1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF OKLAHOMA
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4
5 STATE OF OKLAHOMA
6
VS NO. 05-CV-0329
7
8 TYSON FOODS
9
10 VIDEO TAPED DEPOSITION OF WAYNE M. GRIP,
taken on behalf of the Plaintiff, at the
11 Offices of Aero-Data Corporation, 8245
YMCA Plaza Drive, Baton Rouge, Louisiana
12 70810, beginning at 8:00 a.m. on
Saturday, April 4, 2009.
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20 REPORTED BY:
21
22 CINDY K.TREGRE
23 CERTIFIED COURT REPORTER
24
25

EXHIBIT
1

1 Could you tell me your educational experience
2 post high school.
3 A. I have a B.S. degree in geology, and
4 I've also taken additional course work in
5 soils and turf-grass agronomy.
6 Q. Did you receive any certificates in
7 that course work? Such as did you --
8 A. I have a -- You mean the additional
9 work I've done?
10 Q. Yeah. The additional work.
11 A. No.
12 Q. Okay. Anything else on your
13 education?
14 A. No. My academic education, that's
15 it.
16 Q. Yes, sir. Tell me a little bit about
17 your work history, and I don't need a full
18 detail, but from end of college on.
19 A. Well, I'll just -- Here we go
20 (referring to document). After college I
21 was -- I entered the United States Air Force.
22 I was a cartographic officer and
23 photointerpreter. I did that for four years,
24 and I received additional on-the-job training
25 in photointerpretation and photogrammetry

1 stream channel is associated with stream bank
2 erosion and transporting of sediment
3 downstream. Did I read that correctly, sir?
4 A. Yes.
5 Q. Do you consider yourself a geologist?
6 A. Yes.
7 Q. Is it -- Strike that. This sentence
8 here, is this -- I guess for lack of a better
9 term -- a universal truth in the field of
10 geology?
11 A. Yes.
12 Q. Okay. Have you ever published any
13 peer review articles in the field of geology?
14 A. Not specifically in the field of
15 geology.
16 Q. Have you ever published any peer
17 review articles?
18 A. Yes.
19 Q. And did those articles touch on the
20 subjects of geology?
21 A. I'm sure they did.
22 Q. Do you have any certifications as a
23 geologist?
24 A. No.
25 Q. Are you a member of any associations,

Q. Roughly. That may be a bad characterization of it, but as far as actually going out and saying that is ten foot higher than the river, that was not done; is that correct?

A. Well, I used the stereoplotter that's very precise in making elevation measurements to come to those conclusions.

Q. I understand. But actually sitting on the ground, looking at it or measuring it, that was not done?

A. No. I don't have to do that, not in my business.

Q. But it wasn't --

A. People hire me to do that so they don't have to go out on the ground and do that themselves.

Q. I understand. And just --

A. But, no, we did not --

Q. -- to be clear.

A. -- physically go out and measure the elevations of the bluffs.

Q. I understand. Thank you.

A. We used a better method.

Q. Got you. The next sentence -- or

'72 to '79; is that correct?

A. That's the normal process. That's the point bar deposits of the inside the meander bend that will gradually revegitate.

Q. Are you a fluvial geomorphologist?

A. I've taken a lot of courses in it.

Q. Do you consider yourself an expert in fluvial geomorphology?

A. To the extent that I use it in my aerial photography studies, yes.

Q. Have you ever published any peer review articles in the area of fluvial geomorphology?

A. No, not in their trade publications, no.

Q. Do you hold any degrees or certifications in fluvial geomorphology?

A. No, other than I find it very interesting.

Q. What are we looking at on Figure 38?

A. Figure 38 shows the channel position of the river as of 1984, and it still continues to cut into the bank to the northwest.

Q. What about Figure 39?

A. No. It was one working document.
Q. Okay. Moving on to -- Would you tell the court just generally -- we can go into specifics -- your methodology for doing this report, the January 2009 report?
A. Sure. Without referring to what I've written here, basically I'd already mapped the course of the river. I already knew where the active meander areas were. I decided based on that that there were enough active meanders on the eastern portion of the river to make it worthwhile, so what I did then is I planned a photomission flown from an altitude of three thousand feet using my own airplane, camera system, crew, and so on, along with dual frequency GPS ground control in order to actually be able to go through and map and measure the elevations of the river water, the elevations of the bluffs that the river was cutting into, as well as the average elevation of the river floodplain, the active floodplain, the recent floodplain. So once the mission was completed, the film was processed, it was scanned, and it was georegistered to the same

coordinate system as all the other photographs and maps. It was then reviewed on a digital stereoplotter which allows me to see it three dimensionally and allows me to make elevation measurements much the same way that I did when I was in the Air Force many years ago except the equipment is a lot better, and we produced something like a hundred and sixty-five transects over the western portion of the river, each one involving between twenty to thirty spot elevations, and we were able to measure in most cases the slope of the actual river bottom because of the transparent status of the river water. We also measured the undulations in the recent floodplain and also the elevations of any terraces that are usually in higher elevations. And based on that, I was able to get the typical thickness of the river was cutting for any given stream reach or any area.

Q. Okay.

A. And I ultimately averaged out all the elevations and all the depths of the river to come up with an average of cut thickness. I

A. Yes.
Q. Does it -- In fact, I think you only -- If I remember correctly, you flew from -- Is it from the Lake Frances Dam to the beginning of Lake Tenkiller?
A. Yes.
Q. And all that is within the State of Oklahoma?
A. Yes.
Q. Okay. Can urban development have an effect on -- on the meandering of a stream?
A. I wouldn't be surprised if it could.
Q. Okay. All right. And you went December 12, 2008; is that correct?
A. What page are you on.
Q. I'm on Page 1, second paragraph. Is that the only date --
A. Yes, that's the date that it was flown.
Q. Okay. And you flew the entire -- all the transects in one day?
A. Yes.
Q. Did you -- Was there anybody else with you?
A. I wasn't actually flying the plane.

1 Q. Okay. Has this type of work ever --
2 to your knowledge, ever been done to quantify
3 the amount of sediments moving through a
4 river system?
5 A. I would expect that it probably has,
6 but I'm not aware of it.
7 Q. Do you know if this methodology has
8 ever been peer reviewed for this type of
9 work, that is determining the amount of
10 sediments that go into a river system?
11 A. I don't know if it has or not, but I
12 can tell you that we've done a lot of work
13 for FEMA and floodplain mapping, and this is
14 basically the technique that we've used to --
15 in floodplain mapping, flying it using a
16 stereoplotter, running transects, getting the
17 elevation measurements, and from that,
18 getting cross sections of the river. That's
19 essentially what we're doing here. Cross
20 section times length equals volume.
21 Q. Right. In those -- the work that
22 you've done for FEMA, I understand the
23 equation maybe would be the same, or is it
24 the same, or are you in fact measuring how
25 much sediment is moving through those

1 floodplains?
2 A. Well, for FEMA we're measuring how
3 much water can move through the floodplain.
4 It's the other -- the top half of the cross
5 section rather than the bottom half, which is
6 the sediment.
7 Q. Okay.
8 A. So that's what we've done.
9 Q. Do you think this is novel, what
10 you've done here?
11 A. Well, it's pretty basic. I would
12 hope that it's not novel.
13 Q. This next sentence says: This
14 assumes that the floodplain and river bed
15 have maintained the same basic profile over
16 the past thirty-five years. Did I read that
17 correctly, sir?
18 A. Yes.
19 Q. Is that a valid assumption to make,
20 and is it then an assumption that you and
21 other professionals in your area would do?
22 A. I think it's a valid assumption,
23 especially based on what I observed during
24 that thirty year period in the photography.
25 Q. The next sentence is, quote, I used

1 the deepest point of the river bed because it
2 is my understanding that during high flow
3 events, paren, floods, end paren, the channel
4 is scoured out, thus temporarily deepened by
5 the rapidly moving water. Did I read that
6 correctly?
7 A. Yes.
8 Q. Where did you get that understanding?
9 A. That's basic geology and fluvial
10 geomorphology.
11 Q. Have you ever looked at any studies
12 of the Illinois River about sedimentation or
13 this notion that the channel is scoured out
14 specifically to the Illinois River Watershed?
15 A. I don't recall seeing anything like
16 that, no.
17 Q. Let's see where else we're at here.
18 Later on in the report here, this next
19 paragraph, is that -- Just to sum it up, is
20 that the amount of sediments that have been
21 deposited at Echota Bend or have been cut
22 away by Echota Bend?
23 A. Yes. From -- I do it from '58 to
24 '95, and I also do it from '72 to '95.
25 Q. I guess I should clarify. Where do

these sediments go?
A. They go downstream.
Q. Do we know how far?
A. I don't know.
Q. Okay.
A. Based on the particle size, smaller particles probably go further than the larger particles.
Q. Are you aware there are other -- Well, strike that. Other different types of sediments in different places in Illinois River, is it uniform throughout -- or is it uniform throughout the system?
A. I would certainly expect it would not be uniform.
Q. Do you know what those differences are?
A. No. That's not relevant to my study.
Q. Do you -- So could you name the different types of sediment or --
A. I haven't concerned myself with that. They're obviously not rocks. They're loose sediments, erodible sediments, although there are some rocks in the bed of the river, of course.

so on, so -- But other than that, probably not, no.

Q. Do you know or can you tell us the difference between sedimentation and nutrient transport?

A. From the photography?

Q. Yes.

A. No.

Q. Are you a fate and transport of nutrients expert, sir?

A. Not in this case, no.

Q. If there is nutrients, are you aware that nutrients can get bound up in soils?

A. Yeah.

Q. And that those can be released if they erode from the banks into the river?

A. Yes.

Q. Are you going to offer any testimony as to the mechanics of that erosion or how -- First of all, first question. Are you going to offer any testimony as to the mechanics of how the erosion actually occurs?

A. Not in detail like you're talking about other than I've already described how the meanders move and how the upper banks are