Transcript of the Testimony of

LUTHER FLOYD HOLLOWAY

February 17, 2021

LOUISIANA WETLANDS, LLC, ET AL v. ENERGEN RESOURCES CORP., ET AL



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	16TH JUDICIAL DISTRICT COURT	1	APPEARANCES:
	FOR THE PARISH OF ST. MARY	2	
	STATE OF LOUISIANA	3	ATTORNEYS REPRESENTING THE PLAINTIFF, LOUISIANA
		4	WETLANDS, LLC:
		5	
	LOUISIANA WETLANDS, DOCKET NO. 130527	6	JONES SWANSON HUDDELL & DASCHBACH
	LLC and NEW 90, LLC	7	601 Poydras Street, Suite 2655
	DIVISION "B"	8	New Orleans, Louisiana
	VERSUS	9	Phone: 504.523.2500 Fax: 504.523.2508
		10 11	(DV: Liter Armental Examples)
	ENERGEN RESOURCES CORPORATION, ET AL	12	(BY: John Arnold, Esquire) E-mail: jarnold@jonesswanson.com
	CORFORATION, ET AL	13	(BY: Kevin Huddell, Esquire)
		14	E-mail: khuddell@jonesswanson.com
	VIDEOTAPED AND VIDEOCONFERENCE DEPOSITION	15	
	OF LUTHER FLOYD HOLLOWAY, PhD, taken via Zoom, in	16	ATTORNEYS REPRESENTING THE DEFENDANT, SOUTHERN
	the above-entitled cause on the 17th of	17	NATURAL GAS:
	February, 2021 commencing at 10:08 a.m.	18	
		19	KEAN MILLER, L.L.P.
		20	400 Convention Street, Suite 700
	REPORTED BY:CHÉRIE E. WHITE	21	Baton Rouge, Louisiana 70802
	CCR (LA), CSR (TX), CSR (MS), RPR	22	Phone: 225.389.3770 Fax: 225.388.9133
	CERTIFIED COURT REPORTER	23	
		24 25	(BY: Richard D. McConnell, Esquire)
		2.5	E-mail: richard.mcconnell@keanmiller.com
	Page 3		Page 4
1 2	APPEARANCES CONTINUED:	1 2	APPEARANCES CONTINUED:
3	ATTORNEYS FOR THE DEFENDANT, CHEVRON U.S.A.,	3	ATTORNEYS REPRESENTING THE DEFENDANT, ENERGEN
4	INCORPORATED:	4	RESOURCES CORPORATION:
4 5	INCORPORATED:		
	INCORPORATED: KING & SPALDING	4	
5		4 5	RESOURCES CORPORATION: CARVER DARDEN Energy Centre
5 6 7 8	KING & SPALDING 1100 Louisiana, Suite 4100 Houston, Texas 77002	4 5 6 7 8	RESOURCES CORPORATION: CARVER DARDEN Energy Centre 1100 Poydras Street, Suite 3100
5 6 7 8 9	KING & SPALDING 1100 Louisiana, Suite 4100	4 5 6 7 8 9	RESOURCES CORPORATION: CARVER DARDEN Energy Centre 1100 Poydras Street, Suite 3100 New Orleans, Louisiana 70163
5 6 7 8 9 10	KING & SPALDING 1100 Louisiana, Suite 4100 Houston, Texas 77002 Phone: 713.276.7304	4 5 6 7 8 9 10	RESOURCES CORPORATION: CARVER DARDEN Energy Centre 1100 Poydras Street, Suite 3100 New Orleans, Louisiana 70163 Phone: 504.585.3821 Fax: 504.585.3801
5 6 7 8 9 10 11	KING & SPALDING 1100 Louisiana, Suite 4100 Houston, Texas 77002 Phone: 713.276.7304 (BY: Elizabeth Taber, Esquire)	4 5 6 7 8 9 10 11	RESOURCES CORPORATION: CARVER DARDEN Energy Centre 1100 Poydras Street, Suite 3100 New Orleans, Louisiana 70163 Phone: 504.585.3821 Fax: 504.585.3801 (BY: David Landry, Esquire)
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5 6 7 8 9 10 11 12 13 14 15 16 17 18	KING & SPALDING 1100 Louisiana, Suite 4100 Houston, Texas 77002 Phone: 713.276.7304 (BY: Elizabeth Taber, Esquire) E-mail: etaber@kslaw.com ATTORNEYS REPRESENTING THE DEFENDANT, BP AMERICA PRODUCTION COMPANY: LISKOW & LEWIS	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	RESOURCES CORPORATION: CARVER DARDEN Energy Centre 1100 Poydras Street, Suite 3100 New Orleans, Louisiana 70163 Phone: 504.585.3821 Fax: 504.585.3801 (BY: David Landry, Esquire) E-mail: dlandry@carverdarden.com ATTORNEYS REPRESENTING THE DEFENDANT, BRAMMER ENGINEERING: KEAN MILLER, LLP 909 Poydras Street, Suite 3600 New Orleans, Louisiana 70112 Phone: 504.620.3189 Fax: 504.585.3051
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	Page 5	Page 6
1	EXAMINATION INDEX	1 STIPULATION 2
2 3	BY: PAGE	 IT IS HEREBY STIPULATED AND AGREED by and between counsel for the parties hereto that the
4 5 6	Mr. Arnold 8	 deposition of the aforementioned witness is hereby being taken under the Louisiana Code of
6 7 0	EXHIBITS	 Civil Procedure, Article 1421, et seq., for all purposes, in accordance with law;
8 9 10	NO. DESCRIPTION PAGE	 9 That the formalities of reading and signing 10 are specifically NOT waived;
10 11 12	Exhibit 15 Expert Report and Vegetation 58 Root Study, Appendix A,	 11 That the formalities of sealing, 12 certification and filing are specifically waived;
13 14	Figures Exhibit 16 Expert Report and Vegetation 77	13That all objections, save those as to form14of the question and the responsiveness of the
15 16	Root Study, Appendix B, Photographs	 answer, are hereby reserved until such time as this deposition, or any part thereof, may be used
17 18	Exhibit 18 List of Reliance Documents27Exhibit 20 Study, Growth and Function87	17 or sought to be used in evidence.
19 20	of the Sugar Cane Root System	19 * * * * 20
21 22	System	 CHÉRIE E. WHITE, Certified Court Reporter, in and for the Parish of St. Mary, State of
23 24 25		 23 Louisiana, officiated in administering the oath. 24 25
	Page 7	Page 8
1	THE VIDEOGRAPHER:	1 THE VIDEOGRAPHER:
2 3	This is the videotaped deposition of Dr. Luther Holloway. This deposition is	2 Would the court reporter please 3 swear in the witness?
4	being held via video Zoom on	4 THE REPORTER:
5	February 17th, 2021, at the time indicated	5 Please raise your right hand.
6	on the video screen, which is 10:08 a.m.	6 LUTHER FLOYD HOLLOWAY, PhD,
7	Would counsel please introduce	7 after having first been duly sworn by the
8	themselves?	8 above-mentioned court reporter, did testify as
9	MR. ARNOLD:	9 follows:
10	John Arnold on behalf of the	10 EXAMINATION BY MR. ARNOLD:
11	plaintiff.	11 Q. Good morning, Dr. Holloway. My name
12 13	MS. TABER: Elizabeth Taber on behalf of	12 is John Arnold. I represent the plaintiffs in 13 this matter. Can you please state your full name
14	Chevron.	13 this matter. Can you please state your full name14 for the record?
15	MR. LANDRY:	15 A. Luther Floyd Holloway.
16	David Landry on behalf of Energen	16 Q. And what is your current address?
17	Resources Corporation.	17 A. 9269 Highway 124, Harrisonburg,
18	MR. TROUTŴAN:	18 Louisiana 71340.
19	John Troutman on behalf of BP.	19 Q. And you've given several depositions
20	MR. MCCONNELL:	20 before; is that right?
21	Richard McConnell on behalf of	21 A. Many, many.
22	Southern Natural Gas Company.	22 Q. Okay. Well, I won't belabor all
23 24	MR. STANTON: Daniel Stanton on behalf of Prommer	23 the you know, all the ground rules. I think
24 25	Daniel Stanton on behalf of Brammer Engineering.	 24 you are probably familiar with all those. That's 25 how the how the deposition will proceed, but



Page 9

Idye J		Idye IV
if at any time you need a break, please let me	1	I'm sorry.
know. And and if I begin to talk over you or	2	BY MR. ARNOLD:
you talk over me, I apologize. It's just that's	3	Q. Okay. Can you just briefly take me
not my intent. It's just technology. It looks	4	back through your your educational history,
like there may be a delay in in dealing with	5	please, sir?
documents, so we will we will get through this	6	A. Yes. I have I got a bachelor's
the best we can together.	7	degree in water lithology, master's degree in
Can you tell me who you are here	8	in fisheries biology with an emphasis in
today on behalf of?	9	estuarine ecology; and for my PhD, I went into
A. I may not know all the players, but	10	agriculture and I have a PhD in plant pathology.
the attorneys that were just introduced here.	11	Q. And you got your BS from LSU; is
I'm I'm working for Chevron, I know, and, of	12	that right?
course, billing for BP, SNG. I don't know, maybe	13	A. Louisiana Tech.
a week of people as far as I know. There's a lot	14	Q. Louisiana Tech. And what year did
of people involved in this case.	15	you graduate with your BS?
Q. Okay. So as far as you know, you	16	A. '66.
represent	17	Q. And your your master's, where did
A. There may be more. I can't remember	18	you get that degree from and what year did you
everybody.	19	graduate?
THE VIDEOGRAPHER:	20	A. LSU, '69.
His video is frozen, but his audio	21	Q. And same question for your PhD?
is coming through.	22	A. LSU, '71.
THE WITNESS:	23	Q. And what has can you can you
Oh. Oh, and that's right. Energen,	24	walk me through your work experience, let's say,
I'm sorry, yeah. Yes, Energen. I'm	25	after you got your PhD in '71?
Page 11		Page 12
A. PhD, I I got my PhD, I did some	1	I also worked on numerous projects
post doctoral research at LSU. It was under the	2	on various civil works projects with the Army
entomology department. They had an area that I	3	Corps of Engineers in the Louisiana marsh
worked on for for a semester. And from that	4	systems, also in areas in central Louisiana where
time, I went on to the U.S. Army Corps of	5	the New Orleans District extended to. This
Engineers in New Orleans as an environmental	6	involved the the various impacts that would be
resources specialist working on civil works	7	associated with it such as development of
	 if at any time you need a break, please let me know. And and if I begin to talk over you or you talk over me, I apologize. It's just that's not my intent. It's just technology. It looks like there may be a delay in in dealing with documents, so we will we will get through this the best we can together. Can you tell me who you are here today on behalf of? A. I may not know all the players, but the attorneys that were just introduced here. I'm I'm working for Chevron, I know, and, of course, billing for BP, SNG. I don't know, maybe a week of people as far as I know. There's a lot of people involved in this case. Q. Okay. So as far as you know, you represent A. There may be more. I can't remember everybody. THE VIDEOGRAPHER: His video is frozen, but his audio is coming through. THE WITNESS: Oh. Oh, and that's right. Energen, I'm sorry, yeah. Yes, Energen. I'm Page 11 A. PhD, I I got my PhD, I did some post doctoral research at LSU. It was under the entomology department. They had an area that I worked on for for a semester. And from that time, I went on to the U.S. Army Corps of Engineers in New Orleans as an environmental	if at any time you need a break, please let me know. And and if I begin to talk over you or you talk over me, I apologize. It's just that's not my intent. It's just technology. It looks like there may be a delay in in dealing with documents, so we will we will get through this the best we can together. Can you tell me who you are here today on behalf of? A. I may not know all the players, but the attorneys that were just introduced here. I'm I'm working for Chevron, I know, and, of course, billing for BP, SNG. I don't know, maybe a week of people as far as I know. There's a lot of people involved in this case. Q. Okay. So as far as you know, you represent A. There may be more. I can't remember everybody. THE VIDEOGRAPHER: His video is frozen, but his audio is coming through. THE WITNESS: Oh. Oh, and that's right. Energen, I'm sorry, yeah. Yes, Energen. I'm Page 11 A. PhD, I I got my PhD, I did some post doctoral research at LSU. It was under the entomology department. They had an area that I worked on for for a semester. And from that time, I went on to the U.S. Army Corps of Engineers in New Orleans as an environmental 6

1	A. PhD, I I got my PhD, I did some	1	I also worked on numerous projects
2	post doctoral research at LSU. It was under the	2	on various civil works projects with the Army
3	entomology department. They had an area that I	3	Corps of Engineers in the Louisiana marsh
4	worked on for for a semester. And from that	4	systems, also in areas in central Louisiana where
5	time, I went on to the U.S. Army Corps of	5	the New Orleans District extended to. This
6	Engineers in New Orleans as an environmental	6	involved the the various impacts that would be
7	resources specialist working on civil works	7	associated with it such as development of
8	projects. That included anything that the Corps	8	harbors, dredge materials, stuff like that.
9	of Engineers was doing in terms of construction	9	From there, I went on on to the
10	of projects to impacts of those projects.	10	waterways experiment station where I worked there
11	I also worked on the Louisiana	11	for for four years associated with the dredge
12	offshore oil mono buoy system for the Gulf of	12	material research project. That work involved
13	Mexico that included areas from the from	13	mostly dredge material, dredge projects where
14	western Florida to western Texas. That involved	14	we I did ports all around the country from New
15	the offloading of oil tankers, the movement of	15	England all the way out to San Francisco Bay and
16	the oil to facilities onshore, pipeline routings,	16	over to Washington State. Did a lot of work in
17	the impacts of potential spills and other things	17	the Gulf area on dredge materials disposal, how
18	like that in association with that with that	18	you got rid of it and what you productive uses
19	project. That was the first project. I did the	19	could be, what the impacts were, those kinds of
20	Central Gulf Environmental Program for that where	20	things.
21	I looked at avenues of moving the oil from the	21	And then in in 1975, I was
22	mono buoy systems environmental impacts	22	detailed to the chief chief of engineers in
23	association associated, as I said, and and	23	in Washington, D.C. where the the Federal
24	other potential problems associated with	24	Water Pollution Control Act environmental
25	with with the mono buoy systems.	25	considerations related to permitting and other

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	Page 13		Page 14
1	activities. And then I worked going around the	1	that came through those areas, and I worked on
2	country as the as the technical representative	2	several of those in Florida, also the Ohio River,
3	for the for the U.S. Army Corps of Engineers	3	the Mississippi River, Ouachita River, Black
4	and the Environmental Protection Agency where I	4	River, Red River, Yazoo River, Canadian River in
5	was involved in presenting the program to the	5	Oklahoma, many of those areas.
6	general public all over the United States.	6	And then many other jobs that were
7	I also did a lot of work on	7	associated with the oil industry that I got
8	agronomic aspects on development of activities,	8	involved with back in the early '80s, and I did
9	other other things such as development of	9	the so-called legacy cases beginning at that time
10	wetlands. I also did a lot of work on the	10	in Oklahoma and Kansas. I worked on that in that
11		1	
12	wetlands program, ran the the technical	11 12	area probably about 20 something years before
	aspects of it. And then in 1976, let's see, '6,		these things ever became, shall I say, vogue
13	'76, '77 '77, I left the Army Corps of	13	in in Louisiana. They weren't known as legacy
14	Engineers and went into consulting. And I also	14	cases. They were just basically known as
15	opened a spray service where I did some work with	15	lawsuits, things that I've I've worked on in
16	pesticide applications; indoor, outdoor, crops	16	Louisiana where I worked on I've worked on
17	not crops, but various things associated with	17	numerous oil oilfields all over Louisiana
18	like pecan orchards and things like that.	18	all over all over Oklahoma, many in Texas,
19	And then I went well, then my	19	many in Louisiana.
20	one of the biggest projects I got involved with	20	Also, I've done a lot of pipeline
21	was the central Florida phosphate region where we	21	work for transmission spills and other things
22	looked at environmental aspects of the phosphate	22	like that in in those states, including
23	mining operations and their impacts, and I also	23	Mississippi. That's just a brief rundown of some
24	the primary concern was of the ordinary high	24	of the things I've done.
25	waterlines of the of the rivers and so forth	25	Q. How many legacy cases have you
	Page 15		Page 16
1		1	_
1 2	worked on over the years?	1	to get an get an idea, just a ballpark number.
	worked on over the years? A. I'd say at least including	1	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided
2	worked on over the years? A. I'd say at least including Mississippi, Oklahoma, Kansas, Louisiana, between	2	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided expert witness testimony in any of those legacy
2 3 4	worked on over the years?A. I'd say at least includingMississippi, Oklahoma, Kansas, Louisiana, between3 and 500, I imagine.	2 3 4	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided expert witness testimony in any of those legacy cases in Louisiana for a private landowner?
2 3 4 5	 worked on over the years? A. I'd say at least including Mississippi, Oklahoma, Kansas, Louisiana, between 3 and 500, I imagine. Q. I'm sorry. You said between 3 and 	2 3 4 5	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided expert witness testimony in any of those legacy cases in Louisiana for a private landowner? A. Yes. I did some work one of my
2 3 4 5 6	 worked on over the years? A. I'd say at least including Mississippi, Oklahoma, Kansas, Louisiana, between 3 and 500, I imagine. Q. I'm sorry. You said between 3 and 500? 	2 3 4 5 6	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided expert witness testimony in any of those legacy cases in Louisiana for a private landowner? A. Yes. I did some work one of my father's old friends was Chester Floyd. I worked
2 3 4 5 6 7	 worked on over the years? A. I'd say at least including Mississispi, Oklahoma, Kansas, Louisiana, between 3 and 500, I imagine. Q. I'm sorry. You said between 3 and 500? A. Yes. 	2 3 4 5 6 7	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided expert witness testimony in any of those legacy cases in Louisiana for a private landowner? A. Yes. I did some work one of my father's old friends was Chester Floyd. I worked on some some stuff for him related to a farm
2 3 4 5 6 7 8	 worked on over the years? A. I'd say at least including Mississispipi, Oklahoma, Kansas, Louisiana, between 3 and 500, I imagine. Q. I'm sorry. You said between 3 and 500? A. Yes. Q. How many of those have been in 	2 3 4 5 6 7 8	to get an get an idea, just a ballpark number. Have you ever worked on have you ever provided expert witness testimony in any of those legacy cases in Louisiana for a private landowner? A. Yes. I did some work one of my father's old friends was Chester Floyd. I worked on some some stuff for him related to a farm he had in Concordia Parish. Basically, it was
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	Page 17		Dago 19
	Page 17	-	Page 18
1	Louisiana and I've probably worked for them.	1	a percentage, what what would you say?
2	Q. Okay.	2	A. Oh, 90 percent.
3	A. Numerous, numerous ones.	3	Q. Okay.
4	Q. How many cases are you currently	4	A. Or more.
5	working on?	5	Q. In what areas of expertise have you
6	A. I I don't know. I'd have to go	6	been qualified as an expert?
7	to my books and look. I'm I would think	7	A. What areas of expertise?
8	probably 75 maybe, something like that, including	8	Q. Yes, sir.
9	the coastal cases. They make up about 26 or 28	9	A. In several several areas I've
10	of them, something like that.	10	worked in most of my work involves the an
11	Q. What is the percent of your	11	integral relationship between plants and soils.
12	litigation work? I'm sorry.	12	This would be botanical and agronomic-type
13	Let me try that again. How how	13	situations. I also do some agricultural work. I
14	much of your work is composed of providing expert	14	own several farms and intimately involved with my
15	witness testimony in litigation?	15	own farming operations, and many times when I'm
16	A. Well, I don't just provide testimony	16	looking at work in the oilfields, I'll look at
17	in litigation. I I do a lot of work in doing	17	the agricultural operations also.
18	reviews of oilfields, root studies, etc. in	18	Also, I've worked on ordinary high
19	addition to that I that I use to present	19	waterline determinations or navigation servitude
20	reports to my clients. Most of most of my	20	all over the over the country, over many, many
21	work these days is in the so-called legacy field.	21	parts of the country; also, impacts to
22	Periodically, I'll do something for, you know,	22	vegetation, impacts to soils. Those are some of
23	some small project for someone, but I work mostly	23	the the more more important things that
24	for the oil companies.	24	I've worked on.
25	Q. So if you had to break that down to	25	I've also done a lot of work on
	Page 19		Page 20
1	wetlands, wetland delineations. As a matter of	1	A. Can you-all hear me?
2	fact, I gave the first presentation to the United	2	THE VIDEOGRAPHER:
3	States on wetland delineations for the chief of	1 2	$\mathbf{D}_{1} = (1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1$
4		3	Do you think if we asked him to dial
4	engineers for the United States. So those are	4	in and then use that for his audio and
4 5	just some of the things, and I also and much	4 5	
		4	in and then use that for his audio and
5	just some of the things, and I also and much	4 5	in and then use that for his audio and then just left the video on? We may get a
5 6	just some of the things, and I also and much of that has been in litigation.	4 5 6	in and then use that for his audio and then just left the video on? We may get a better audio recording and we may get a video if both are not running through the iPad.
5 6 7	just some of the things, and I also and much of that has been in litigation. Q. Okay. Well, let me see if I can	4 5 6 7	in and then use that for his audio and then just left the video on? We may get a better audio recording and we may get a video if both are not running through the
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Pages 17 to 20



	Page 21		Page 22
1	Holloway Environmental Services, and it's a	1	practices that occurred on these sites, and any
2	one-man show, myself.	2	impacts to those crops or for naturally-occurring
3	Q. Okay. And that's been around	3	habitats around those areas, including bottomland
4	you've started that back in the after you left	4	hardwoods, uplands, marsh areas, marsh and
5	the Corps, correct?	5	estuarine systems, those kinds of things. That's
6	A. Well, yes.	6	the primary those are the primary areas that
7	Q. Back in the late '70s?	7	I that I work on in relationship to these
8	A. About I think '76 I think is when	8	so-called legacy cases, and that's basically what
9	it was incorporated.	9	I'll be talking about today.
10	Q. Okay. And we were going through	10	Q. Are you a hydrogeologist?
11	some of your areas of expertise. What what	11	A. Now, there have been other areas
12	areas what what do you hold yourself out to	12	that I've been qualified in, but I but they
13	be? What kind of expert do you hold yourself out	13	don't they are not germane to this issue.
14	to be? That's	14	This is these are the things I'll be talking
15	A. As I told you	15	about.
16	Q. That's a terrible question, so let	16	Q. Are you a hydrogeologist?
17	me see if I can rephrase that. In what in	17	A. No.
18	what areas of expertise do you anticipate	18	Q. Are you a geologist?
19	testifying in this matter?	19	A. No.
20	A. Primarily, on this on this work	20	Q. Are you a forester, an expert in
21	I'm doing here will be in association with the	21	forestry?
22	basic impacts on of oilfields, primarily on	22	A. No, other than just managing my own
23	vegetation and soils and the interactions of	23	forest and doing a lot of work in forestry. I've
24	of of the two. I also look at various things	24	had many forest large forest companies that
25	such as crops that are on the sites, agronomic	25	have been my clients where I've looked at
	such as crops that are on the stees, agronomic		
	Page 23		Page 24
	_		Tage 24
1	forestry practices and so forth associated to	1	
1 2	forestry practices and so forth associated to impacts on various things in the logging	1 2	expert in 29-B? A. Well, I've I've done a lot of
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Pages 21 to 24



	Page 25		Page 26
1	many, many trials, just various various areas.	1	I'm not a sugar cane expert per se,
2	And take a look at my report and my résumé, and	2	but I know a lot about sugar cane growth
3	that can give you an idea of some of the stuff	3	and roots and and harvesting practices
	I've worked on.		
4		4	and and things like that. But no, I'm
5	Q. Well, yes, sir. I'm just really	5	not I'm not just a direct sugar cane
6	trying to get an understanding of what what	6	expert, but I know a lot about sugar cane
7	you are qualified to testify about, what your	7	roots; and that's what I'll be talking
8	areas of expertise are, and what you anticipate	8	about in this particular case, and the
9	to be in what areas you anticipate to be	9	growth of the plants and the impacts of
10	qualified as in this matter.	10	of sugar cane related to salting factors
11	A. I okay. I I intend to be	11	such as areas such as sodium buildup in
12	qualified in the area of agronomic practices,	12	the soils, electrical conductivities,
13	plants, agricultural activities and various types	13	profiles of the plants, how they look when
14	of cropping regimes; also in the effective root	14	they are being impacted by these factors
15	zone of plants, including crops and other type	15	in the soil. Yes, I I I'm I've
16	areas such as bottomland hardwoods. I've done in	16	had a lot of experience in that area, and
17	excess of 30 studies on those, so I've probably	17	I will be and I have been have, you
18	done more than probably anybody that I know of in	18	know, done a lot of studies on them.
19	those areas; and I often am qualified for those	19	BY MR. ARNOLD:
20	areas when I testify in court or at a hearing.	20	Q. Okay. What what I'd like to do,
21	Q. Have you ever been qualified as an	21	if we can is turn to what I've identified as
22	expert in sugar cane?	22	Tab 18 in the materials that we sent around this
23	MS. TABER:	23	morning. And, Dr. Holloway, this is this is
24	Objection, form.	24	really, you know, the first page of your reliance
25	THE WITNESS:	25	materials. Do you have access to that document?
	Page 27		Page 28
1	Page 27 A. Idon't know. I I Idon't	1	Page 28 A. Okay.
1 2	-	1 2	
	A. I don't know. I I I don't think I pulled it out this morning. Let's see.	1	A. Okay.
2	A. I don't know. I I I don't think I pulled it out this morning. Let's see. Hold on just a second. I don't have my file out	2	A. Okay.Q Enclosure 4, and I don't want to
2 3	A. I don't know. I I I don't think I pulled it out this morning. Let's see. Hold on just a second. I don't have my file out of that. Let well, here. Good. Let me look	2 3	 A. Okay. Q Enclosure 4, and I don't want to spend a lot of time time on these invoices. I just want to walk through them quickly. So it
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Pages 25 to 28

	Page 29		Page 30
1	next week's hearing; is that right?	1	redaction that you-all did in the
2	A. Yes. I'll have some billings on	2	invoices?
3	that. I've already done some and I'll continue	3	MS. TABER:
4		4	
	to do some more up until the the hearing and,		I'm I'm going to look into that,
5	of course, testifying at the hearing.	5	John, and I will I will get back with
6	MR. ARNOLD:	6	you on that.
7	Bill, if we can go to the page Bates	7	MR. ARNOLD:
8	labeled 26. This is the October 2020	8	Yeah. If you if you could just
9	invoice. If you scroll down to the	9	tell me the nature of that, that would be
10	bottom, it looks like a portion of that	10	great.
11	invoice has been redacted.	11	MS. TABER:
12	THE VIDEOGRAPHER:	12	Sure.
13	(Complied.)	13	MR. ARNOLD:
14	BY MR. ARNOLD:	14	Okay. Let's go let's go to the
15	Q. Dr. Holloway, did you do that	15	next enclosure here in this exhibit. It's
16	redaction or is that something your attorneys	16	Enclosure 5. It's on page Bates labeled
17	did?	17	28, and it's called Cases Worked on in the
18	A. I don't know what you're talking	18	Last 5 Years, 5 Plus Years. And I'm going
19	about, redacted.	19	to I'd like to do this as efficiently
20	Q. That big black box there, do you see	20	as possible and and I don't want to
21	that big black box at the bottom of the page?	21	you know, I'd like to go through each one
22	A. Oh, that's probably that's	22	of these cases, but I you know, I don't
23	probably my tax number taken out.	23	want this to take all day.
24	MR. ARNOLD:	24	THE VIDEOGRAPHER:
25		25	
2.5	Okay. Elizabeth, is that some	25	(Complied.)
	Page 31		Page 32
1		1	
1	BY MR. ARNOLD:	1	with that right now.
2	BY MR. ARNOLD: Q. So what I'm really interested in,	2	with that right now. Q. Let's just do the best we can. That
2 3	BY MR. ARNOLD: Q. So what I'm really interested in, Dr. Holloway, is if you could tell me you have	2 3	with that right now. Q. Let's just do the best we can. That would be fine.
2 3 4	BY MR. ARNOLD: Q. So what I'm really interested in, Dr. Holloway, is if you could tell me you have the parish identified with each one of these	2 3 4	with that right now. Q. Let's just do the best we can. That would be fine. A. Okay. That's that's what I'll
2 3 4 5	BY MR. ARNOLD: Q. So what I'm really interested in, Dr. Holloway, is if you could tell me you have the parish identified with each one of these entries. If you could tell me the habitat type	2 3 4 5	with that right now. Q. Let's just do the best we can. That would be fine. A. Okay. That's that's what I'll do.
2 3 4 5 6	BY MR. ARNOLD: Q. So what I'm really interested in, Dr. Holloway, is if you could tell me you have the parish identified with each one of these entries. If you could tell me the habitat type that you did there, the habitat type that was	2 3 4 5 6	 with that right now. Q. Let's just do the best we can. That would be fine. A. Okay. That's that's what I'll do. Q. So let's if you can just start
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	Page 33		Page 34
1	green ash, hackberry. Let's see	1	wrote wrote a report on it, but I know I
2	Q. Dr. Holloway, let let me	2	looked at the vegetation.
3	interrupt you here for a minute, if I can. I	3	Clyde Tucker did not involve a root
4	think maybe there's there's a better way to	4	investigation, but I looked at a lot of pits and
5	to go through these. I've counted all these	5	worked on pit closure there.
6	cases up and it comes out to be about 42 cases.	6	Clyde Reese was down in Vermilion
7	Does that sound about right to you?	7	Parish. I did a I did a this is an area
8	A. Oh, that's about right, but this is	8	that had grown up, and since you wanting to know
9	just part of them. That's not all of them.	9	the the habitat type there, it was oilfield
10	Q. Right. So this is in in the last	10	succession in that site, and I did several shrub
11	five or so years, you have these 42 cases listed.	11	types and some trees for that particular one, the
12	Have you in how many of these cases did you do	12	old hardwood.
13	a rooting depth study?	13	Tillman, I didn't do a study there,
14	A. Okay. Agri-South; Mayeaux; the	14	a root study. That's in Concordia Parish over
15	Bunch property, I did I did one there. I	15	there between Lake St. John and the main line of
16	did did the soil profile and so forth on it.	16	the Mississippi River levee along the
17	Catahoula Lakes Investments (sic),	17	Mississippi. Much of that work involved
18 19	that involved a an upland-type area, mixed	18 19	bottomland hardwood areas mixed with agriculture
20	hardwood and so forth right along the the hill	20	areas that had either been planted to like water
20	profile that comes down on the west side of Catahoula Lake.	21	wheat, things like that in that general area. But much of this area for Dr. Tillman had been
22	C.C.M.P., LLC v. Chevron Holdings	22	put into it was either CRP or WRP, a program,
23	(sic), I can't remember exactly what all I did on	23	and that was to grow hardwood vegetation and
24	that. I think it was a it was a mixture of	24	that's what that was part of it.
25	hardwoods and I don't remember if I actually	25	David Curry, that was over in
	5		
	Page 35		Page 36
1	Cameron Parish. This was in an area where we had	1	I also did some areas out in Bayou
2	Cameron Parish. This was in an area where we had a mixed area of some brackish-type marsh in part	2	I also did some areas out in Bayou Corne where we looked at the areas out there
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Cameron Parish. This was in an area where we had a mixed area of some brackish-type marsh in part of the area, pasturelands in part of the area, areas that had been pastureland that had grown up into woody-type situations. I did root studies in it. East Bayside, that was in Iberia Parish. There it was only all hardwood vegetation, the root studies for that. The Lefebvre property over in west Baton Rouge was hardwood vegetation, did a did a wood study there. Allain, this was over in the Atchafalaya Basin, did a root study on it. The Labarre property, which is the old salt dome cave-in there in Assumption Parish, I worked on it in several ways, I guess you could say areas, looking at the vegetation impacts on the vegetation at the site. I also I guess you could say I kind of put on my actually put on my fisheries hat and did some looked at the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	I also did some areas out in Bayou Corne where we looked at the areas out there associated with the the fisheries the fisheries habitat, so to speak, and also the fisheries in that area with various ways of of capturing those, looking at them, looking at the health of them and so forth. Harold J. Guidry. Okay. Yeah. That was the old Anse La Butte Field right outside of Breaux Bridge. I did a root study there in that one, looking at primarily at that was in that particular case, it was oilfield succession. The oilfield succession was primarily Chinese tallow trees or chicken trees, as they are called in in south Louisiana. I looked at the depths of the roots and so forth of that particular area. The Heloise was an area down in Lafourche Parish. I'm trying to think of the actual town it's close to. It was on the east side of Bayou Lafourche. This was pastureland,

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1	MR. ARNOLD:	1	hardwood. That was over in Avoyelles
2	Next page, please, Bill.	2	Parish right outside of the town of
3	THE VIDEOGRAPHER:	3	Bunkie. I did some some work on that,
4	(Complied.)	4	but I never did write a report on it.
5	THE WITNESS:	5	The Dupont case in Iberia Parish,
6	Okay. Hero Lands, that's in	6	which is next, I did a root study and
7	Plaquemines Parish. That was just a	7	bottomland hardwoods in that portion of
8	recent case that I worked on. I did a	8	that area that was involved properties
9	study there in an old oilfield area. Much	9	in in an old oilfield.
10	of the much of the area was oilfield	10	The Dupont, et al, v. Mobil, that
11	succession back from the time that when it	11	was in also in Iberville Parish on the
12	was used as cattle pasture with some	12	north end of Bayou Blue. That was in
13	limited agronomic practices in the	13	
14	northeast northwest corner of that	14	primarily a very wet-type area with old
14	site. I did a root study on on both	15	cypress trees and also some bottomland
15 16	•	16	hardwood sites. I did a root study in that one.
	bottomland hardwood species and herbaceous	17	
17 18	species on that in that case. The Devillier case was in St. Landry	18	The Justin Dale Tureau, I looked
		1	at at those areas there and that were
19	Parish. I did a study there of the	19	involved. There was some fish ponds
20	rooting depths of hardwood vegetation in	20	involved in that. I looked at those. I
21	that area and also studied the root depths	21	also looked at the vegetation that was
22	of sugar cane at that particular site,	22	growing there, but I did not do a root
23	because there was a large field of sugar	23	study there.
24	cane at at that site.	24	The Marchive case was in Avoyelles
25	The Guilbeau site was bottomland	25	Parish right outside of the the town of
	Page 39		Page 40
-		_	
1	Bunkie. That that case involved two		impacts of the of the spill on
2	types of habitats: One was one was a	2	agricultural activities in in that
3	crawfish pond. I looked at the crawfish	3	at that surrounding that site. Those
4	pond, I looked at the crawfish operation,	4	related to, of course, how much damage it
5 6	also the the techniques that they were	56	did to the crops and etc.
7	using at that particular site, potentially	7	BY MR. ARNOLD:
	impacts to the crawfish pond. Also,		Q. Did you do a root zone study
8 9	bottomland hardwoods, I looked at the	8	A. Louisiana Wetlands
	bottomland hardwoods and the impacts,	10	Q in that case?
10 11	potential impact for that site. I also looked at agronomic practices on the site	11	A. What?Q. Did you do a root zone study in that
12	primarily with soybeans. I looked at the	12	Q. Did you do a root zone study in that case?
13	condition of the crops, also for any kind	13	A. No. No, I did not. I did not.
14	of indicia related to oilfield activities,	14	Q. And I'm sorry to interrupt, but I
15	including petroleum hydrocarbons and	15	think you missed one up right above that, the
16		16	Louisiana Farm and Livestock Company?
17	primarily emphasized salting factors such as aspects of sodium and electrical	17	THE WITNESS:
18		18	Pull it back down. Let me see.
19	conductivity aspect. Louisiana Te Products Pipeline, that	19	THE VIDEOGRAPHER:
211		20	
20 21	involved a spill. Let's see. That was	20	(Complied.)
21	involved a spill. Let's see. That was a an old friend of mine used to be a	21	THE WITNESS:
21 22	involved a spill. Let's see. That was a an old friend of mine used to be a judge there. Darn. Red River Parish.	21 22	THE WITNESS: Yeah. I missed
21 22 23	involved a spill. Let's see. That was a an old friend of mine used to be a judge there. Darn. Red River Parish. Yeah, Red River Parish. That involved a	21 22 23	THE WITNESS: Yeah. I missed BY MR. ARNOLD:
21 22	involved a spill. Let's see. That was a an old friend of mine used to be a judge there. Darn. Red River Parish.	21 22	THE WITNESS: Yeah. I missed

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	Page 41		Page 42
1	Farm and Livestock, that was in Calcasieu Parish.	1	that had succeeded back into those areas, did a
2	It was over by the the ship channel and it	2	root zone study on that.
3	involved two types of habitats in that area. And	3	Martha Zoe Moore was over in
4	one I had worked on in I believe 1975 when I was	4	Richland Parish. This involved a saltwater
5	working for the Army Corps of Engineers, I was	5	spill; and in that particular case, I I did a
6	look I looked at ways of de-watering a large	6	root study in in pastureland and some areas
7	dredge material area there, and what I was trying	7	that had been I believe they put it in CRP,
8	to do there was to de-water that site to use it	8	and and then part of it was just woodlands in
9	either for for agronomic practices or	9	that area and also some, as I said, some wet
10	and and then one of the main things too was to	10	areas. And I I studied various herbaceous
11	get the water off because it was serving as	11	and, well, woody plants in that area, the root
12	excellent mosquito breeding habitat. I looked at	12	zones of those areas.
13	that area, but most of my work involved two	13	The Primeaux case, one of the
14	habitats: One was a marsh sort of brackish-type	14	Primeaux cases, I had several of them, I think.
15	marsh system that I worked on, and also hardwood	15	All of these Primeaux cases were they involved
16	timber in the surrounding area. I did root	16	hardwood timber and some marsh-type situations
17	studies in both those those community types	17	that had developed on some of them, and these
18	for that particular area. And, of course,	18 19	were all root zone studies that I conducted. MR. ARNOLD:
19 20	Louisiana Wetlands you know about. The Shaffer case, that was in	20	
20	Terrebonne Parish. It was over by Little	20	Next page, please. THE VIDEOGRAPHER:
22	Caillou, I believe, and that involved an area	22	(Complied.)
23	that had basically grown up to wooded timber and	23	THE WITNESS:
24	mostly hardwoods. I did some work on that. I	24	Are those through? Okay. This
25	also looked at some of the herbaceous vegetation	25	Matthew Willis, this was over in
	Page 43		Page 44
1	St. Martin Parish; and in that particular	1	that. You know basically what I did
2	case, that was a that was a sugar cane	2	there.
2 3	case, that was a that was a sugar cane case and they had some sugar cane growing	2 3	there. BY MR. ARNOLD:
2 3 4	case, that was a that was a sugar cane case and they had some sugar cane growing on on part of it; and also, part of it	2 3 4	there. BY MR. ARNOLD: Q. You did a root zone root zone
2 3 4 5	case, that was a that was a sugar cane case and they had some sugar cane growing on on part of it; and also, part of it was growing in soybeans and I looked at	2 3 4 5	there. BY MR. ARNOLD: Q. You did a root zone root zone study in that case, correct?
2 3 4 5 6	case, that was a that was a sugar cane case and they had some sugar cane growing on on part of it; and also, part of it was growing in soybeans and I looked at the impacts on those areas and also did	2 3 4 5 6	there. BY MR. ARNOLD: Q. You did a root zone root zone study in that case, correct? A. Yes. Yes, yes. You I I think
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Pages 41 to 44



	Page 45		Page 46
1	you call an underfit stream.	1	operations in that site and the impacts on the
2	An underfit stream is like when you	2	rice. I looked at the rice flooding operations,
3	have a very large stream that is has been	3	I looked at the levelling, the elevations of
4	abandoned by movement of the of the stream	4	the of the the berms and so forth, various
5	itself through meander processes or whatever, and	5	things associated with the impacts for that site.
6	then the the the Red River came back in and	6	I did not conduct I looked at the root zone.
7	occupied that site, that that area and it's a	7	I'm not actually sure I produced a report on it.
8	smaller stream, so it's called an underfit	8	Ritchie Grocer Company, again, this
9	stream. And then you have your depositional	9	was this was outside the just right out
10	gradients that occurred in that area.	10	out from Bunkie, Louisiana in Avoyelles Parish.
11	Much of the area that I looked at,	11	I conducted a root zone study there. The habitat
12	the sugar cane that I looked at there was in	12	at that particular area was woodlands, bottomland
13	the off the old natural levee of the	13	hardwoods. I produced a report on that.
14	Mississippi down in the area that had been	14	Spanish Lake restoration, that's in
15	occupied by the Red River. And also, that	15	Spanish Lake just south of Baton Rouge. And in
16	that's where the sugar cane was growing. I also	16	that particular case, I was looking at some WRP
17	looked at the sugar cane, profiled the sugar cane	17	areas that had been planted. I was also looking
18	for impacts. I also worked closely with, let's	18	at natural areas there, including bottomland
19	just call them, the Pisani group in developing a	19	hardwoods and freshwater marshes that had
20 21	remediation for that site, and that's ongoing at this time.	20 21	developed in some of those areas. I did root
22	Russell Adam versus Cash Oil down in	21	studies on that, a root study on that. The next one, State of Louisiana,
23	Vermilion Parish, that was a a rice field that	23	Iberville Parish School Board. This was over in
24	I worked on and it had to do with some closure of	24	the Atchafalaya Basin. Oh, yes, just west of
25	the closure of the closure of the	25	of Plaquemines. I did this was a these
	Page 47		Page 48
1	Page 47 were these were all bottomland hardwoods.	1	Page 48 it, and I also looked at the the depths of
2	were these were all bottomland hardwoods. They had they actually had oh, yeah, it was	2	it, and I also looked at the the depths of the the rooting depths of the of the sugar
2 3	were these were all bottomland hardwoods. They had they actually had oh, yeah, it was flooded at that time and it was very difficult to	2 3	it, and I also looked at the the depths of the the rooting depths of the of the sugar cane at that site.
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Pages 45 to 48



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	Page 49		Page 50
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	site. The Atkins case was up in in Richland Parish just just just north of oh, gosh, my sister owns land right by it, but I can't remember. I'll think of it. Anyway anyway, this this involved it was an old oilfield. It was mostly just hardwood vegetation in that area with some areas that had where plants were moving in, woody plants were moving into herbaceous areas; and I did a root study on that particular area too. Q. What about the Steve Crooks versus Louisiana Pacific? I think you skipped that one. Did you do a root zone study in that case? It's about five up from the bottom. A. No. Which one now? Q. The Steve H. Crooks versus Louisiana Pacific. A. Oh, yeah. Steve Crooks, yeah. That that that was an area over where the no. I think I've already mentioned that	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	 small piece of property there that I worked on that that he owned. And I looked at the vegetation and so forth, but I don't think I I completed a an investigation on it. The Catahoula Lake Investment property case was one that I had that I did in the same it was positioned in the same way, and that's I did a I did a root study on it, but not Steve Crooks; but I I did I did review the operations, and that involved both pine pine tree forests that had just basically, it had just grown up. It was not a not a managed forest, but and also some hardwood in that area for that site. Q. So out of these 40 plus cases, it looks like you've done work in about 20 or so different parishes across the state; does that sound about right? A. Probably so. I don't I don't know. Whatever it amounts to. Q. Okay. So in the vast majority of
22	one, but anyway, I'll go over it again. That	22	these, let's say in about 30 approximately
23	was that was where the hills well, let's	23	35 cases of the cases you have listed here, you
24	call it the hill country of Louisiana comes right	24	did a root zone study. Would that be about
25	down to the bed of Catahoula Lake and there's a	25	right?
	Page 51		Page 52
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 A. Well, somewhere in that neighborhood. And I've also done a lot of work on my own property. I have several farms in this area and I do a lot of work on rooting the rooting depths and also looked at those areas for fragipan formations, stuff like that, so but I don't write reports on them. I just go out and take pictures and do data and look at soil profiles, but I would say probably maybe in the neighborhood of 35, 40. Q. Okay. And of those 35 or 40, it looks like you've had a handful where you did a root zone study of sugar cane, like maybe two or three different cases; is that about right? A. No. More than that. Let's see. Devillier, Two O'Clock Bayou, the Creadeur. The Creadeur case was not in listed in there, C-R-E-A-D-E-U-R case in Acadia Parish. I did work on crops there, including sugar cane and and soybeans. That was not that was not listed, or if it was listed, we skipped over it. Let's see. Where is some other areas? Of course of course, New 90 and, of course, 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 Q. Okay. A. And I've looked at a lot of I've looked at a lot of other areas. One of my my best friends owns a lot of land in Avoyelles Parish and around that area, and I've I've looked at the the root zone issue in in many locations. These are primarily on Arkansas, not Arkansas, Red River soils from the the abandoned Red River areas, just to kind of give me an idea of of what the root root depths are. And I've also looked at many other sites where I'd just go out and take a quick look at the sugar cane roots in nearby areas. You know, that that's all part of it. Q. So of the of the 35 to 40 cases that we have identified here in which you did a root zone study, have you in any of those studies, have you ever found rooting depths that extend below 24 inches? A. No. Q. And that would include also the sugar cane root studies that you evaluated in
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 A. Well, somewhere in that neighborhood. And I've also done a lot of work on my own property. I have several farms in this area and I do a lot of work on rooting the rooting depths and also looked at those areas for fragipan formations, stuff like that, so but I don't write reports on them. I just go out and take pictures and do data and look at soil profiles, but I would say probably maybe in the neighborhood of 35, 40. Q. Okay. And of those 35 or 40, it looks like you've had a handful where you did a root zone study of sugar cane, like maybe two or three different cases; is that about right? A. No. More than that. Let's see. Devillier, Two O'Clock Bayou, the Creadeur. The Creadeur case was not in listed in there, C-R-E-A-D-E-U-R case in Acadia Parish. I did work on crops there, including sugar cane and and soybeans. That was not that was not listed, or if it was listed, we skipped over it. Let's see. Where is some other areas? Of 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 Q. Okay. A. And I've looked at a lot of I've looked at a lot of other areas. One of my my best friends owns a lot of land in Avoyelles Parish and around that area, and I've I've looked at the the root zone issue in in many locations. These are primarily on Arkansas, not Arkansas, Red River soils from the the abandoned Red River areas, just to kind of give me an idea of of what the root root depths are. And I've also looked at many other sites where I'd just go out and take a quick look at the sugar cane roots in nearby areas. You know, that that's all part of it. Q. So of the of the 35 to 40 cases that we have identified here in which you did a root zone study, have you in any of those studies, have you ever found rooting depths that extend below 24 inches? A. No. Q. And that would include also the sugar cane root studies that you did, none of



	Page 53		Page 54
1	-		-
1	Q correct?	1	sugar cane or is that is that can the same
2	A. Whoa, whoa, whoa, back up. Root	2	be said for the other root zone studies that
3	studies on sugar cane, have you seen any below	3	you've done in in other habitat types?
4	24 inches, no, not not hold on any of	4	MS. TABER:
5	those particular areas. You might see a crack	5	Object to the form.
6	where you'll get something going down, you know,	6	THE WITNESS:
7	16, 18 inches, but that that makes a very	7	Well, I was I was just sticking
8	small percentage of the of the root population	8	to sugar cane because that's what
9	below that area. In general, you're going to see	9	that's basically what we looked at here.
10	for sugar cane roots in in Louisiana, all of	10	But no, I have I've seen some areas
11	those areas most of the roots are between 8 and	11	with in pine plantations where the tap
12	12 inches with occasionally you'll see some	12	roots do extend down to about 30 inches or
13	stringers down to 15 inches, and if you don't	13	so for an effective root zone. But most
14	have a fragipan at those sites, you might go to	14	of the hardwoods are going to be in the
15	15 inches with an effective root zone; but most	15	range of, you know, anywhere from 8 to 15,
16	of the roots occur within the 8- to 12-inch depth	16	18 inches with with with the vast
17	in Louisiana.	17	majority being within most of the root
18	All all of my investigations	18	zones around bottomland hardwoods occur
19	usually involve looking at depths down to	19	within the top 10 inches of soil.
20	24 inches and then extending on down to 5 feet or	20	BY MR. ARNOLD:
21	6 55, 60 inches and no roots extend in those	21	Q. Okay. We briefly mentioned the
22	depths, to those depths.	22	New 90 case earlier, and you and you said that
23	Q. Is that specific to	23	that case was still ongoing. Have you are you
24	A. Not any not any, zero.	24	aware that that case settled?
25	Q. And that's is that specific to	25	A. Oh, yes. I said I said that the
	Page 55		Page 56
1	Page 55 remediation was still going.	1	Page 56 that. He's handling more of those those
1 2		1 2	
	remediation was still going.		that. He's handling more of those those
2	remediation was still going. Q. Yes, sir. And so my question to you	2	that. He's handling more of those those things. I'm more along the line of just taking
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	Page 57	Page	58
1		-	
1 part of it. And that would h		1 vegetation. Also, asked I was asked to do	
2 east up on the natural levee	of the old	2 root root investigation that involved both th	
3 Mississippi.		³ sugar cane property, sugar cane fields, and al	
4 MR. ARNOLD:		4 the bottomland hardwoods to the southeast	
5 Okay. Do you wan		5 southwest, I'm sorry, on the property.	
6 or you want to keep goi	ing? I'm fine	6 MR. ARNOLD:	
7 either way.		7 What I'd like to do, Bill, if we can	
8 THE WITNESS:		8 pull up Tab 15, which I'll mark as	
9 It's sleeting like all		9 Exhibit 15.	
10 think, unless you-all ne	ed to, let's go. 1	10 (Exhibit 15 to be marked.)	
11 MR. ARNOLD:	1	11 THE VIDEOGRAPHER:	
12 Okay.	1	12 (Complied.)	
13 THE WITNESS:	1	13 BY MR. ARNOLD:	
14 Keep going.	1	14 Q. This is Appendix A to your report,	
15 BY MR. ARNOLD:	1	15 which is a series of figures; is that right?	
16 Q. Okay. Did you co	nduct a site visit? 1	16 MR. ARNOLD:	
17 Or let me ask you a differen		17 If we can go to the next page	
18 What what were		18 next page, Bill, and actually I really	
19 this case?		19 want to go to Figure A, dash, 7.	
20 A. I was asked to lool	k at the area and 2	20 THE VIDEOGRAPHER:	
21 see if there were any impact	t impacted areas, 2	21 (Complied.)	
22 look and see how the cane v		22 BY MR. ARNOLD:	
23 the the bottomland hardw		Q. Okay. Can you see that,	
24 areas of old oilfield activitie		24 Dr. Holloway?	
again, looking at the conditi	on of the 2	A. It says it's connecting, so it will	
	Page 59	Page	60
1 take a second While that's	-		60
1 take a second. While that's	while that's	1 can do to to get that back on and see	60
2 happening, let me let me	while that's	 can do to to get that back on and see if we can get you reconnected? 	60
 2 happening, let me let me 3 power to my 	while that's	 can do to to get that back on and see if we can get you reconnected? THE WITNESS: 	60
 2 happening, let me let me 3 power to my 4 MR. ARNOLD: 	while that's plug in some more	 can do to to get that back on and see if we can get you reconnected? THE WITNESS: All right. Sounds good. 	60
 2 happening, let me let me 3 power to my 4 MR. ARNOLD: 5 I think we lost his we 	while that's plug in some more	 can do to to get that back on and see if we can get you reconnected? THE WITNESS: All right. Sounds good. THE VIDEOGRAPHER: 	60
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Pages 57 to 60



	Page 61		Page 62
1	A. Yes.	1	site walking, you know, out into the field,
2	Q. Okay. If you could walk me through	2	looking at the at the impacted areas,
3	those individual site visits, when you took those	3	potential impacted potential impact to sugar
4	site visits, and what you did on those individual	4	cane. I also visited several locations down at
5	site visits, and then maybe we can get into the	5	the southwest corner of the site at old oilfield
6	particulars of where that happened with this	6	locations or pit locations and things like that.
7	figure?	7	And then I came back on January
8	A. Well, this this one here is	8	the I mean, I'm sorry June the 1st through
9	related, I guess, primarily to the root study	9	June the 5th of last year, and that's when I
10	observation locations. I don't know I	10	conducted this investigation on the the for
11	could in my report, I think I can tell you how	11	the root study. And these numbers on this figure
12	many times I've been at the site. I can't tell	12	represent S represents sugar cane, and these
13	you exactly what all I looked at each time, but I	13	are different locations across the field: S1,
14	can give you something in in a generality, in	14	S2, S3, S4, where I actually did the the
15	a general way for that sake. Hang on here a	15	soil looked at the soil profile from the
16	minute.	16	the, you know, soils perspective of different
17	Okay. On the August 30, 2018 site	17	soil types on the property, different communities
18	visit, we visited the sugar cane fields; and	18	of the sugar cane on the property, and then did
19	and primarily we were interested in looking at	19	the profiles, and then did the root observations
20	the oilfield E&P activities that went on in the	20	during that timeframe of of June 1 through 5.
21 22	sugar cane fields, as I recall, may have looked	21	I also went down to the southwest
22	at these areas back back down to the southwest a little bit.	22 23	corner and looked at several trees, four
23	Let's see. October the 1st, 2019, I	23	different species down there, that represented the general tree types that occurred in that
25	looked at I did another general review of the	24	area, and also did the did root study on them.
20	looked at I did another general review of the	2.5	area, and also did the did foot study on them.
	Page 63		Page 64
1	Page 63	1	Page 64
1	Q. Okay. The root zone studies that	1	MR. ARNOLD:
2	Q. Okay. The root zone studies that you did designated by these numbers here on	2	MR. ARNOLD: Bill, can you leave that up, if you
2 3	Q. Okay. The root zone studies that you did designated by these numbers here on Figure A-7, those were conducted at locations	2 3	MR. ARNOLD: Bill, can you leave that up, if you can. We will get to the tree root studies
2 3 4	Q. Okay. The root zone studies that you did designated by these numbers here on Figure A-7, those were conducted at locations outside the areas of alleged impact caused by oil	2 3 4	MR. ARNOLD: Bill, can you leave that up, if you can. We will get to the tree root studies later, but right now I'd really just like
2 3 4 5	Q. Okay. The root zone studies that you did designated by these numbers here on Figure A-7, those were conducted at locations outside the areas of alleged impact caused by oil and gas activities; is that right?	2 3 4 5	MR. ARNOLD: Bill, can you leave that up, if you can. We will get to the tree root studies later, but right now I'd really just like to focus on the sugar cane sugar can
2 3 4 5 6	 Q. Okay. The root zone studies that you did designated by these numbers here on Figure A-7, those were conducted at locations outside the areas of alleged impact caused by oil and gas activities; is that right? A. That's correct. You don't you 	2 3 4 5 6	MR. ARNOLD: Bill, can you leave that up, if you can. We will get to the tree root studies later, but right now I'd really just like to focus on the sugar cane sugar can surveys.
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	Page 65		Page 66
1	developing properly, the leaves not developing	1	just very, very minimal number of of roots
2	property properly, things like that. Then	2	where they are where there may be a plunk of
3	you if you are satisfied with that if I'm	3	roots here or a tiny rootlet here and there; and
4	satisfied that that's a good, healthy stand, then	4	then down to none. Those are the
5	I will dig down taking a sharp shooter and dig	5	characteristics, the classifications that's
6	down the profile just adjacent to the the	6	typical typically done in in an effective
7	the sugar cane itself in the row so that I can	7	root zone study of this type.
8	get a proper view of the roots and how they	8	Then I make a make these
9	how they come out from the plant looking both at	9	observations, I photograph these areas, I do what
10	larger roots, striker roots that may be coming	10	we call I check the soil and make sure that
11	down, small rootlets that would be considered to	11	they are that you're able to see the
12	be more associated with the uptake of water and	12	distribution of the roots; then I record the data
13	nutrients, and then look at and then look at	13	on a data sheet related to the location of that
14	that profile and then and then observe the	14	that stand of cane and then the of course,
15	roots and see if they are healthy. And from	15	the coordinates and and then sometimes I'll
16	there, I take a tape and then do a profile and	16	make other notes, like maybe a herbicide might
17	then describe those roots as I go down, whether	17	have been sprayed nearby or something like that.
18	they be very abundant, abundant, common. And	18	But usually, I stick to pretty much the the
19	that common means that they will basically be	19	plants themselves and the root and the root
20	distributed across the whole soil profile that I	20	profile and then my descriptions.
21	dig down to.	21	From there, I record the data. And
22	And I also then look at areas where	22	in this particular case, I went down 0 to
23	we have a sparse distribution, which would	23	24 inches with a very detailed profile, and from
24	probably be less than 3 percent, 3 3 percent	24	there to 24 inches down to in most cases maybe
25	or less; and then the very sparse, which would be	25	down to 60 inches, sometimes 55 or so, and then
	Page 67		Page 68
1	Page 67 took a a core, a soil core. I bored down and	1	
1 2		1 2	Page 68 Austria where he looked at the sugar cane root depth. Now, this is referenced in his report.
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2	took a a core, a soil core. I bored down and then I laid the core out and laid the soil out on plastic or sometimes I'll do it on a a sheet of plywood or something. And then I take	2	Austria where he looked at the sugar cane root depth. Now, this is referenced in his report.
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Page 6	9 Page 70
Page 6 1 Q. And so you you dug a pit down to 2 approximately 24 inches at each one of these 3 sites, correct? 4 A. That's correct. 5 Q. And then you you took an auger 6 and you extracted a soil core from 24 to 7 60 inches, approximately 60 inches it may var 8 from site to site below the bottom of the 9 of that pit; is that right? 10 A. That's correct. 11 Q. Okay. Well, why didn't you extend 12 the profile or the pit down further than 13 24 inches? 14 A. I I've done this on many 15 occasions. The as I as I told you, I found 16 nothing to extend down to 24 inches; but to give 17 Mr. Miller the benefit of the doubt, I I went 18 down to 5 feet just so I could make sure that 19 that I that I had all of the roots population 20 that was under those under the that cane at 21 those sites. I felt that this was a reasonable 22 depth; and when you run out of roots, obviously, 23 hev, you don't just keep digging a channel	 a very appropriate depth that I that I made, and when I when you run out of root, you run out of root, what you see is what you get; and so that's basically why I I conducted this research. Q. Yes, sir. I I understand. I'm not necessarily talking about the depth that you went to. I I guess I'm I'm my question is more related to that you really kind of used two different methodologies for the same site: One, you dug a pit; one, you did a did a core sample. And I guess my question is really is why did you use those two different methodologies? Why didn't you stick with one or the other? A. You know MS. TABER: Object to the form. THE WITNESS: No, no, no. You didn't you didn't understand what I I said. I said that I dug the pit down and then did
24 because they are not coming back up from the	sugar cane at that particular location.
25 other side of the earth. So I I think it was	25 At that same location, if you look at my
Page 7	
1report, you'll see where I actually took2the auger and augered down in the bottom3of the pit and went on down to to4approximately 60 inches at that same5location. When you run out of roots,6there's no reason to be digging down. If7you run out of roots, let's say, at8let's say, in this particular case, about910 inches or so or 12 entirely and then10you don't see any more roots, obviously11they are not going to be growing up from12below. And so you then can go ahead and13dig on down with an auger and get the14additional areas, then break up the soil15and look for the root. That's basically16what I did.17So I'm just giving the man the18benefit of the doubt and I'm going the19extra mile, which I could have gone	1Q. So the auger sample, would it be2fair to say that it was really just kind of a way3to confirm there were no other roots below the4the pit profile that you made?5A. That's correct.6Q. Okay. Okay. So you dug these7these pits, and help me understand what the8location of these pits are that you dug. So we9have we are in a sugar cane field, right, and10we have individual rows and then we have what11do you call the area between the rows; is that a12trough, or what do you call that area between the13rows?14A. They call it the middles.15Q. The middles. Okay. How wide are16the rows?17A. The rows, actually what when the18hip goes up, the the whole the whole row19itself starting from middle to middle, I'm not
 20 24 inches and been perfectly satisfied 21 with it, but I wanted to make sure that 22 there was nothing down there, and there 23 was nothing from about 10 or 12 inches on 24 down to 60 inches. 25 BY MR. ARNOLD: 	 sure exactly what what the distance was on these particular ones. In some cases, farmers will will use different widths. You are



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1 up. They take a big set of hippers and hi	the edge of those shoulders and then you put down
2 hip it up, and then they will run two rows	
3 cane and plant down on either side near t	
4 and then your shoulders will be the areas	
5 they knife in their fertilizers, etc., for the	5 materials or the middles, and then your roots
6 site. It's a typical sugar cane operation.	6 will grow out and grow underneath the the
7 Q. Okay. Well, let me just make s	
8 understand. So from from one edge of	
9 to the other edge of the row is approxima	
10 feet; is that right?	10 So in this in this study, what
11 A. From about middle to middle.	t's 11 I'm trying to do is I'm trying to make sure that
12 somewhere somewhere in that neighbo	rhood. 12 I get up right against the root itself, show the
13 Q. Well, so the terminology you ar	e 13 roots that are coming up above see, these
14 using is confusing me and that's just beca	use 14 are these the plant cane is buried and then
15 I I just I'm unfamiliar. But when you	a say 15 it will put out roots upside to the side and
16 "from middle to middle," what what do	
17 mean?	17 that that total root profile as I'm going
18A.Well, the middle of the the	18 down. And that that's just basically a base
19 middle of the rows. What you do is you	
20 have you have your sugar cane sugar	
21 what you do is you take a set of hippers a	
22 hip it up and you hip the the row up its	
23 make a very large a high row, probably	
24 just say, about 12 inches high usually. A	
25 you then you come on those shoulders	right at 25 looked at is right by the cane that has been
F	age 75 Page 76
1 planted, the plant cane, and it it actua	1 of how far from those individual plants that you
 planted, the plant cane, and it it actua gets the area from the surface of the gro 	1of how far from those individual plants that youund past2are evaluating is is the edge of the pit that you
 planted, the plant cane, and it it actua gets the area from the surface of the gro the cane down in into the ground right 	Ily1of how far from those individual plants that youund past2are evaluating is is the edge of the pit that yout up by3dug.
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Pages 73 to 76

		1	
	Page 77		Page 78
1	MR. ARNOLD:	1	THE WITNESS:
2	And, Bill, let's go to maybe the	2	There you go.
3		3	BY MR. ARNOLD:
	best one to look at is on page B, dash,		
4	15. And I'll I'll mark this as	4	Q. Okay. So let's look at that top
5	Exhibit 16, this Appendix B.	5	photograph, if we can. It's photo B-29, stand of
6	(Exhibit 16 to be marked.)	6	sugar cane at S4. Okay.
7	THE WITNESS:	7	A. Okay.
8	You're you're B-15. B-15 in	8	Q. Tell tell me what what
9	the report shows because you are on	9	well, so that photograph, it's shooting down the
10	B-8. Go to B-15. This will be photo	10	middle, right, between the rows?
11	B-29, stand of sugar cane at S4, and photo	11	A. That's right. That's the middle
12	B-30 will be an observation at the bottom	12	that you are seeing between the two stands of
13	of the pit. I think that's what you are	13	cane on either side. And then that's a typical
		14	
14	wanting to look at.		way that the the cane is planted.
15	MR. ARNOLD:	15	Q. Okay. And so when you when you
16	Yes, sir, it is.	16	dig your pit, is it confined to the middle or
17	THE VIDEOGRAPHER:	17	does it creep up next to the plant onto the row?
18	Am I there?	18	A. I told you that I get right up by
19	MR. ARNOLD:	19	where the cane has been planted up on the row
20	No. Go up one page.	20	Q. Okay.
21	THE WITNESS:	21	A and slice right down to where I
22	No. You got to go one more up. Go	22	can get the view of the roots from the top to the
23	up one more.	23	bottom and then those those that are extending
24	THE VIDEOGRAPHER:	24	out to the side. And we will see that in in
25	(Complied.)	25	the pit. I'll show you if you go to the bottom
	Page 79		Page 80
1		1	_
1	of that photo B-30, you'll see how how the pit	1	and went on down to greater depths to make sure
2	of that photo B-30, you'll see how how the pit is positioned.	2	and went on down to greater depths to make sure that there were no roots any further down.
2 3	of that photo B-30, you'll see how how the pit is positioned. Q. Yeah.	2 3	and went on down to greater depths to make sure that there were no roots any further down. Q. And so when you are when you are
2 3 4	of that photo B-30, you'll see how how the pit is positioned. Q. Yeah. MR. ARNOLD:	2 3 4	and went on down to greater depths to make sure that there were no roots any further down. Q. And so when you are when you are digging these pits and you are you are
2 3 4 5	of that photo B-30, you'll see how how the pit is positioned. Q. Yeah. MR. ARNOLD: Let's look at that one, Bill, if you	2 3 4 5	and went on down to greater depths to make sure that there were no roots any further down. Q. And so when you are when you are digging these pits and you are you are evaluating the profile at each one of these
2 3 4 5 6	of that photo B-30, you'll see how how the pit is positioned. Q. Yeah. MR. ARNOLD: Let's look at that one, Bill, if you could scroll down?	2 3 4 5 6	and went on down to greater depths to make sure that there were no roots any further down. Q. And so when you are when you are digging these pits and you are you are evaluating the profile at each one of these sites, is the profile on the edge of the pit
2 3 4 5 6 7	of that photo B-30, you'll see how how the pit is positioned. Q. Yeah. MR. ARNOLD: Let's look at that one, Bill, if you could scroll down? THE VIDEOGRAPHER:	2 3 4 5 6 7	and went on down to greater depths to make sure that there were no roots any further down. Q. And so when you are when you are digging these pits and you are you are evaluating the profile at each one of these sites, is the profile on the edge of the pit facing the plant?
2 3 4 5 6 7 8	of that photo B-30, you'll see how how the pit is positioned. Q. Yeah. MR. ARNOLD: Let's look at that one, Bill, if you could scroll down? THE VIDEOGRAPHER: (Complied.)	2 3 4 5 6 7 8	 and went on down to greater depths to make sure that there were no roots any further down. Q. And so when you are when you are digging these pits and you are you are evaluating the profile at each one of these sites, is the profile on the edge of the pit facing the plant? A. Yes.
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Page 81	Page 82
Page 811Object to the form.2THE WITNESS:3Not at all. No. All you would be4doing is just get a mass of roots and5stuff. I've tried some of that. That6doesn't work. You got to get out there7and and do your proper profile and this8is this is tedious work. You you9have to produce a a soil profile that10matches where the roots are and you have11to be very careful that you you're able12to get the roots.13If you take a say, for example, a14small trackhoe or something and dig down15and dig over into the areas, you you're16just you just get a mass of material.17You can I have dug down in some areas,18like in pastures where you would want to19get a profile and then come in and then20take the the profile itself to make21sure that you can see the the roots,22but in sugar cane I always dig down. And23not only that, if I were to bring a big24trackhoe or something out there, it would25be I'd tear up the cane and have to pay	 for it. But but no, I do all this in cane in the sugar cane with primarily, you know, shovels and and things like that. BY MR. ARNOLD: Q. But that's something you could have done in this case, right, if you wanted to go out and dig up the entire plant to evaluate the root system A. Yeah. That Q that's something you would have done here? A. Well well, it won't work because no, it won't work. You dig it up and you got just a mass of roots and stuff. You don't know where they came from. You want to do this in situ and this is in situ. This is basically how you go about this. And it's it's in the literature everywhere. I mean, it's people do this all the time. It's just it's it's the easiest way of doing it. Well, I mean, it's maybe not the easiest way of doing it, but it's it's certainly the most effective ant scientific way to do it to find out the actual root profile itself.
Page 83	Page 84
1Q. Right. So really my question wasn't2whether or not it would work. My question is3that that is something you could have done if you4wanted to, correct, at this site?5MS. TABER:6Objection, form.7THE WITNESS:8Yeah. You would want to9MR. TROUTMAN:10Object to form.11THE WITNESS:12To be honest with you, it would be13stupid to do it that way and unscientific.14So no, this is the way you go about this.15THE VIDEOGRAPHER:16Excuse me, Mr. Holloway. Could you17tilt your camera down a little bit? All18I'm getting is your eyes, so if we could19get a little bit lower.20MR. LANDRY:21David Landry. Can we have an22agreement that any objection by one23defendant applies to all defendants?24MR. ARNOLD:25That would be great. Thank you.	1 MR. LANDRY: 2 Okay. 3 THE VIDEOGRAPHER: 4 Much better. Thank you. 5 THE WITNESS: 6 Thank you. 7 BY MR. ARNOLD: 8 Q. Okay. Dr. Holloway, I don't mean to 9 persist, but I I just want to get a clear 10 understanding on the record here. You that 11 digging up the entire plant to to evaluate the 12 root system is a method that that you have 13 done in the past, right, and that's something 14 that you could have done here, but you decided 15 MS. TABER: 16 MS. TABER: 17 Objection, form. 18 THE WITNESS: 19 Well, I've done roots I've done 10 root studies where I looked at root 10 biomass, weighing them and so forth. 12 That that can be done by digging up the 13 entire plant or as much of it as you can 14 get and separating it. That's not 15 that's not the way to do this kind of a </td

Pages 81 to 84



Page 85Page 851study. This is this is a techniquetry to find out the root depth using that2where we are wanting to know how deep the3roots go, which direction they go, and how4deep they go through the profile, and what5the distribution of them is and across6that stude of the profile, that's the objective of7this study and that gives you the best way8of viewing of the roots under sugar cane.9And it's a - it's nondestructive-type10thing too. If you - you're actually11looking at the plant that's growing there,12you are following pecific roots that are13growing above that site.14obid - I strant be done.15growing above that site.16BY MR. ARNOLD:17Q. Is there anything that prevented you18From going out here and - and a canavaring the19plant to evaluate its root system?20Net allow and the root system?21Objection, form.22THE WITNESS.24doesn't -i's a -i's a poor -i25would be an extremely poor application to26Fage 8727Net arcas going - going of way.28for than whatever is that you've go the meet is the strike roots. You29have feeder roots and then you have striker roots.20Ne and that sing of the canes. 121Bill, if we can, let's pull up22THE VIDEOCRAPHER:<			1	
2where we are wanting to know how deep the roots go, which direction they go, and how deep they go through the profile, and what the distribution of them is and across2manner, because once you dig it up and you you got he- you got the the tops and all this kind of stuff, no. That - you - you wouldn't kind of stuff, no. That - you - you wouldn't it is study and that gives you the best way of viewing of the roots under sugar cane.2manner, because once you dig it up and you you got he- you got he the tops and all this kind of stuff, no. That - you - you wouldn't kind of stuff, no. That - you - you wouldn't kind of stuff, no. That - you - you wouldn't kind of stuff, no. That - you - you would be root would be - I would cone under extreme eriticism for for trying to do that kind of stuff, no. That - you - you're actantly und be - I would cone under extreme eriticism for for trying to do that kind of stuff, no. That - you - you're actantly und be - I would cone under extreme eriticism for for trying to do that if you are following specific roots that are if you wanted to know the entire root if you sout he best I could and see a biomass study. You row set want ing to how. the roots are - are formed off the canes. I the work are - are formed off the canes. I the work are - are formed off the canes. I the roots are - are formed off the canes. I that we feder roots and then you have striker roots. the roots are - are formed off the canes. I the work are - are formed off the canes. I the roots are - are formed off the canes. I the roots are - are formed off the canes. I the root hare - are bitty to have the root are - are formed of		Page 85		Page 86
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	Page 89		Page 90
			_
1	send you a version of this study for you	1	discuss it.
2	to open so that you can you can look at	2	A. I got it. I bet these let me
3	it freely.	3	let's go back here. All I have to do is have the
4	THE WITNESS:	4	abstract here, and you tell me what you want to
5	Will I have to go out go out and	5	know and I can I can well, just what is the
6	download it?	6	gist of of your your you obviously have
7	MR. ARNOLD:	7	some questions about this. I know what I know
8	No.	8	what these studies are doing, these budgets and
9	THE VIDEOGRAPHER:	9	all this kind of stuff. What what is it you
10	I don't think so.	10	want to you want to get from me on this issue
11	MS. TABER:	11	here?
12	No, no.	12	MR. ARNOLD:
13	THE VIDEOGRAPHER:	13	Okay. Well, let's back out a little
14	That was 20, right?	14	bit, Bill, so we can see a little bit more
15	MR. ARNOLD:	15	of this paper.
16	Yes.	16	THE VIDEOGRAPHER:
17	THE VIDEOGRAPHER:	17	(Complied.)
18	Okay. All right. It should be	18	BY MR. ARNOLD:
19	there.	19	Q. All right. This is a paper entitled
20	BY MR. ARNOLD:	20	Growth and Function of the Sugar Cane Root System
21	Q. So, Dr. Holloway, if you could if	21	authored by Smith, Inman-Bamber and Thorburn.
22	you can access that and let me know if you have	22	Have you seen this study before?
23	it open?	23	A. I think I have, but it's it's
24	A. Okay. I got it.	24	been sometime.
25	Q. Let me know when you are ready to	25	Q. Okay. This was published in a
	Page 91		Page 92
1	journal called Field Crops Research in 2005.	1	cane plant; is that right?
2	journal called Field Crops Research in 2005. A. I'm I'm familiar with it.	2	cane plant; is that right? A. In in generalities, but there are
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Pages 89 to 92



	Page 93		Page 94
1	(Complied.)	1	Q. And then "The third class of roots
2	THE WITNESS:	2	were 'rope roots,' formed from agglomerations of
3	Uh-huh (affirmatively).	3	vertical roots. These have been observed to
4	BY MR. ARNOLD:	4	penetrate to depths exceeding 6 meters providing
5	Q. And the the authors here say that	5	access to deep reserves of soil water"; is that
6	Evans observed in Mauritius that shoot roots	6	right?
7	differentiated into three functional types as the	7	A. That's what that's what he found
8	sugar cane plant developed. The first roots to	8	here, yeah.
9	emerge from the base of the young shoot were	9	Q. Okay. And then it says, "This
10	thickened with little branching and grew outwards	10	pattern of root development was repeated for each
11	and downwards into the sub-soil to a depth of	11	tiller to create the commonly depicted root
12	approximately 1-1/2 meters thus forming 'buttress	12	system architecture for established sugar cane
13	roots' adapted to anchorage of the plant." Do	13	stools shown in Figure 2," right?
14	you see that?	14	A. That's what he's saying, yeah.
15	A. That's right. That's right.	15	Q. So at least according to this, these
16	Q. And then, "Roots emerging from	16	authors and this paper, they found that the
17	higher nodes were thinner and highly branched,	17	the the roots of a sugar cane plant,
18	extending laterally to form a dense network of	18	particularly the the rope what they call
19	'superficial roots' responsible for uptake of	19	the rope roots, extended beyond 6 meters; is that
20 21	water and nutrients from surface soil layers."	20 21	right? MS. TABER:
22	Is that right? A. Yeah. In general, we call those	21	Objection, form.
23	feeder roots.	23	THE WITNESS:
24	Q. Okay.	24	In this in this particular case,
25	A. Yeah.	25	yes.
			<u> </u>
	Page 95		
	Idge 93		Page 96
1	BY MR. ARNOLD:	1	cane roots, however, has not been widely
2	BY MR. ARNOLD: Q. Okay. And do you have any reason to	2	cane roots, however, has not been widely observed. The maximum depth of root sampling is
2 3	BY MR. ARNOLD: Q. Okay. And do you have any reason to disagree with those findings?	2 3	cane roots, however, has not been widely observed. The maximum depth of root sampling is typically restricted to 1.5 or 2 meters with
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	Page 97		Page 98
1	other area such as Hawaii where they	1	thing. They don't have the same
2	are they are taking DH bulldozers and	2	hydrologies, the same soil type, they are
3	breaking up lava-type soils or	3	not inside Louisiana. It's it's not
4	lava-derived-type soils. This is in south	4	really germane to the issue we have here.
5	Louisiana where they grow sugar cane here,	5	We want to do an onsite investigation
6	and I'm tailoring my work for that	6	that's typical of what grows in south
7	particular area looking for the roots that	7	Louisiana, and that's what I did.
8	are there. How they they where	8	BY MR. ARNOLD:
9	how deep they grow in other areas is not	9	Q. Okay. So you would you would
10	germane to the issue here. We want to do	10	agree with me that depending on the different
11	an on-site review of the roots that are	11	factors you have involved, whether it's the
12	typical of this area. And any any	12	different soil type or soil moisture soil
13	sugar cane any man growing sugar cane	13	moisture or any other different factors that may
14	down there will tell you that the depths	14	be at play, you would agree that sugar cane does
15	of the roots of sugar cane in south	15	in some instances have the capability to extend
16	Louisiana typically go about anywhere from	16	its roots down to a couple meters deep?
17	6 to 12 inches and maybe some maybe	17	MS. TABER:
18	15 inches or so. That's people farming	18	Objection, form.
19	thousands of acres.	19	THE WITNESS:
20	So I'm I'm looking at what's	20	A couple meters or maybe even more
21	happening in Louisiana. I'm not looking	21	if you're if you're looking at that
22	at these other places, and I know you've	22	at volcanic soils. That's not the case in
23	got these root studies here. And and	23	south Louisiana. You are not going to
24	obviously, they did see some greater	24	find anything any any sugar cane
25	depths, but they they don't mean a	25	roots in any of those areas there below 2
	Page 99		Page 100
1		1	
1 2	feet; and and almost all the all the	1	and and close to the plant, but it didn't go
2	feet; and and almost all the all the areas, they are going to be within	1 2 3	
1 2 3 4	feet; and and almost all the all the	2	and and close to the plant, but it didn't go under directly underneath the plant; is that correct?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	feet; and and almost all the all the areas, they are going to be within 12 inches of the surface. MR. ARNOLD: Bill, can we go back to THE WITNESS: You may have some that well, okay. Let me finish there. You may have some that might get in some little cracks or something that you can see that maybe a few of them will go down. These these investigations you have here don't mean anything in south Louisiana. MR. ARNOLD: Bill, could you go to Figure 2 for me, please? THE VIDEOGRAPHER: (Complied.) MR. ARNOLD: Can you Zoom in on that for me? THE VIDEOGRAPHER: (Complied.) BY MR. ARNOLD:	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	and and close to the plant, but it didn't go under directly underneath the plant; is that correct? A. No. But I've dug I've dug underneath them. What what this does is I get right beside where they did the the that they laid the plant cane and then sliced down to see, if you look at this at this where it says superficial roots and then you then you see the the cane's coming up, you from the set, you you're getting you're getting a view of that profile and that gives you the the those the the roots don't have in this particular case, they are showing them kind of coming laterally. In many cases when they when they it depends on how deep you plant them. You are going to have them going up, you are going to have them going down, you are going to have them going to the side, and basically what you see is what you get. So you're getting anything that goes down, you

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Page 101 Page 101 1 Q. And do you think that you would Ixnow that in this case, right? We are just 3 plant if you were to dig your pit or your profile Irnsi fing your experience and in rendering that 3 Q. No, 1ve dug them = 1ve dug them Irnsi fing your experience and in rendering that 6 every which a way; side to the side, under them, Ye were to dig your pit or your profile 7 A. Oh, 1ve dug them = 1ve dug them If the plant is for this case, right? 9 Q. So - M. This just shows - 10 A. Yes. Tve done that and then 11 Inve - this is the best way that you can 12 have of doing a profile to see the depth of the 13 cornfrm, you didn't dig directly below the sugar 14 ower and - and take sc, correct? 15 ower and - and take at rowel and - and low at this 16 ower and - and take at rowel and - and low at the sugar cane. 17 A. Oh, in some cases, Clill - Pl lid 1g 18 ower and - and take at rowel and - and low at the sugar cane. 19 this is an user sond warks 19 accussitions, assertions, using areas that<		5 101		5 100
2encounter roots extending directly beneath the glant if you were to dig your pit or your profile directly beneath the plant?:3A. Oh, I've dug them – I've dug them every which a way; side to the side, under them, over them, whatever; so I – I know where the roots go.::6every which a way; side to the side, under them, over them, whatever; so I – I know where the roots go.::7O. So – Ithe way that you can the vote of doing a profile to see the depth of the roots.::11Pre – this - this is the best way that you can the ord doing a profile to see the depth of the roots.::12have of doing a profile to see the depth of the the source.::13confirm, you didn't dig directly below the sugar can eplants in this case, corroct?::14those arcs, yech. I - I'll - bu - the sine grant and take a trowel and - and loke at the source arcs, yech. I - I'll - bu - the tows e - those roots every which way but the ose.::15Q. So, but - but we don't - we don't:::16Targe 103Fage 104::17A. Oh, in some cases, iff:::28Q. So, but - but we don't - we don't:::29Q. So, but - but we don't - we don't:::20is a situation where ris for gings case the way oug the way oug the case into - mosite specific - specific to the healthy sugar can that's geroming fom maybe, you know, the si a a mattre stand.::20<		Page 101		Page 102
2encounter roots extending directly beneath the glant if you were to dig your pit or your profile directly beneath the plant?:3A. Oh, I've dug them – I've dug them every which a way; side to the side, under them, over them, whatever; so I – I know where the roots go.::6every which a way; side to the side, under them, over them, whatever; so I – I know where the roots go.::7O. So – Ithe way that you can the vote of doing a profile to see the depth of the roots.::11Pre – this - this is the best way that you can the ord doing a profile to see the depth of the roots.::12have of doing a profile to see the depth of the the source.::13confirm, you didn't dig directly below the sugar can eplants in this case, corroct?::14those arcs, yech. I - I'll - bu - the sine grant and take a trowel and - and loke at the source arcs, yech. I - I'll - bu - the tows e - those roots every which way but the ose.::15Q. So, but - but we don't - we don't:::16Targe 103Fage 104::17A. Oh, in some cases, iff:::28Q. So, but - but we don't - we don't:::29Q. So, but - but we don't - we don't:::20is a situation where ris for gings case the way oug the way oug the case into - mosite specific - specific to the healthy sugar can that's geroming fom maybe, you know, the si a a mattre stand.::20<	1	Q. And do you think that you would	1	know that in this case, right? We are just
 a plant if you were to dig your pit or your profile directly beneath the plant? A. Oh, I've dug them, -I've dug them, every which a way, side to the side, under them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over them, whatever; so 1 - I know where them, over and - and take a trowel and - and loka them, the second them, and then them, over and - and take a trowel and - and loka them, the second them, them, over and - and take a trowel and - and loka them, the second them, them, them, the second them, them, them, the second them, them, them, them, them, them, the second them, the	2	encounter roots extending directly beneath the	2	trusting your experience and in rendering that
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6 every which a way; side to the side, inder them, 7 over them, whatever; so I – I know where the 8 roots go. 9 Q. So – 10 A. Yes. Pve done that and then 11 have of doing a profile to see the depth of the 12 have of doing a profile to see the depth of the 13 cane plants in this case, correct? 14 O. All right. And – and just to 15 cone cases, III – I'II dig 16 over and – and take a trowel and – and look at 17 A. Oh, in some cases, III – I'II dig 18 over and – and take a trowel and – and look at 19 bot in – in a cursory pass because I know wharts' 20 no, I – insone cases, III – I'II dig 20 no, I – ilk c I said, I've done that. I've 21 urned those – those roots every which way but 25 Q. So, but – but we don't – we don't 26 son, i's outh sis – and this 27 accusations, assertions, using areas that 28 off me and taking allegations, 29 son soits pecifie o the healthy 30 ofm the and they growing one sa – sonce cane </td <td>4</td> <td>directly beneath the plant?</td> <th>4</th> <td>particular property go that that are directly</td>	4	directly beneath the plant?	4	particular property go that that are directly
7over them, whatever, so I – I know where the roots go.7MS. TABÉR: B9Q. So - A. Yes. Ive done that and then7MS. TABÉR: B10A. Yes. Ne done that and then I Prevent this - this is the best way that you can have of doing a profile to see the depth of the roots.7MS. TABÉR: B11Intervent the set of the set of sugar cane roots and I actually look at those particular areas like that. But II - I would say this, one of the one of the situations we are talking about a root study that Pre done and I've done numerous ones.12A. Oh, in some cases, I'II - I'II dig over and - and take a trowel and - and look at those areas, yeah. I - TII but but but in in a cursory pass because I know what's 1 growing there and I know where it's going. So no, I- like I said, I've done that. T've 22 1 unc those those roots every which way but 241825Q. So, but - but we don't we don't2326No, but - but we don't we don't2427So, but - but we don't we don't2528watyping and making allegations, cacuestions, assertions, using areas that 3 don't mean anything to south Louisiana to sit sa e-file and investigation onsite specific specific to the healthy sugar cane that's growing on the Louisiana the swet and by our going to get accuestion, sore a - one sometimes you'l get getome - some can wat you get.Page 10411just planted them last you know, well, I mean, and then you went to in June. No. This is this is a this is a mature stand.129Q. What's the growing season for sugar in so	5	A. Oh, I've dug them I've dug them	5	underneath the plants for this case, right?
8roots go.8Objection, form.9Q. SoTHE WITNESS:10A. Yes. Ive done that and then1011have of doing a profile to see the depth of the1112have of doing a profile to see the depth of the1213roots.1114Q. All right. And - and just to1115confirm, you dich' dig directly below the sugar1416roots.1417A. Oh, in some cases, I'll - I'll dig1618over and - and take a trowel and and look at1819those arcas, yeah. I - I'll - but - but -1020to in - in a cursory pass because I know what's1721nor in a cursory pass because I know what's1822produced their own1823turned those - those roots every which way but2324loose.2225Q. So, but - but we don't we don't2526So, but - but we don't we don't2527arcusations, assertions, using areas that103don't mean anything to south Louisiana.1134Lidda - a clailed investigation1336wetlands property, and what you see is1437A. Oh, typically, you'll see cane in1538what you get.1239O. What's the growing season for sugar1331and't mean arything to south Louisiana1439Vettamas growing from maybe, you know,<	6	every which a way; side to the side, under them,	6	A. This just shows
9 \vec{Q} So -9 $THE \ WTTNESS:$ 10 \vec{A} . Yes. I've done that and then10 $This shows the best profile that you11Tve - this - this is the best way that you can11Can get for sugar cane roots and I12have of doing a profile to see the depth of the12actually look at those particular areas13roots.1314this, one of the - one of the situations14Q. All right. And - and just to14this, one of the - one of the situations15confirm, you didn't dig directly below the sugar17Ne done - and I've done numerous ones.16nor and - and take a trowel and - and look at1819ward a - and take a trowel and - and look at1819those areas, yeah. 1 - I'II - but - but -1010but in - in a cursory pass because I know wharfs2010nor, 1 - like I said, I've done that I've2121growing there and I know where it's going. So2122ward those - those roots every which way but2323turned those - those roots every which way but2424loose.2525Q. So, but but we don't - we don't2526No, but but we don't - we don't2527A ot detailed invexitigation128watay ou get.1029watay spring and - and a fail of the year, of course, and then3don't mean anything to south Louisiana14and the fay ou went to$	7	over them, whatever; so I I know where the	7	MS. TABER:
10Å. Yes. Ive done that and then10This shows the best profile that you11Ive - this - this is the best way that you can11actually look at those particular areas13roots.11actually look at those particular areas14Q. All right. And and just to131315confirm, you didn't dig directly below the sugar161716a. Oh, in some cases, [11 - T]I dig161617A. Oh, in some cases, [11 - T]I dig171818over and and take a trowel and and look at18plaintiff's experts could have gone out19but in in a cursory pass because I know what's10neropt that I would think would have20no, its this could have produced a11report that I would think would have21turned those those roots every which way but231125Q. So, but but we don't we don't23report that I would think would have24loose.24Son, it's this is and this25Q. So, but but we don't we don't25sa situation where one side's not doing26Yage 103Page 10427accusations, assertions, using areas that138what you get.Yage 10439Wetlands property, and what you see is140owar and - and chailed investigation150onsite specific - specific to the healthy261Q. Docs a - docs aA. A stand or two.70 </td <td>8</td> <td>roots go.</td> <th>8</th> <td>Objection, form.</td>	8	roots go.	8	Objection, form.
11Ive - this - this is the best way that you can have of doing a profile to see the depth of the roots.11can get for sugar cane roots and I12have of doing a profile to see the depth of the confirm, you didn't dig directly below the sugar cane plants in this case, correct?11can get for sugar cane roots and I14Q. All right. And - and just to confirm, you didn't dig directly below the sugar cane plants in this case, correct?14this, one of the - one of the situations we are talking about a root study that Power and - and look at at this operation and then have - have conducted thave gone out and looked at this operation and then have - have conducted their own investigation and could have produced a report that I would think would have produced the exact outcome that I found.20how share it's going. So a no, I - like I said, I've done that. I've toose.2231go so, but - but we don't - we don't2325Q. So, but - but we don't - we don't2426So, but - but we don't - we don't2527No, but - but we don't - we don't2528what you get.129Page 103Page 10420have a detailed investigation don't mean anything to south Louisiana. 414I did a - a detailed investigation sugar cane that's growing on the Louisiana. 414G. Mark ARNOLD:0. Does a - does a5BY MR. ARNOLD:0. Does a - does a6BY MR. ARNOLD:0. Does a - does a7A. Oh, typically, you'll see cane in in soth Lo	9	Q. So	9	THE WITNESS:
12have of doing a profile to see the depth of the12actually look at those particular areas13roots.13like that. But I I I would say14Q. All right. And and just to13like that. But I I I would say15confirm, you didn't dig directly below the sugar15we are talking about a root study that16cane plants in this case, correct?161717A. Oh, in some cases, (II III dig17Obviously, if you wanted to, the18over and - and take a trowel and and look at16If we done and look dat19tose areas, yeah, I III - uh tout19and looked at this operation and then20but in in a cursory pass because I know what's20have have conducted their own21investigation and could have produced ainvestigation and could have produced a22no, but but we don't we don't23produce the eart outcome that I found.24loose.Q. So, but but we don't we don't2425Q. So, but but we don't we don't25in the fall of the year, of course, and then it2anything and making allegations,1just planted them last you know, well, I mean,3adort mean anything to south Louisiana1just planted them last you know, well, I mean,4I did a a detailed investigation1just planted them last you know, well, I mean,5onsite specific - specific to the healthy2Q. Does a second-year cane use the same	10		10	This shows the best profile that you
13 roots. 13 like that. But I - I - I would say 14 Q. All right. And and just to 13 like that. But I - I - I would say 15 confirm, you didn't dig directly below the sugar 14 this, one of the - one of the situations 16 const appendix in this case, correct? 17 A. Oh, in some cases, I'll - I'll dig 17 18 over and - and take a trowel and - and look at 18 Plaintiff's experts could have gene out 19 but in - in a cursory pass because I know what's 19 obviously, if you wanted to, the 21 growing there and I know where it's going. So 20 no, I - like I said, I've done that. I've 23 turned those - those roots every which way but 20 so no, it's - this is - and this 24 loose. Page 103 So no, it's - this is - and this 25 Q. So, but but we don't we don't 25 in the fall of the year, of course, and then it 25 or so the specific to the healthy sa attuel of the year, of course, and then it 26 sugar cane that's growing on the Louisiana 1 27 A. Oh, typically, you'll see cane in in south Louisiana growing from maybe, you know,		I've this this is the best way that you can	1	can get for sugar cane roots and I
14 Q. All right. And and just to 14 this, one of the one of the situations 15 confirm, you didn't dig directly below the sugar 15 we are talking about a root study that 16 cane plants in this case, correct? 17 A. Oh, in some cases, III III dig 18 over and and take a trowel and and look at 15 We done and I've done numerous ones. 19 those areas, yeah. I Dut but 1 Image: Construct on the site on the site on the site one of the situations 20 but in in a cursory pass because I know what's 12 Image: Construct one construct on the site one on the site one on the site one on the site one one one one one one one one one on		have of doing a profile to see the depth of the	1	actually look at those particular areas
15 confirm, you didn't dig directly below the sugar 15 we are talking about a root study that 16 cane plants in this case, correct? 16 Ive done - and Ive done numerous ones. 17 A. Oh, in some cases, II - I'l I dig 17 A. Oh, in some cases, II - I'l I dig 18 over and - and take a trowel and - and look at 18 plantiffs' experts could have gone out 19 but in - in a cursory pass because I know what's 18 plantiffs' experts could have gone out 20 no, 1 - like I said, I've done that. I've 10 have - have conduced their own 21 investigation and could have produced a report that I would think would have 22 no, 1 - like I said, I've done that. I've 20 porduced the exact outcome that I found. 24 loose. 20 So, but - but we don't - we don't 21 25 Q. So, but - but we don't - we don't 25 is a situation where one side's not doing 26 not, they ary of course, and then it 1 is a situation where one side's not doing 26 Q. So, but - but we don't - we don't 25 is a situation where one side's not doing 27 acusations, assertions, using areas that i			13	like that. But I I I would say
16 cane plants in this case, correct? 16 Fve done and I've done numerous ones. 17 A. Oh, in some cases, I'll I'll dig 17 Obviously, if you wanted to, the 18 over and and lace a trowel and and look at 17 Obviously, if you wanted to, the 19 those areas, yeah. I I'll but but 19 and looked at this operation and then 20 but in in a cursory pass because I know what's 10 investigation and could have ponduced a 21 no, I like I said, I've done that. I've 20 investigation and could have produced their own 23 turned those those roots every which way but 21 So no, if's this is and this 25 Q. So, but but we don't we don't 25 is a situation where one side's not doing Page 103 Page 104 1 anything and making allegations, 1 just planted them last you know, well, I mean, 3 don't mean anything to south Louisiana 1 just planted them last you know, well, I mean, 4 I did a - a dataled investigation 4 3 sarted growing in the carly spring and and 4 I did a - a dataled investig			1	this, one of the one of the situations
17Å. Oh, in some cases, I'll I'll dig17Obviously, if you wanted to, the plantifit's experts could have gone out and looked at this operation and then have have conducted their own investigation and could have produced a report that I would have produced a investigation and could have produced a investigation and could have produced a produced the exact outcome that I found. So no, it's this is and this is a situation where one side's not doing17Å. Oh, in some cases, I'll I'll dig growing there and I know where it's going. So turned those those roots every which way but loose.17Obviously, if you wanted to, the plantifit's experts could have gone out and looked at this operation and then have have conducted their own investigation and could have produced a so no, it's this is and this is a situation where one side's not doingPage 103Page 104Page 104Page 1041Page 104Page 1041Page 1041Page 10411111111111111111111 <td></td> <td></td> <th>1</th> <td></td>			1	
18 over and - and take a trowel and - and look at 18 plaintiffs' experts could have gone out 19 those areas, yeah. I I'll but but 10 and looked at this operation and then 20 but in in a cursory pass because I know what's 12 and looked at this operation and then 21 growing there and I know where it's going. So 10 investigation and could have produced a 22 no, I like I said, I've done that. I've 22 report that I would think would have 23 turned those those roots every which way but 23 produced the exact outcome that I found. 24 loose. 24 So no, it's this is and this is a situation where one side's not doing 25 Q. So, but but we don't we don't 25 is a struation where one side's not doing 24 anything and making allegations, accusations, assertions, using areas that 3 in the fall of the year, of course, and then it 3 and then you went to in june. No. This is the started growing in the early spring and and 4 I dia a detailed investigation 4 Q. Does a - does a 7 Wetlands property, and what you see is 7 A. A stand or two. <			1	
19those areas, yeah. I I'll but but in in a cursory pass because I know what's growing there and I know where it's going. So growing there and I know where it's going. So turned those those conducted their own investigation and could have produced a report that I would think would have produced the exact outcome that I found. So no, it's this is and this is a situation where one side's not doing2Page 103Page 1041anything and making allegations, accusations, assertions, using areas that don't mean anything to south Louisiana. 4 I did a - a detailed investigation onsite specific specific to the healthy sugar cane that's growing on the Louisiana for mise specific specific to the healthy sugar cane that's growing season for sugar cane?1just planted them last you know, well, I mean, in the fall of the year, of course, and then it started growing in the early spring and and and then you went to in June. No. This is this is a this is a they are these roots stay, they stay there and they actually will put out more. But you're going to get a good mature root stand usually within one that you are going to get over the next two year.10Q. Mady udid your field studies in June; is that right?20Q. And you did your field studies in June; is that right?21A. Yes. But, you know, whis this you will be growing on up into October.22Q. And you did your field studies in June; is that right?23A. Yes. But, you know, whis this you'll et are tarker and so you you wa a good24Plant cane rather and so you you have a good			1	
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	Page 105		Page 106
1	going to you've got a good mature we were	1	already mature and developed, and
2	dealing with a very good mature stand. I don't	2	that's and that's where it's going.
3	go out and bury it like in young plant cane in	3	There are there are many factors
	in, say, April and conduct an investigation. I	1	involved in the movement of the root
4	want a mature stand and one that's been there a	4	
5		5	system of cane as it goes down through the
6	while and that's what - that's what we got.	6	soil profile, and that can be that will
7	Q. Well, and and so you agree with	7	be the soil type that's there, the
8	me, as you testified in the New 90 case, that the	8	moisture regime that's there, and and
9	cane growing in June and will continue to grow	9	in Louisiana you get plenty of moisture.
10	likewise will continue to grow and develop roots;	10	You will have your periods when when
11	is that right?	11	you'll have somewhat droughty periods; but
12	MS. TABER:	12	in general your your your cane is
13	Objection, form.	13	is the root system is going to go to a
14	THE WITNESS:	14	certain depth in that particular soil
15	You'll have you'll have the	15	type, and that's that's what we we
16	development roots, you'll have more	16	looked at here. The different soil type
17	striker roots coming out the next year and	17	showed no variation in the in the
18	things like that; but generally speaking,	18	effective root zones. This is mature
19	I mean I mean, it's axiomatic. It's	19	cane.
20	going to go to a certain depth and that	20	This is a this is a study that
21	depth is going to be pretty much what you	21	is has been conducted onsite, as I've
22	see out there in the first year. But if	22	said, and is indicative of what was
23	you want to go back and like it's a	23	growing on the Louisiana Wetlands. And
24	second-year cane like this, we you	24	you could have gone to the next gone to
25	you have obviously got your root system	25	the next field over on Mr. John Doe's
	j		
	- 405		
	Page 107		Page 108
1	-	1	_
1	place and looked at it, and if he had	1 2	plant cane to four even four-year-old cane.
2	place and looked at it, and if he had two-year cane, you would you would see	2	plant cane to four even four-year-old cane. You it gets to a certain depth and that's
2 3	place and looked at it, and if he had two-year cane, you would you would see the same thing, but you may see some	2 3	plant cane to four even four-year-old cane. You it gets to a certain depth and that's that's as far as it goes. There are other
2 3 4	place and looked at it, and if he had two-year cane, you would you would see the same thing, but you may see some variation. There are there are some	2 3 4	plant cane to four even four-year-old cane. You it gets to a certain depth and that's that's as far as it goes. There are other there are certain things in the soil. In many
2 3 4 5	place and looked at it, and if he had two-year cane, you would you would see the same thing, but you may see some variation. There are there are some areas that you could have a little	2 3 4 5	plant cane to four even four-year-old cane. You it gets to a certain depth and that's that's as far as it goes. There are other there are certain things in the soil. In many cases, you may have a a fragipan at that
2 3 4 5 6	place and looked at it, and if he had two-year cane, you would you would see the same thing, but you may see some variation. There are there are some areas that you could have a little variation. But as you notice from the	2 3 4 5 6	plant cane to four even four-year-old cane. You it gets to a certain depth and that's that's as far as it goes. There are other there are certain things in the soil. In many cases, you may have a a fragipan at that particular location or the let's let's just
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Pages 105 to 108



	De		Dema 110
	Page 109		Page 110
1	looking at.	1	THE VIDEOGRAPHER:
2	Q. I mean, is it a is it a	2	Going off the record. It is
3	determination that you made by looking at the	3	12:56 p.m.
4	cane or somebody told you that	4	(A short recess was taken.)
5	A. No. I think	5	THE VIDEOGRAPHER:
6	Q or where did that information	6	We are back on the record. It is
7	come from?	7	1:04 p.m.
8	A. I think I asked someone to ask the	8	MR. ARNOLD:
9	farmer.	9	All right. Dr. Holloway, it's my
10	Q. Okay. So that's not an assumption	10	understanding that you've lost power and
11	on your part. That information came from	11	that you can't can't see, view or
12	somewhere?	12	review any of the exhibits that we may use
13	A. Yeah. That I I usually want	13	as part of this deposition. And so I
14		14	think what we have decided to do is to
	to know if there's I can pretty well look at		
15	it and tell, but whoa, we just lost power.	15	wait until you get power or wait until you
16	MS. TABER:	16	can travel to somewhere that does have
17	Uh-oh.	17	power or do an in-person deposition to
18	THE WITNESS:	18	continue this to continue the
19	I think the the lines are all	19	proceedings of today. So I'll just
20	are really heavy with with ice right	20	just ask the other counsel on this on
21	now. And I think it's probably that's	21	this deposition to confirm that's their
22	probably what happened.	22	understanding and then we can just
23	MR. ARNOLD:	23	proceed proceed accordingly.
24	Okay. Well, let's go off the	24	THE WITNESS:
25	record, Bill.	25	That's fine.
2.5	record, Bill.	2.5	That's line.
	Dago 111		$P_{2} = 0.112$
	Page 111		Page 112
1	MS. TABER:	1	Page 112 MS. TABER:
1 2		1 2	MS. TABER:
	MS. TABER:		
2	MS. TABER: This is Elizabeth. THE WITNESS:	2 3	MS. TABER: Okay. MR. ARNOLD:
2 3 4	MS. TABER: This is Elizabeth. THE WITNESS: That's fine. I don't I don't	2 3 4	MS. TABER: Okay. MR. ARNOLD: Thanks, everybody.
2 3 4 5	MS. TABER: This is Elizabeth. THE WITNESS: That's fine. I don't I don't have any problems. If if you know,	2 3 4 5	MS. TABER: Okay. MR. ARNOLD: Thanks, everybody. MS. TABER:
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	Page 113		Page 114
1	CORRECTION SHEET	1	WITNESS CERTIFICATE
2		2	
3 4 5 6 7 8 9 10 11	PAGE LINE DESCRIPTION	3 4 5 6 7 8 9 10 11	I, LUTHER FLOYD HOLLOWAY, do hereby certify that the foregoing testimony was given by me, and the transcription of said testimony, with corrections and/or changes, if any, is true and correct as given by me on the aforementioned date.
12		12	
13		13	
14 15 16 17		14 15 16 17	DATE SIGNED (Witness' Signature)
18		18	Signed with corrections as noted.
19	WITNESS, LUTHED ELOVE HOLLOWAY	19 20	
20 21	WITNESS: LUTHER FLOYD HOLLOWAY TAKEN ON: FEBRUARY 17, 2021	20	Signed with no corrections as noted.
22	BY: CHERIE' E. WHITE, CCR (LA NO. 96002)	22	
23	CSR (TX NO 10720)	23	
24 25	CSR (MS NO. 1514) RPR (NATIONAL NO. 839452)	24 25	DATE TAKEN: February 17, 2021
2.5	KER (NATIONAL NO. 637452)	23	DATE TAKEN. February 17, 2021
	Page 115		Page 116
1	Page 115 REPORTER'S PAGE	1	Page 116 REPORTER'S CERTIFICATE
2	REPORTER'S PAGE I, CHERIE' E. WHITE, Certified Court	2	REPORTER'S CERTIFICATE
2 3	REPORTER'S PAGE I, CHERIE' E. WHITE, Certified Court Reporter, in and for the State of Louisiana, the	2 3	REPORTER'S CERTIFICATE This certification is valid only for a
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