challenges that we
5 heard about today; but let's get some input into how we
6 point out to people how important we take water to be
7 in the capital region, and how we are going to design
8 ourselves in ways that make sure that water is here in
9 perpetuity for, not only the next 50 years, but for
10 generations to come. So we're doing a focus group just
11 in a few hours to bring some of this kind of
12 information together.

13 And then let me close with the idea of going
14 back to communication again. Decision support.

15 How does science and engineering get
16 communicated to those of you that have to make
17 decisions about how we do manage, how we do regulate,
18 how we do make sure that our resources are viable and
19 useable in the future?

20 And as I said earlier, we aren't always the
21 best at it in the scientific community. But there are
22 some people who are pretty good at that. And so we're
23 exploring in our efforts to bring science and policy
24 together within our own research program a cooperative
25 relationship with IBM, who has a track record around

1 the world, and particularly in their Smarter Water
2 Program in Holland and Galloway Bay, of turning needs
3 of information all across the sectors, from private
4 sector, public sector and regulators and policy makers,
5 into systems where models and monitoring information is
6 turned into decision-support tools that are useful to
7 people who do make decisions. And so we're looking at
8 a pilot program with IBM to take our internal
9 capabilities, those of our partners and our
10 collaborators, and the needs that you all have for that
11 kind of information, and be creative about translating
12 science and engineering into meaningful policy and
13 meaningful decisions.

14 So that's it. That's a shot at where we are.
15 It's a very embryonic effort in water resources, but we
16 think we can add some value in some places, and
17 encourage you to explore our website for more
18 information about the Water Institute. We're
19 twittering and tweeting and twitching and doing all of
20 those things the social media calls on; so if you go at
21 things that way, I think you'll find some things useful
22 there as well.

23 Thank you.

24 CHAIRMAN ANGELLE: Thank you so much, Chip.
25 I appreciate your being here.

1 A couple of things: Certainly I would
2 like to visit with you and perhaps Commissioner Welsh
3 and others on trying to draft a particular couple of
4 deliverables that I kind of came up with in my head as
5 you were kind of going through your capabilities. I
6 know I had the chance to visit with you about some of
7 the those capabilities, and I think you kind of nailed
8 some of the things that I think we need to do, what we
9 talk about, answering that question that was put to
10 Governor Bush in Louisiana right.

11 So how much do we have? How much do we
12 need? We have an unbelievable opportunity to tell the
13 world to come be a part of our economic development
14 operations here because we have it. And not only do we
15 have it, we have a plan that says we are going to have
16 it. And certainly some of the economic development
17 assets are 50-year-type assets, so we have to be able
18 so to speak to that. So certainly we want to work with
19 you on that.

20 A couple of things that are pretty
21 obvious to me, as I was sharing with Karen at the
22 break: Heard today that we have an 87 percent
23 compliance rate for those wells that require
24 prenotification. And I heard folks say that that
25 number is through the roof from where it was just a

1 couple of years ago.

2 You know, we set out, the state had no
3 education efforts other than what Lindsey was doing in
4 north Louisiana. Matt is doing some things here.
5 Lindsey is going to help us perhaps take what she's
6 doing in her area and export that to other parts of the
7 state.

8 We talked about a robust monitoring
9 program, an improved monitoring program that we all
10 know we absolutely have to have. We have to have that
11 data to be able to make decisions.

12 The legislature has stepped up and
13 certainly has requested the LSU Law Institute to help,
14 now having looked at phase one, phase two, which is,
15 you know, perhaps the beginning of some written law
16 with regards to water law; and using all of the things
17 that we're learning obviously hopefully yield a great
18 product.

19 And the thing that I think was, you
20 know, you and I, our discussions, making sure that we
21 had all the law, we had all the monitoring, and we had
22 all those things, that we clearly understood what our
23 needs were and from I think you used the word budget.
24 So I'm looking forward to working with you on that.

25 We have a lot of balls in the air,

1 probably more balls than I think we've ever had in this
2 commission. A lot of good things happen at the same
3 time, and I think that's really good stuff. So thank
4 you for being here. I'm looking forward to visiting
5 with you soon.

6 Thank you.

7 Any questions for Chip?

8 Okay. Thank you very much, sir.

9 We're going to go ahead Item 15, Public
10 Comments. And anyone what wants to make a public
11 comment, please come forward, take a chair, introduce
12 yourself and have at it.

13 And seeing nobody really jumping up and
14 down, I do want to encourage members, as you come up
15 with ideas of what you believe ought to be discussed as
16 a part of our agenda, send them in to staff, point them
17 in the right direction. Let's get some, you know, some
18 additional things on this agenda.

19 The law requires that we have two
20 meetings a year. In the past we've had as many as six
21 and four. Last year I think we had two. I'm hopeful
22 to have another one perhaps in the fall and another one
23 towards the end of the year.

24 I think the next one ought to be
25 somewhere else other than in Baton Rouge. Perhaps we

1 could go to north Louisiana.

2 Mr. Ted has come from Ruston. It's a
3 tremendous, tremendous public service to drive four
4 hours here and to go four hours back. Right? And the
5 pay is out of this world, so we appreciate that, sir.

6 And again give the opportunity for any
7 of the commission members to make any comments.

8 MR. MCKINNEY: May I make a comment?

9 CHAIRMAN ANGELLE: Yes, sir. Please.

10 MR. MCKINNEY: This is my last meeting. My
11 term expires in September. And I want to personally
12 thank you and your staff and all of the staff members,
13 in particular Ms. Charlotte and her kind words and
14 everything she's helped me with; but to give me this
15 opportunity to serve in this capacity, I've really
16 enjoyed it and it has been an honor and I thank you.

17 CHAIRMAN ANGELLE: Appreciate your service.

18 You certainly over the years have helped
19 put some things in front of us that I think we were
20 forgetting about. And Sparta has led the way for I
21 think the conversation that's gone on in Louisiana, as
22 really sort of the epicenter of that conversation has
23 been Sparta. So thank you very much, Mr. Ted,
24 appreciate your public service.

25 Good. Hearing no more conversation,

1 I'll entertain a motion to adjourn. And I saw five
2 hands go up at the same time.

3 So we have a motion by Jake and a second
4 by Karen.

5 Any objection? Any discussion?

6 All right. That motion is adopted.

7 * * *

8 (Whereupon at 2:55 PM the meeting
9 adjourned.)

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1 STATE OF LOUISIANA

2 PARISH OF EAST BATON ROUGE

3 REPORTER'S CERTIFICATE

4
5 I, ESTELLA O. CHAMPION, Certified Court
6 Reporter and Registered Professional Reporter in and
7 for the State of Louisiana, Certificate Number 76003
8 (in good standing), as the officer before whom this
9 proceeding was taken, do hereby certify that on July
10 30, 2014, the foregoing 247 pages were reported by me
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12 was later prepared and transcribed by me or under my
13 personal direction and supervision and is a true and
14 correct transcript to the best of my ability and
15 understanding; that I am not related to counsel or to
16 the parties herein, nor am I otherwise interested in
17 the outcome of this matter.

18 Baton Rouge, Louisiana, this 25th day of
19 August, 2014.

20
21
22 _____
23 ESTELLA O. CHAMPION, CCR, CRR
24
25