BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

## In the Matuer of the

Petition of Communication
Options, Inc., for Arbitration :
of Intercomnection Rates,
Torms, and Conditions and :Case No. 08-45-TP-ARB
Reinted Arrangements with
United Telephone Company of
Ohio d/ /a Embarg Pursuant to :
Section 252(b) of The
Telecommunications Act of 1996. ;

## PROCEEDINGS

Before James M. Lymn and Jay S. Agranoff, Hearing
Examiners, and Panel Members, Ms. Rotbin R. Russell,
Ms. Michelle A. Green, at the Public Utilities
Commission of Ohio, 180 East Broad Street, Room 11-G,
Columbus, Ohic, called at $9: 05 \mathrm{a} \mathrm{m}$. on Tuesday,
October 28, 2008.

ARMSTRONG \& OKEY, INC.
185 South Fith Street, Suite 101
Columbus, Ohio 43215-5201
(614) 224-9481-(800) 223-9481

Fax - (614) 224-5724

## APPEARANCES:

Bricker \& Eckler, LLP
By Sally W. Bloomfield, Esq.
Mathew W. Warnock, Esq.
100 South Third Street
Columbus, Ohio 43215-4291
On behalf of Communication Options, Inc.
Embarq Corporation
By Joseph R. Stewart, Esq.
50 West Broad Street, Suite 3600
Columbus, Ohio 43215
On behalf of Embarq Corporation.



Tuesday Morning Session, October 28, 2008.

EXAMINER LYNN: Let's go on the record at this time. The Public Utilities Commission of Ohio has assigned for hearing at this time and place Case No. 08-45-TP-ARP in the Matter of Communication Options, Incorporated, for arbitration pursuant to Section 252(b) of The Telecommunications Act of 1996 . Im Jim Lynn, one the Attorney Examiners assigned to hear this case, and with me on my left is Jay Agranoff, another one of the Attorney Examiners. We have two Staff members of the Commission present, Michelle Green and Robbin Russell over there.

At this time, I'll ask for the appearance on counsel on behalf of Communication Options, Incorporated.

MS. BLOOMFIELD: On behalf of Communication Options, Your Honor, the law firm of Bricker \& Eckler, Salley W. Bloomfield and Matthew Warnock, W-a-r-n-o-c-k, 100 South Third Street, Columbus, Ohio 43215.

EXAMINER LYNN: Thank you. And counsel representing United Telephone Company of Ohio $\mathrm{d} / \mathrm{b} / \mathrm{a}$ Embarq.

MR. STEWART: Joseph R. Stewart, 50 West Broad Street, Columbus 43215.

EXAMINER LYNN: Thank you, Mr. Stewart. The hearing is scheduled for two days. There had been some discussion before we went on the record about being able to wrap it up in one day, and we'll keep all options open. Hopefully, we can, and, let's see, regarding the order of witnesses, too, based on discussions we had had prior to our hearing today, COI had indicated that Mr. Vogelmeier will go first and then Dr. Ankum, and Embarq is informing that Mr. Hart will speak first and then Ms. Londerholm will be adopting Mr. Maple's testimony. Am I correct on that?

MR. STEWART: Yes.
EXAMINER LYNN: Okay. I'm sure you've been through all these proceedings before, but just to run it by you again, as far as the order of things, we'll have the prefiled direct testimony and will be later moving it into admission on the record. We'll have cross-examination, redirect, and recross, and then the Panel will have the opportunity to ask questions, and after the Panel's questions, if counsel for either party believe it's necessary to have some additional questions, that's fine, as long as it's limited in scope to what the Panel's questions were. Let's see.

We've discussed when the briefs will be due. That will be December 3rd and reply briefs December 17th, and we've also had the discussion about what will be a closed record; so 1 think we covered everything that we need to cover at this point.

Does anybody else have any questions?
MS. BLOOMFIELD: Yes, Your Honor. We have
one matter to take care of, and that is the
Confidentiality Agreement that was tendered by Embarq
has been signed by Dr. Ankum and me. We have not yet had Mr. Vogelmeier or Miss Engle -- or possibly one of the principals will be here whose name is Steve Halliday, but Embarq has agreed that, with my affirmation, that they will sign the protective agreement and they will keep any protective materials confidential. He's agreed that would suffice for now, and we will get the actual documents signed forthwith.

EXAMINER LYNN: That is fine. Thank you for mentioning that. I believe, in that case -anything else, Jay?

EXAMINER AGRANOFF: With respect to the briefing schedule that we discussed previously, we would also ask that at the time the briefs are submitted, that the parties could prepare an issues matrix similar to that which has been done in prior

25
-
arbitration cases which would delineate the issues as well as the parties' position and then the record citation supported positions that particular parties advocated, and that would assist the Panel for purposes of going back in analyzing the record and rendering a decision.

EXAMINER LYNN: Thank you, Mr. Agranoff. If there is nothing else, no other issues to be brought up at this point in time, we can begin with our witness.

EXAMINER AGRANOFF: Is there anything else, any motions that counsel is aware of that has not been ruled on as of yet?

MR. STEWART: No.
MS. BLOOMFIELD: No, Your Honor.
EXAMINER LYNN: I wasn't aware of any, and that's why I didn't bring it up. Also, based on discussion we already had, there was no preference between the two parties as to who would go first. Customarily in arbitrations whoever files the arbitration will go first, so we'll start with COI and their witness, Mr. Vogelmeier.

MS. BLOOMFIELD: Mr. Vogelmeier will be the first one, Your Honor.

EXAMINER LYNN: Mr. Vogelmeier, if you
will come up to the witness stand, please.
If you would raise your right hand. STEPHEN K. VOGELMEIER, being by Examiner Lynn first duly sworn, as hereinafter certified, testifies and says as follows:

EXAMINER LYNN: Please have a seat. DIRECT EXAMINATION
By Ms. Bloomfield:
Q. Mr. Vogelmeier, would you state your name again and spell your last name for the record.
A. Stephen K. Vogelmeier. It's V, as in

Victor, o-g-e-l-m-e-i-e-r.
Q. And what is your position with

Communication Options? Which I'm going to start referring to as COI because it's easier.
A. I'm the president of the company.
Q. And did you have prepared under your direction the prefiled testimony that was previously submitted in this case on June 24th?
A. Yes.
Q. And if $I$ would ask you the questions in that prefiled testimony today, would your answers be the same?
A. Yes.
Q. Do you have any corrections, additions, or
deletions to your testimony?
A. No.

MS. BLOOMFIELD: Your Honor, I have
nothing further.
EXAMINER LYNN: No further questions?
MS. BLOOMFIELD: Pardon me?
EXAMINER LYNN: Sorry, I didn't hear you.
MS. BLOOMFIELD: I don't have any further
questions, and Mr. Vogelmeier is ready for
cross-examination.
EXAMINER LYNN: Thank you.
Mr . Stewart.
MR. STEWART: Thank you, Your Honor. CROSS-EXAMINATION
By Mr. Stewart:
Q. Good morning, Mr. Vogelmeier. My name is Joe Stewart. Good to see you again. If you would please turn to Page 3 of your direct testimony?
A. Okay.

MR. STEWART: Before I proceed, would it be appropriate to have this marked as COI Exhibit 1 in case we're making reference to it?

MS. BLOOMFIELD: Is that what you would like to do, Your Honor?

EXAMINER LYNN: Yes.
10
MS. BLOOMFIELD: That's fine. May we call that COI Exhibit 1?

EXAMINER LYNN: Okay. That will be Mr. Vogelmeier's testimony, then.

EXAMINER AGRANOFF: Let's go off the record for a minute.
(Discussion off the record.)
EXAMINER LYNN: Back on the record, please.

MR. STEWART: Thank you.
By Mr. Stewart:
Q. Mr. Vogelmeier, is it correct that the payment terms for invoices COI receives from Embarq are that payments are due $\mathbf{3 0}$ days after the invoice date?
A. Yes.
Q. So under the proposed new ICA, Embarq is offering slightly over two weeks as a grace period for COI to make its payments; is that correct?
A. That's correct.
Q. From month to month is there considerable similarity between the bills that COI receives from Embarq?
A. Well, I guess similarly they come in the same box or they're on the same CD. Whether they're all the same amounts are correct is left open for
discussion.
Q. Well, by "similarity," I mean the customers of COI to whom the bills pertain have great overlap from month to month; is that correct?
A. Yes.
Q. Now, who reviews the bills on behalf of COI?
A. We have two people, one primary person that goes through the bill. I look at every one that comes to begin with just to see the overall amounts, what's been charged, credits, and the accounts payable person looks at that, and then we have a staff person that reviews the individual items on every bill.
Q. What is the name of that staff person?
A. Bonnie McCracken.
Q. And what is her background and experience with respect to billing?
A. She's -- we've taught her how to look at the bills and see what's - compare them to the months before, compare the features that the customer is being billed versus what we say they should be billed, that type.
Q. And you mentioned, I think, an accounts payable person who looks at the bill. Who is that?
A. That's Jenny Dickson.

- 12
Q. And what does her review consist of?
A. General review of basically what the amounts are, what the charges and credits are and the other charges and credits paid, that type of -a general review of the amounts.
Q. Now, you estimated 126 man hours or woman hours, as apparently is the case here?
A. Right.
Q. How does that break down between the accounts payable individual and the other person?
A. I'd say it's probably 98 percent for the other person and 2 percent for me and the accounts payable person.
Q. Physically, how does COI receive its bill from Embarq?
A. Some of the bills come paper, some of them come on CD.
Q. What sort of mail delivery does COI receive, in other words, regular mail, overnight mail, or something else?
A. The bill $-m$ the paper comes regular mail.

The CDs come DHL.
Q. Overnight delivery?
A. I don't know. I didn't check to see if it was overnight or two-day or whatever it was, but -- that the paper bill contains?
A. I believe for the most part. The paper bill is still the CABS side of the IXC billing.

EXAMINER AGRANOFF: Just so that the record is clear, when you use those acronyms, do you know --

THE WITNESS: IXC is for the long distance side. We have two entities, long distance company and local companies.

EXAMINER AGRANOFF: IXC stands for?
THE WITNESS: Interexchange Carrier.
EXAMINER AGRANOFF: And CABS?
THE WITNESS: And CABS is the billing that pertains to that IXC billing or usage billing.

EXAMINER AGRANOFF: Do you know the acronym?

THE WITNESS: No, not today.
MR. STEWART: I think it's Carrier Access
Bill.
THE WITNESS: Yes.
MR. STEWART: Carrier Access Billing
System, CABS.
By Mr. Stewart:
Q. Are you saying that the paper bill
contains billing information that the CD does not?
A. No. I believe - now, it's been changing around the last two or three months because of the different formats everybody wants to send them in, but I believe the CD has everything on it today.
Q. On average, how many days after the invoice date does COI receive the $C D$ format of the hill?
A. Well, that's relative to what invoice we're talking about. We have invoice dates the 3rd of the month. We used to have, like, three or four invoice dates. Now we have 3 rd of the month, the 8 th of the month, and I believe it comes in about eight or nine days after the 8 th of the month billing, because they consolidated the 3 rd month billing on the CD , also.
Q. So for a bill with an invoice date on the 3rd of the month, you're saying that you receive the $C D$ for that invoice on what day of the month?
A. It's about the 15 th or the 18 th. I think last month we got it on the 19th. This month we got on the 16 th or 17 th, something like that.
Q. So are you saying that invoices, two separate invoices, one dated the 3rd of the month, one dated the 8th of the month, you get the CD for both
those invoice dates on the same date, roughly eight days after the 8 th?
A. Right. We did get two. They've consolidated them to one, so -- they put everything on one CD, which no matter what the invoice date is, it comes on that CD, which is about the 16 th or 17 th. I've got a sheet over there that I had them make up all the dates that we received them; so I have them if you want them specifically.
Q. Now, is it correct that Embarq has offered COI the opportunity to receive its bills in an electronic format?
A. Yes.
Q. Do you recall the name of that format?
A. FTP.
Q. Has COI elected to do that?
A. At this point we have, yes.
Q. Does that mean COI has begun to receive its bills in electronic format or will that occur in the future?
A. We're supposed to have a test file that we can test our software this week. We received some of the CABS billing and usage billing that way, and we've tested those files, but the - the local bill I requested last week and they thought they'd be able to
get me a test on the local bill this week.
Q. Do you know how close to the invoice date COI will receive the billing information once the FTP process is implemented?
A. No. I know what l've been told, but I don't -- I haven't seen one yet, so --
Q. What have you been told?
A. Five days.
Q. Does COI utilize any software or other systems to verify the bills it receives from Embarq?
A. Our programmer is developing a program for the FTP file. Once we receive that, then it will all be automated.
Q. And do you expect that to lessen the time that it takes COI to verify an Embarq bill?
A. Sure.
Q. Is the system that you plan to use one that you're developing in-house or have you consulted with other CLECs or some other party - or entity, I should say, for developing this electronic system to review the bills?
A. Well, when we first started having this conversation about the FTP billing -- or the transfer, I asked Pam Zeigler if she knew anybody who had this software or how I could do that. She checked around
and said I had to go to Telcordia, so I went to
Telcordia, and Telcordia said they don't sell the software. They gave me some names of some people that did sell the software, and that ranged anywhere from 30 to $\$ 150,000$, and so we decided to develop it in-house. Sometime around the mediations that we had in this case I bought -- the only thing Telcordia would do is sell you the Call Record Layout. They wouldn't sell you the program, so I bought the Call Record Layout, and our developers started working on the software.
Q. Pam Zeigler is an Embarq employee?
A. Yeah. She's our account manager.
Q. What's the name of the programmer who is developing your electronic system?
A. Brad Inniger, I-n-n-i-g-e-r.
Q. Is he a COI employee?
A. No. He's contract.
Q. Now, on occasion has Embarq advised COI that a payment is late and that IRES, I-R-E-S, and I'II have to check with someone regarding the meaning of that acronym, is subject to suspension?
A. I've had that conversation a couple of times in the ten years, yes.
Q. Let me go off the record for a second. (Discussion off the record.)
A. It's overnight mail to a lockbox.
Q. And is that -- does that use a check drawn on your bank?
A. Uh-huh.
Q. Are you aware of other mechanisms that are available for paying Embarq bills, for example, wire transfer?
A. Yes. I'm -- I am aware of that.
Q. Is there also a mechanism called ACH?
A. Well, that's basically what you're doing.
Q. That's, in your mind, the same as a wire transfer?
A. No. ACH, you're scanning the check and sending it to our bank in an ACH transaction. That's what you're doing there.
Q. Off the record again for a moment. (Discussion off the record.)

MR. STEWART: ACH stands for Automated Clearinghouse.
By Mr. Stewart:
Q. If you would please turn to Page 5, has COI explored obtaining a Letter of Credit to give Embarq in lieu of a deposit?
A. No.
Q. And you wouldn't be aware of what that might cost COI to obtain?
A. Relatively. You know, we've talked about it, but I have not gotten any specific information.
Q. Please look at Line 29 on Page 5. There you say, "There is no risk"?
A. Right.
Q. What do you mean by "no risk"?
A. Well, we pay weekly. We requested that in the bankruptcy in 2000, that we be able to pay weekly. When we came out of the bankruptcy in December of '03, I contacted Pam Zeigler and asked her if it would be okay if we continued to pay weekly. She indicated Tom Grinaldi said that that would be fine, so we continued to pay weekly. It lowers the risk.
Q. When a weekly payment is made, that payment applies to an invoice that COI has received roughly 45 days ago?
A. Well, it's relative to when we receive the disks, yeah.
Q. So is $\mathbf{4 5}$ days a fair approximation?
A. I - I have no idea at this point. I'd have to check on that.
Q. Well, is it your belief that COI typically pays an invoice in fewer than $\mathbf{3 0}$ days after the invoice date?
A. Oh, no. I mean, we have to go through the bills. Historically, you have to understand that I've received about $\$ 2$ million in credits for bad billing in ten years, so we look at every item on the bill and we look at everything that comes in.

MR. STEWART: Your Honor, I'd move to strike that portion of the answer following the first sentence. I can't repeat it. We could have it read back, but the question had nothing to do with credits and COI's receipt of credits.

EXAMINER LYNN: If you could read that back, Valerie.
(Question and answer read back.)
EXAMINER LYNN: Your objection was to the second sentence?

MR. STEWART: Everything following, "Oh, no."

EXAMINER LYNN: I'm sorry. Could you read that back one more time, please?
(Answer read back.)
EXAMINER LYNN: Your objection is after the "oh, no"?

MR. STEWART: Right. The question was directed to the timing of the payments. The "oh, no" answered that question. Everything after that was nonresponsive.

MS. BLOOMFIELD: Your Honor, I would disagree. Mr. Vogelmeier was just asked how long it took to review the bills, and his testimony had said and he confirmed here it was 126 hours. He was explaining that it takes a long time to review the billing. He was explaining his answer no, why they couldn't meet the 30 day on the bill date, because it takes three weeks plus just to review it, and he mentioned that he had to take that level of review each time because over the last several years he's had as many as $\$ 2$ million worth of credits, which, of course, would not have gone to COI unless COI uncovered the errors and brought them to Embarq's attention; so it really is an explanation of his answer and I think it's a proper explanation.

EXAMINER LYNN: We'll grant the motion to
strike, if you can clear that up on redirect. Thank you.

MR. STEWART: Thank you, Your Honor.
By Mr. Stewart:
Q. Mr. Vogelmeier, let's say that COI makes a weekly payment today to Embarq. That payment is for services that Embarq has previously rendered to COI; is that correct?
A. Right.
Q. And if we assume that COI makes one of its weekly payments to Embarq today, roughly how many dollars then remain outstanding for services that Embarq has already provided to COI but for which COI has not yet paid?
A. Okay. Ask that question again.

MR. STEWART: Could you read that back, please?
(Question read back.)
THE WITNESS: Could be $200,000,1$ guess.
By Mr. Stewart:
Q. And it could be even more than that, couldn't it?
A. I -- I don't know. I'd have to look at the timing and all those issues.
Q. Embarg bills COI, I think you indicated,
roughly $\$ 400,000$ per month?
A. Pretty much, yeah. It's going down, but it's --
Q. And if most bills aren't paid in less than 30 days, I conclude that at any particular time there is at least roughly $\$ 400,000$ outstanding. Is that a fair conclusion?

MS. BLOOMFIELD: Your Honor, I have -- I'd
like to make it clear what the 30 days refers to. Mr.
Stewart, are you talking about 30 days from the bill
date or 30 days from the time it's actually received by COI?

MR. STEWART: I was referring to 30 days after the invoice date, which is --

MS. BLOOMFIELD: The invoice date and the bill date are the same, correct, according to the contract, the proposed ICA?

MR. STEWART: That's my belief.
MS. BLOOMFIELD: Thank you. I just think we needed that straightened out.

EXAMINER LYNN: Thank you.
MR. STEWART: You probably have forgotten the question, as probably have I.

MS. BLOOMFIELD: Sorry.
MR. STEWART: That's all right.

By Mr. Stewart:
Q. I think you indicated that on average a monthly bill from Embarq to COI is roughly $\$ 400,000$ ?
A. Yes.
Q. So if COI typically pays more than $\mathbf{3 0}$ days after the invoice date, by that time another month's worth of services will have been provided, again roughly $\$ 400,000$; so my conclusion, which I'm asking you whether it's reasonable, is that at any time there is probably a minimum of $\$ 400,000$ worth of services that Embarq has provided but that haven't yet been paid for?
A. I-I guess. I-I don't have any numbers in front of me to even look at to validate that. It's a possibility.
Q. Well, the --
A. It's relative to when we receive the bill and all those things.
Q. Well, is there something in the logic of my question that you take issue with?
A. Well, it's relative to how much the weekly check is. Some checks are -- l've signed checks for $\$ 185,000$, which would lower that amount that you're talking about. So it's - you know, like I said, it's in the two fifty, three range somewhere, maybe. It's
all relative to what's been paid at what period of time, that type of thing.
Q. Would you agree with me that whenever services have been rendered and in advance of having been paid for, there is some risk that those services won't be paid for?
A. Well, I guess to a certain extent, but you're billing a month in advance anyway, so what's the risk to something you haven't provided yet?
Q. What portion of COI's bills from Embarq is for services they're being billed in advance as compared to those that are being billed in arrears?
A. All the local. Usage type services are billed in arrears, and the CABS bills are billed in arrears; so you're probably looking at about, as I remember my sheet, two eighty-five, three hundred is billed in advance, and maybe three sixty-seven the last month, I think.
Q. Are you saying that - on the average month, then, how much is billed in arrears?
A. Forty thousand.
Q. And for services billed in advance, am I right in thinking they're billed for $\mathbf{3 0}$ days in advance?
A. Yes.
Q. So with respect to a service that's billed 30 days in advance, if the bill for that is not paid within 30 days, then the service will have been provided in its entirety prior to payments having been made?
A. Right.
Q. So there again, until payment has been made, there's a risk that it won't be?
A. Sure.
Q. In fact, these days, that's true even if you were a bank?
A. Well, with Embarq, I'm wondering about CenturyTel, so it goes both ways.
Q. You haven't had any problems with Embarq or CenturyTel paying bills, have you?
A. Embarq paying bills? Yes.
Q. Has Embarq defaulted on any bills? Are we owing you any money now?
A. No, but they're outside the terms of the contract.
Q. So there's always a risk that Embarq might not pay either?
A. Yeah. I think that is a bigger risk than me not paying Embarq.
O. What's your basis for concluding that?
A. Because they go outside the contract no matter what they do. I don't have any leverage. I have to pay the bill every month because, as you stated, they'll send me one of those nice little letters, but if they go outside of the terms of the contract, I have no recourse except to be at the Public Utilities Commission, which I've been here multiple times with Embarq.
Q. You're not suggesting that Embarq has less financial ability to pay than does COI , are you?
A. No. It's just their -- what do I want to say -- their mentality towards adhering to the contracts.
Q. Please turn to Page 8. You make reference to an FCC order in Footnote 1. Have you read that order?
A. Yes.
Q. When did you read it?
A. Oh, sometime during our contract negotiations.
Q. What inspired you to read that?
A. The problem I have with the fact that Embarq's allowing only 10 DS 1 s , and my perception of what that rule says is that to go to a DS3, I ought to average about 11 DS1s. With Embarq that's not the
case. It's 20 DS1s to get to a rate of a DS3.
Q. You're not suggesting that the FCC ruled that the crossover point must be determined based on multiplying the cost of the DS1 and seeing whether that equaled the cost of the DS3, multiplying it by 10 ?
A. No. It's actually 11. Somewhere there there's a breakpoint that it makes sense that you would -- you would buy a DS3 versus continuing to buy DS1s.
Q. But the FCC, in your view, did not say if you multiply the DS1 rate by 11, and if that product is not equal to or greater than the rate for a DS3, then the FCC rule doesn't apply?
A. No. I think they -- my interpretation of what that says is that they use that as a measure to see what the breakpoint would be between DS1s and utilizing a DS3.
Q. You're aware that some years back $\mathbf{C O I}$ filed bankruptcy?
A. Oh, yeah, I'm aware of that.
Q. And Embarq was a substantial unsecured creditor in that bankruptcy?
A. Well, that's what they portrayed, yes.
Q. Did you contest Embarq's Proof of Claim in the bankruptcy proceeding?
filed Chapter 11. We went into bankruptcy. I came to
the PUCO for discussion of the overbilling of UNE-P by
Embarq.
Q. Embarq ended up writing off a substantial - well, let me state this another way.
The bankruptcy resulted in the discharge of a substantial unsecured debt that COI admittedly owed to Embarq; is that correct?
A. I never admitted to that. In fact, it
depends on how you consider them writing off the debt, because we had a settlement in the latter part of 2001. They credited my account for $\$ 1.1$ million, and three months kept my account at $\$ 118,000$ a month
because they couldn't bill the UNE-P; so it's kind of relative to how you determine what's being written off and for what reason.
Q. Well, let's back up, then. Do you recall whether Embarq filed a Proof of Claim in the bankruptcy case?
A. No. We had a proceeding going on at the PUCO at the time. We went into bankruptcy because of a letter we received from Scott Nolan, and six months prior to that I would argue with him and his people at the billing group that they couldn't bill a UNE-P. He said it was billed properly. He sent me a letter. I filed Chapter 11. We went into bankruptcy. I came to the PUCO for discussion of the overbilling of UNE-P by Embarq.

A. Yes.
Q. They did file one?
A. Yes.
Q. Do you recall roughly how much that was
A. $\$ 448,000$.
Q. Did Embarq - I'm sorry. Did COI dispute that Proof of Claim in the bankruptcy proceeding?
A. Sure.
Q. Did the bankruptcy court rule on what Embarq properly owed -- did the bankruptcy court rule on the amount that COI owed Embarq?
A. I don't remember that. I know there was a lot of discussions between the attorneys for Embarq and my attorney and the discussions happening at the PUCO during that period of time.
Q. I take it you admit that as a result of the bankruptcy, COI ended up not paying Embarq a substantial number of dollars that it owed Embarq?
A. No. The only thing I'll admit to is I agreed to pay them 68,500 over 5 years. The amount that Embarq said we owed I think was pretty well documented that -- in the settlement agreement that they didn't -- we weren't -- Embarq wasn't owed all that money. You gotta bill it right before you're owed
it.

|  |  |  |  |
| :---: | :---: | :---: | :---: |

Q. Are you saying that COI paid Embarq in full for all services properly billed by Embarq prior to the bankruptcy?
A. Yes. We paid what we believed was undisputed amounts.
Q. Did you have any discussions with Embarq regarding the cost study that was the basis for the rates contained in the interconnection agreement, the most recent one between Embarq and COI that is now expired?
A. During the negotiation of the contract?
Q. Ever.
A. We talked about it, yeah.
Q. Who did you talk with?
A. Linda Cleveland.
Q. Did you talk to anybody else, Ms.

Londerholm, for example?
A. I think she was on one of the calls with Linda Cleveland, yes.
Q. And Embarq told yon, did they not, that the cost study that was the basis for the rates in the expired COI had an error in it?
A. She told us on that call that there was an error in that?
Q. Well, I don't want to limit it to any particular call. At one point or another you were told by Embarq that the cost study had an error in it.

MS. BLOOMFIELD: Can I get a
clarification? I think there's been several cost
studies. Are you talking about -- which cost study are you talking about?

MR. STEWART: Still the one that was the basis for the rates in the interconnection agreement that is now expired.

MS. BLOOMFIELD: You mean the current ICA, the old - let's call it the old and the proposed. Is that -- do you mean the old one?

MR. STEWART: The last one that was signed which is now expired.

MS. BLOOMFIELD; Except that it goes on. It's the 2005 ICA?

EXAMINER AGRANOFF: It's the one that they're currently operating under?

MS. BLOOMFIELD: That's what I was trying to get to.

MR. STEWART: Yes.
MS. BLOOMFIELD: The one that they're currently operating under?

MR. STEWART: Yes.

MR. STEWART: I move to strike the entire portion of the answer following --I believe he said no, I don't recall. I didn't ask him about all that other stuff.

EXAMINER LYNN: Valerie, can you read that back again, please, with the question?
(Question and answer read back.)
EXAMINER LYNN: Miss Bloomfield, do you have any thoughts on --

MS. BLOOMFIELD: Which I think has a date of 2005. Is that the one?

MR. STEWART: I believe it is 2005.
MS. BLOOMFIELD: Thank you.
THE WITNESS: I don't remember that conversation. I remember talking about the fact that they had bought new software, new TELRIC software, it was state of the art, and that's the reason there was a difference between the 2005 agreement and the new rates.
By Mr. Stewart:
Q. So are you saying you might have been told that and don't recall or do you specifically recall that you were not told that?
A. Oh, I could have been told that and not recall it, sure.
Q. Did you have any discussions with Dr. Ankum or one of his colleagues with respect to any errors that Embarq mentioned to you regarding the cost study that served as the basis for the rates in the 2005 ICA?
A. You're back to anytime or prior to filing the arbitration or during negotiation or you're anytime?
Q. Anytime.
A. Yes, we talked about it.
Q. Did you talk to Dr. Ankum?
A. I don't know that I talked to him. There was some other people from his organization on the phone one day.
Q. Do you recall what you told them or him or her?
A. (Witness shakes head.)
Q. No? You have to say, so she can -
A. No. No, I don't recall what I told him.

My -- my whole issue with the TELRIC pricing was the

MS. BLOOMFIELD: I don't need the answer, but I'm still not sure what the question was.

MR. STEWART: I had asked Mr. Vogelmeier whether he recalled what he told the -- I think as yet unnamed person in Dr. Ankum's group regarding any errors that Embarq had told COI existed in the cost study that was the basis for the rates in the 2005 interconnection agreement. The initial part of his answer was no, I don't recall. That was, in my view, the complete answer to the question.

EXAMINER LYNN: Miss Bloomfield, do you have any thoughts?

MS. BLOOMFIELD: I think he was explaining his answer "no," because he felt that it wasn't necessary to ask that question because he had been told that because Embarq did not have approved TELRIC pricing, he was not obliged to look at or spend money on TELRIC pricing, basically, in a nutshell. That's -again, he was explaining his answer.

EXAMINER LYNN: Ill grant the motion to strike.

MR. STEWART: I --
EXAMINER LYNN: Fll grant the motion to strike. Thank you.

MR. STEWART: Thank you, Your Honor.

By Mr. Stewart:
Q. When COI bills its customers, how long after the bill date are payments due?
A. Fifteen days.

EXAMINER AGRANOFF: Is that invoice date or date of receipt?

THE WITNESS: It's - we factor in a delivery time for mail or that type of thing, so
it's -- if it was an invoice date, it would be 30
days. We have multiple invoice dates through the
month, so it's -- we factor in 2 or 3 days for mail delivery and then 15 days after that.
By Mr. Stewart:
Q. Does COI obtain security deposits from any of its customers?
A. Don't know that.
Q. I couldn't hear. I'm sorry.
A. I do not know of any.
Q. Thank you. Do you recall when you retained QSI Consulting to review Embarq's cost stady?
A. Well, roughly. I don't remember the exact
date.
Q. Okay. Roughly, then.
A. After we had one of the negotiation calls.
Q. And Embarg had previously urged COI to
review the Embarq cost study; is that true?
A. Yes.
Q. And COI had graciously declined to do so?
A. Again, there was no point.
Q. So that's a yes?
A. Sure. Yeah. I didn't see any $-=$ any reason to waste our time having somebody look at something that was not approved.

MR. STEWART: May I have three minutes?
EXAMINER LYNN: Yes. Off the record for a few minutes.
(Discussion off the record.)
By Mr. Stewart:
Q. Mr. Vogelmeier, do you recall roughly how many months before you retained QSI Embarq offered to make its cost study available to COI?
A. How many months before?
Q. Before COI retained Dr, Ankum's group.

MS. BLOOMFIELD: I'm sorry, between what and what? Im losing the question.

EXAMINER LYNN: If you could repeat your question, Mr. Stewart.

MR. STEWART: Sure.
EXAMINER LYNN: Thank you.

By Mr. Stewart:
Q. Roughly how many months before COI retained QSI had Embarq offered to make its cost study available for COI to review?
A. A month, maybe a month and a half, something like that, I think. I don't know. I
could -- well, yeah. Some -- I don't know what the time frame is, a month and a half, two months, something like that maybe.
Q. That's all I have.

EXAMINER LYNN: Thank you. At this point, I think we'll take a break, maybe a ten-minute break or so before we do our further examination. Thank you.
(Recess taken.)
EXAMINER LYNN: Miss Bloomfield, redirect?

MS. BLOOMFIELD: Yes, Your Honor. REDIRECT EXAMINATION
By Ms. Bloomfield:
Q. Mr. Vogelmeier, you were asked a number of questions about the bills that you received from Embarq; is that correct?
A. Yes.
Q. And did you bring paper copies of those bills with you today?
A. Yes.
Q. Of one month's bills?
A. Yes.
Q. And are they sitting here on the table?
A. Yes.
Q. Would you just direct -
A. It's the white boxes there that have the Embarq symbol on the top.
Q. That represents all the billings that you get for a single month; is that correct?
A. That's all the local bills, yes.
Q. So that doesn't represent absolutely everything or not?
A. No. I think that's CABS and the IXC side.
Q. So --
A. There's an equal amount IXC.
Q. So would you estimate that's about 12 to 14 inches each, so it would be 28 inches worth of paper?
A. Uh-huh.
Q. And you were also asked questions about the FTP process; correct?
A. Yes.
Q. Which is the File --
A. Transfer Protocol.
Q. Transfer Protocol. And what is the File

## Transfer Protocol?

A. It's basically what it says. It's a
protocol that allows you to transfer files between
servers.
Q. So you need that protocol in order to get material from Embarq to COI and vice versa; correct?
A. Yes. Electronically, yes.
Q. Has Embarq told you that if you use that protocol, what format they would be providing the bills in?
A. It comes in a BOS-45 format.
Q. Is that B-O-S, all in caps, 45 ?
A. Yes.
Q. And that is a special kind of format, is it not?
A. It's a Telcore standard for ILEC. It's been around for a hundred years.
Q. As you indicated, you have to have special software programs to read that; is that correct?
A. Yes.
Q. And you also indicated that in order to read that, when you did your investigation, that started with advice from Embarg to go to Telcordia, you
found that the prices for software in order for COI to read the BOS-45 format was on the range of between, what was it, $\mathbf{3 0}$ and $\$ 150,000$ ?
A. Yes.
Q. And then knowing that, what you did was you - you went to -- you testified that you went to Telcordia, you bought the -- part of the package, which was the layout portion of the package, and then you hired a programmer to do the rest of the software so you wouldn't have to pay the 30 to $\$ 150,000$; is that correct?
A. Right.
Q. And did you do an estimate of about how much that was going to cost you if you used your programmer?
A. What we felt it would take would be something south of $\$ 20,000$, probably in the 15,000 range somewhere.
Q. And did you ask your programmer to begin that process of programming so that you could accept the BOS-45 format?
A. I did that. It took me about three weeks to get the Call Record Layout from Telcordia, but once I received that, then he started on the process.
Q. Has it taken several months for him to get

25
to the point where he's ready to test programs?
A. Yes. It's a little more intricate than a lot of other billing types.
Q. So, basically, in order to have the bills come more quickly and electronically, you had to make -- a customer, in order to accept the BOS-45 format, has to make a substantial investment?
A. Right.
Q. You were also asked a number of questions about bankruptcy, and I'd like to ask you questions to sort of clarify timingwise what happened. Is it the case that you filed the bankruptcy in approximately the year 2000?
A. August 23rd, 2000.
Q. And is it your view that you filed the case in part because Sprint, at the time, was claiming some large amounts from COI which COI disputed?
A. Yes.
Q. And did I understand your testimony to say that you tried to -- you went back and forth with the then person at Sprint about how -- about the dispute and the -- Sprint was adamant, so that's what impelled you to file the Chapter 11?
A. Yes. I think everybody at Embarq knows me. I try to do everything I can to stay away from
adversarial proceedings.
Q. And then once you filed the Chapter 11, did you ask for mediation of that - of the Spriat portion of the billing dispute before the PUCO?
A. Yes.
Q. And, ultimately, did you have a mediation?
A. We had several conference calls. There was a person, Becky Donahue, was here for Sprint at that time. She was at the meeting, and several Staff people from the PUCO. It wasn't a - it wasn't a real mediation, I guess. It wasn't a formal mediation. It was a -- tried to discuss it before we get there.
Q. And as far as you know, there was no case number assigned? It was an informal mediation process; correct?
A. I think so.

EXAMINER AGRANOFF: So the record is clear, if you can just establish the nexus between Sprint and Embarq?

MS. BLOOMFIELD: Yes.
By Ms. Bloomfield:
Q. Is it your understanding, Mr. Vogelmeier, that Sprint is the predecessor company or the name of the company before Embarq?
A. Right.
Q. So if I use Sprint, I'm really talking the predecessor of Embarq?
A. Right. I agree.
Q. Okay. At the conclusion of the informal mediation was there a written settlement?
A. Yes.
Q. And did the written settlement provide that Sprint was going to credit, Sprint/Embarq was going to credit COI for more than a million dollars?
A. It was 1.102 , I think was the number.
Q. Right.
A. $1,102,000$.
Q. All right. Then returning to the
bankruptcy part, the part that was in the bankruptcy court at that time, was there not a settlement reached in the bankruptcy as well?
A. Yes.
Q. Okay. And did you have conversations with your bankruptcy attorney concerning how that - the background for that settlement?
A. Well, yeah. He was - he wasn't involved specifically with the PUCO, but that was - it was all intertwined, and we had conversations with our outside counsel. Sprint had outside counsel handling that, so-
Q. Okay. You were also asked some questions
about the cost studies that were -- that were proffered
Q. Okay. You were also asked some questions
about the cost studies that were -- that were proffered to you by Embarq during the negotiations. Is it not the case that during the - during the negotiations and the case that during the - during the negotiations and
through the time to the present, Embarq proffered three different cost studies?
A. I don't remember that, but they could
have. We had a lot of discussions about TELRIC, and like I previously testified, I didn't see that it was pertinent to the conversations.
Q. When you were first offered the opportunity to look at a cost study that was based on TELRIC pricing, what did you do? A. They sent me a nondisclosure. That's when I came to the -- well, Pam and I looked for TELRIC-approved rates at the PUCO, and we couldn't find that; so I asked the Staff, you know, is there approved rates out there, and they said no. Q. The Staff told you no, that Embarq had not had TELRIC-approved rates; correct?
A. They didn't have TELRIC-approved rates in

Ohio and everything is negotiated.
Q. Okay. So, at that point, did you conclude that it was not your responsibility to disprove a cost study based on TELRIC rates?
ultimately in the bankruptcy portion of the proceeding there was an agreement reached as to a dollar amount that COI would pay to Sprint/Embarq over a five-year period?
A. Yes.
Q. And that dollar amount was on the order of $\$ 68,000$; correct?
A. Yes.
Q. And is it also your understanding that because of the negotiated settlement, the $\$ 68,000$ was not based on a claim, a specific claim number that Sprint put in, but rather they agreed on the rate, the $\$ 68,000$, and then knowing what the percentage was going to be, they - they backed up to a $\$ 680,000$ plus number?
A. Right. It was pretty much all convoluted with the hearing -- or not the hearing, the discussions with the PUCO and the bankruptcy, and they worked it around to make everybody warm and fuzzy.
Q. So you would take issue with anybody who said that originally in the bankruptcy proceeding $\mathbf{C O I}$ owed Sprint/Embarq on the order of $\$ 680,000$; is that correct?
A. Oh, I - yes. I said that.
A. Right. I didn't see any point in spending the money to disprove something that hadn't been approved to begin with.
Q. And are you aware that there was more than one cost study proffered to COI during the - during the entire negotiation period?
A. Well, I don't know during the negotiation --
Q. Starting - go ahead.
A. I know there was two, because they sent one and then we spent money having that analyzed, and then they decided that that really wasn't the one. They sent me another one, so I had to pay to have that analyzed; so I know it's been at least two.
Q. So if you had - the initial time that they had first proffered you a cost study, had you gotten a consultant at that point, you would have had the consultant -- you would have spent money on the consultant to look at that cost study; correct?
A. Oh , yeah.
Q. And then it would have been replaced by another cost study, and you would have had the consultant paid to look at that; right?
A. Right.
Q. And then for the last one, which is the
one we're looking at now, you had the consultant for that as well; correct?
A. Right.
Q. So, currently, just so far, you have had your cost consultant look at two different cost studies; correct?
A. Right.
Q. You had to pay for that; correct?
A. Right.
Q. And is it still your position that you are
not obliged to disprove the TELRIC cost study of Embarq?
A. That's my position for sure.
Q. And that is because they don't have a Commission-approved TELRIC cost study from which to begin the negotiations -
A. Right.
Q. - is that correct?
A. Right.
Q. Let's return to the bills and payments.

You were asked questions about being more than -paying bills more than $\mathbf{3 0}$ days from the due date on the
bill. Is it not the case that the due date is printed on the bill sometime before the bill is actually pushed out of Embarg to the customer?
A. There is a predetermined bill date printed on the bill for that cycle.
Q. But when you -- and you discussed, for example, that currently, although in the past - I guess it's -- well, let me ask you. In the past would Embarg send you more than one CD each month?
A. Well, in the past it was all paper. In the past it was all paper, and then we moved to --
Q. CD?
A. Get the CD.
Q. And then when the CDs were first sent, when they began sending the CDs to you, in the beginning was there more than one CD that Embarq sent to you each month?
A. I believe there was two.
Q. Was there ever a case when they sent the first CD, that you couldn't read it, so you had to ask for a second CD?
A. It came in a format that we couldn't open, so they redid the CD and put it into a different format, a PDF format, and today they send them that way now. For a period of time they were sending both, and we couldn't read the one, but they kept sending it, and then they would send the PDF format, which we used.
Q. So that would be why Embarq would say that
Q. Okay. So you received it on - September, and is it not -- isn't it the case from your testimony that the bill date - well, first of all, the bill date is on the invoice; correct?
A. Right.
Q. And according to your contract, the due date that you are supposed to pay is computed from the bill date?
A. Right.
Q. And you have $\mathbf{3 0}$ days from that bill date?
A. Right.
Q. So even if you don't - and if the bill date is on the 3rd, as you -- and you testified that some of the bills were dated the 3 rd, that was the bill date, but you received them on the 18th or the 19 th. Then already, by the time you received them, 16 days of your -- of the 30-day due date was already past; correct?
A. Right, yeah.
Q. You were asked a bunch of questions about whether or not you paid within the 30 days of the bill date; correct?
A. Right.
Q. Okay. If we computed the time from the -if we computed the 30 days from the time that you
over a five-month period you received sixteen CDs, but really - I mean, because there was more than one sent each month; correct?
A. For many months there was more than one sent, yeah.
Q. So after you couldn't read the first one -- did this happen more than once that you would get a CD, you couldn't read it, so you had to ask for the CD to be given to you again in PDF form so you could read it?
A. Right.
Q. Did that happen more than one month?
A. Yes.
Q. Approximately how many months did that happen?
A. Three or four. I wasn't totally involved in -- I got the one I could read.
Q. So is this the correct sequence of events, you would get -- finally you would get a CD, and you testified that recently, for example, this past month, you got the CD on the -- last month you said you got -you received the CD on the 19th?
A. Yes.
Q. Was that the 19th of September or October?
A. That was September.
actually recelved the invoices, would there have been many or any times that you would have -- that Embarq or, excuse me, that COI would have paid -- would have taken longer than $\mathbf{3 0}$ days to actually pay the bill that they actually got?
A. Yeah, I think there still would have been times where there would have been more than 30 days, but it wouldn't have been many days, I wouldn't think. It's - well -
Q. But it would have been less than - it would have been less than the time if - you would have paid more times within $\mathbf{3 0}$ days if the $\mathbf{3 0}$ days were computed from the time you actually received the bill; is that correct?
A. Right.
Q. Okay.
A. We've had this conversation with them probably for eight years.
Q. You were asked questions about whether or not Embarq was - owed COI money; right?
A. Yes.
Q. And you testified that yes, they did, and they were late, also; correct?
A. That's right.
Q. And is it not the case that yon've had
several settlements, say, since 2000 through 2008 that settled late - or settled payments that Embarq owed to COI, but that had not been paid timely?
A. I've had one, yes.
Q. And during the -- in addition to the $\$ 1.1$
million that was agreed to in the mediation settlement
before the PUCO, from that time to this time, approximately how much credit in -- how much credit has Embarq agreed to pay COI for erroneous bills?
A. 900,000 , roughly.
Q. So altogether --
A. 260,000 came in June of ' 06 .
Q. So altogether, during this period that we're talking about from 2000 to the present, there have been, in terms of errors and so forth that ultimately COI prevailed on, there's been on the order of $\$ 2$ million worth of credits that have been finally agreed to by Embarq to be credited to COI ; is that correct?
A. Yes.

MS. BLOOMFIELD: I don't have any questions, Your Honor. No further questions.

EXAMINER LYNN: Thank you.
Mr. Stewart, further questions?
MR. STEWART: Yes. Thank you, Your

Honor.

## RECROSS-EXAMINATION

By Mr. Stewart:
Q. Mr. Vogelmeier, you testified regarding this FTP format and your conversations with Telcordia. When I was cross-examining you, I understood that what Telcordia was going to charge you a lot of money for was software that would enable you to analyze the FTP bill as opposed to something that would just enable you to read it. Did I understand you correctly?
A. No. The only thing Telcordia would supply was the Call Record Layout.
Q. Let me back up, then. When you get the FTP bill, what do you need in order to be able to read it?
A. We need software to be able to read the BOS-45 layout.
Q. What is the BOS-45 layout?
A. That's what Telcordia said these records are being sent in. It's a protocol -- or a record layout or a billing format that ILECs have sent between themselves for years.
Q. So are you saying that without purchasing software from Telcordia, COI would not be able to open and read the FTP bill?
A. Right.
Q. And --
A. Let me back up. You can open it, but it's just a mass of records. You can't -- you don't -- you don't know what it means.
Q. And what was the charge from Telcordia to be able to understand what the bill said?
A. Telcordia wouldn't provide that. They do not provide the software they told me. They provided the Call Record Layout, and they gave me names of a couple of companies that have developed software that would sell that software to me, and that would be in the range of 30 to $\$ 150,000$ when I checked with those companies.
Q. And are you saying that that software is necessary in order to merely read the bill?
A. That's what they told me, yeah.
Q. So without buying special software, your testimony is that the FTP bill can be open, but after you open it, you're unable to interpret it?
A. That would be correct, yeah.
Q. When COI filed bankruptcy, how many creditors besides Embarq were there listed in the bankruptcy petition?
A. Oh, I don't know, 40, 50 maybe.
Q. Did all those other creditors get paid in full?
A. No. You're not allowed to do that. I wanted to do that, but there was an issue with the Embarq side of it, so --
Q. Are you claiming that Embarq somehow prevented you from paying other creditors?
A. No. You have to treat all creditors
equally, and because of the PUCO proceeding and credits going on and the filings, Proof of Claim filings by Embarq, it was real tough to tell somebody that we owed them $\$ 35$ that we couldn't pay them in full.
Q. So the creditors get about ten cents on the dollar?
A. Pretty much, the ones that were there.

There was a lot of creditors that weren't even included. We didn't owe them anything.
Q. Was it your understanding that if your negotiations with Embary were unsuccessful and you went to arbitration with Embarq, didn't you expect Embarq to introduce a TELRIC cost study?
A. Well, actually, that -- that's where we were in the negotiation process. I mean, that's -that's where -- they were going to introduce a TELRIC study, and, you know, I'm -- I'm trying to understand
why at this point in time, but -
Q. You understand that in the arbitration the Commission would be setting interim rates based on the best available evidence?
A. Sure.
Q. Did you have any reason to believe that Embarq would not submit a TELRIC cost study and argue that's the best available evidence?
A. Oh, no. That's what they said they were going to do.
Q. Your counsel asked you to identify a big stack of paper representing one month's bills. When your employees review the Embarq bills, do they look at the CD or the paper?
A. Today they're looking at the CD because we don't receive that paper, I don't believe, of a local bill. We've been changing our profile to get where we need to be, and the discussion we're having over FTP was discussed in a mediation call, and I pretty much thought we knew where we were going here, but -
Q. Is it your testimony that once your people get this software developed to analyze the FTP bill, that will enable COI to review the bills for accuracy more quickly?
A. Well, that's generally what their
conclusion was the whole conversation, yeah.
Q. That's your hope and belief right now?
A. I'm hoping l can send disputes within two hours of receiving bills.
Q. Are you also hoping to be able to pay the bills within 30 days of the invoice date?
A. That was the -- well, we have an adjusted time period in there, but that was -- I'm told I'm not supposed to talk about the mediation, so --
Q. Now, on redirect you were asked regarding a situation in September of this year where an invoice date was September 3 or 4, I believe, but the actual receipt of the CD was September 18th. Do I have that right?
A. On that CD we have invoice cycles that are the 3 rd of the month and the 8 th of the month. Now, they consolidated some of them. There's some in between, and I think we had some dates past the 8 th, but they consolidated a bunch of them into the 8 th, and I think they left one bill on the 3rd, if I remember what they told me is correct, yes.
Q. For the invoice dated September 3, when, if ever, did COI receive the paper copy of that invoice?
A. In the past or this month?
Q. On September 3 of '08.
A. We get it on CD right now, today.
Q. So are you saying COI doesn't receive paper anymore at all?
A. CABS bills come on paper. We are also getting CABS - CABS and usage are coming on paper. CABS and usage are being sent on an FTP basis. The local bills aren't being sent that way today because I have to change my profile, and so we're getting CABS and usage paper and - well, actually, we're getting CABS, usage on paper, CD, and FTP.
Q. The invoice dated September 3, '08, to which you refer, what was that invoice for?
A. It's a local bill. It's either resale UNE-P or UNE.
(Discussion off the record.)
THE WITNESS: UNE-P or UNE, U-N-E, Unbundled Network Elements, and UNE-P is Unbundled Network Elements Platform. By Mr. Stewart:
Q. In what format did you receive the bill with the September 3, 2008, invoice date?
A. CD.
Q. So the only medium on which you received that September 3, '08, bill was the CD that you

## received about September 18 ?

A. Right. You've got to put this in context. We have had multiple conversations over the last five months about doing away with the paper, we're trying to make Embarq more efficient and cost effective here, so we're getting rid of the paper and getting to CDs or FTP, and so a lot of the paper has gone away, but not all of the paper has gone away. We're moving to try to get everything to FTP, is the bottom line.
Q. Historically, and if you want to answer this differently based on the different types of services, that's fine, what's the average number of days between an invoice date and the date that you receive either a paper or CD bill?
A. It's basically been about the same, 13 to 15 days after the first of the month. Most of the billing is on the 3 rd , so on the $15 \mathrm{th}, 13$ th, the 15 th, and the CDs are coming the 15 th to the 18 th , something like that. Last month was kind of strange. I don't know why it was so late last month. So the paper and the CD are basically coming on the same - same time frame. You'd think the CD, once they ran the program, the CD could be developed and shot out, but I don't know what they have to do to get to the $C D$ process.
Q. Had you stated previously that the time
between the invoice date and the date upon which COI received a bill was four to five days?
A. Just now or some other time?
Q. Anytime. Not today.
A. No. We - again, there was a prior discussion about the FTP, and we talked about once that was established, it would be four or five days.
(Discussion off the record.)
By Mr. Stewart:
Q. I think you testified that you've been having conversations with Embarq for a number of years regarding their billing processes?
A. (Witness nods head.)
Q. When did Embarq propose to you the FTP electronic billing?
A. We started talking about it, I don't know, either during the negotiation or during one of those discussions after the negotiations.
Q. Spring of this year sound right?
A. Yeah.
Q. Now, I think you said that over maybe the last ten years you've received about $\$ 2$ million worth of credits from Embarq for bills?
A. Right.
Q. And I think you've also testified that on
a monthly basis Embarq bills COI $\mathbf{\$ 4 0 0 , 0 0 0}$ ?
A. Yeah, and in the past it's been higher, but it's -- totally for CABS and everything it's about 400.
Q. So, historically, would an approximate yearly average of billing from Embarq to COI be in the neighborhood of 5 to 6 million?
A. I think it would be closer to $41 / 2$ or 5 , but -- 400,000 a month gets you to 4.8 .
Q. Well, the reason I used a higher number was I think you said that in the past it was more than 400,000 a month.
A. I think it was about 750,000 . The bill has dropped about $\$ 75,000$ a month since June of ${ }^{\prime} 06$.
Q. Okay. So during those years when the monthly billing was $\mathbf{7 5 0 , 0 0 0}$, the annual billing --
A. No. The yearly amount was $\$ 750,000$
higher. The monthly never got to 750 . It was 440,
450 , whatever it worked out, something.
Q. So a fair approximation would be $\$ 5$
million a year?
A. Right.
Q. Over 10 years, that's $\mathbf{\$ 5 0}$ million?
A. Right.
Q. Have you discussed with other CLECs their
bill review processes?
A. Yes.
Q. What have you been able to learn in terms of how they do it which might be an improvement over how COI does it?
A. Well, most of them are moving to an FTP-type process.

EXAMINER LYNN: Mr. Stewart, that would be CLEC as in Competitive Local Exchange Carrier, for the reporter?

MR. STEWART: Yes. Thank you, Your
Honor. That's correct. I have no further questions.
MS. BLOOMFIELD: Your Honor, I just have a clarification question here.

REDIRECT EXAMINATION
By Ms. Bloomfield:
Q. Mr. Vogelmeier, we've been talking about - is it your understanding that FTP or the File Transfer Protocol is really a pipe between the server of COI and the server of Embarq; correct?
A. Right. It's an IP tunnel.
Q. Right. So the pipe, the FTP, would not have to be used exclusively for BOS-45 protocol, correct, or format; right?
A. We have companies that send PDF files FTP.
Q. But currently do you have a pipe in place?
A. Yes.
Q. Okay. In the past have you asked Embarq to send you PDF versions of the bills through the FTP?
A. Yeah. I asked that initially, yeah.
Q. And currently has Embarq told you the only thing they would send through this pipe is the BOS-45 format?
A. Right. That's what they said.
Q. So, theoretically, you could have gotten everything you got on your CDs that took so long, you could have gotten those on the FTP; correct? That's the pipe?
A. Yeah.
Q. And how long has your FTP been in place?
A. Oh, I don't know. Probably two months, something like that, by the time we got through the testing and making sure the pipe worked and all those kind of things.
Q. And it is your testimnony that while you requested PDF format to go through that pipe, they wouldn't give it to you?
A. I suggested that if they were in a hurry for me to get my bill, that would be an alternative.
Q. Thank you. No further questions.

EXAMINER LYNN: We'll take questions from the Panel. Miss Russell, do you have any questions for the witness?

EXAMINATION
By Ms. Russell:
Q. Mr. Vogelmeier, I'm going to go to the issues list just to get some questions out of the way that you probably have an answer to for me.
A. Okay.
Q. I'm going to Issue 8, talking about the definition of DS1.
A. Okay.

MS. BLOOMFIELD: Your Honor, may I give him an issues list? Im not sure he's got it.

MS. RUSSELL: Sure.
MS. BLOOMFIELD: Are you looking at the one from the 28th, the May 28th issues list?

MS. RUSSELL: We have the 28th issues list.

MS. BLOOMFIELD: That's the one I have. I want to make sure we're looking at the same one.
(Discussion off the record.)
EXAMINER LYNN: We have a May 30th. Mr. Vogelmeier, on the bottom of your sheet does it say May 28 or May 30th?

THE WITNESS: It says June 23rd -- oh, it. has May 28th on the top.

EXAMINER LYNN: On the top, okay. I think we're all looking at the same thing, then.

MS. BLOOMFIELD: Yes. I think that's when it was printed.

EXAMINER LYNN: It says "last updated."
MS. BLOOMFIELD: Let me look on his and see if that's got the same thing.
(Discussion off the record.)
By Ms. Russell:
Q. I'm going to ask you about Issue 1 and Issue 8 together. They're both definitions of DS1.
A. Okay.
Q. Would you be opposed to taking the definition out of Section 45.61 which is Issue 8 , taking that definition out of that section since it's already in Issue 1 in the definitions section of the agreement?
A. I'd have to look at it based upon the entire -- I'm not -- right today I don't know for sure what's all contained in that section, but -- I can sure look at that.
Q. Okay.

EXAMINER AGRANOFF: Miss Russell, so the
record is clear, what you're asking the witness questions about is contained in the issues list that was included as part of the arbitration packet that was filed with the Commission?

MS. RUSSELL: Correct. EXAMINER AGRANOFF: Okay.
By Ms. Russell:
Q. Okay. Let's move - I'm going to ask you a few questions about line conditioning.
A. Okay.
Q. Is COI aware that the FCC has held that an ILEC, or Incumbent Local Exchange Carrier, can recover the cost of line conditioning from the telecommunication carrier requesting the line conditioning?
A. I've been told that, yes.
Q. Are you aware that on the - in the $\mathbf{2 0 0 5}$ agreement that you're currently working out of that there is a charge for line conditioning on that price list?
A. Yes.
Q. Has COI ever been charged a line conditioning charge?
A. It started in October of '07. Prior to that there was no conditioning charges for DS1s, only

ADSL circuit.
Q. Do you know how much COI was charged?
A. I think we're in the range of right now 22 to $\$ 25,000$. We're charged to have all the load coils which have to come off, but all the bridge taps, they take all the bridge taps off of the circuit for a DS1.
Q. Okay. What is COI's position on line conditioning assuming from this hearing that we find that Embarq's proposed rates do not include line conditioning?
A. Well, I guess my struggle here is that we've gone so many years that the interpretation of the contract was one way and today it changed. So the arguments in the -- if you read those sections of the DS1, sections of the -- the contract is not specific to circuits that are under 18,000 feet. It is very specific to circuits over 18,000 feet, so my - my original contention is that in the pricing that they're charging and the installation they're charging for a DSI, that the conditioning is included.
Q. Okay. If it's found that the condition is not included, what will COI's position be then with regard to the charge for line conditioning?
A. Well, we've had multiple conversations about the fact that they delivered the T1s on HDSL
technology, and that technology was developed for ILECs, so they wouldn't have to take bridge taps off of all the circuits out there to provide a DS1. So, you know, along with the fact that I think they're already billing me for the conditioning part of it, they're also using HDSL technology, which they're delivering that T 1 and they don't have to totally condition it. There might be times they do -- or there might be times they might have to. There's a lot of times, based on the information that I've received, that it's not required, but I'm still billed for it, and I have no way to validate whether they do the job or not. So that's - the HDSL technology is -- allows you to leave bridge taps on based upon the number of feet from the CO and the number of pairs you're using. HDSL can be two-wire, four-wire.
Q. So based on the length of the line, if it was over 18,000 feet, would COI be opposed to paying a line conditioning charge as compared to being under 18,000 feet?
A. Well, the way I read the agreement, it's not specific. It doesn't say anything about line conditioning under 18,000 feet. It does say -- it is specific over 18,000 . We don't put in -- I would say there's one percent of the circuits we put in that are
over 18,000 feet.
Q. Okay. Do you disagree with the rates that you're being charged for line conditioning?
A. Well, I don't know about the rate. I can't validate it. The prequalification that I get back from Embarq says HDSL technology on the bottom. I know that they don't have to take all the line conditioning off. Mr. Maples, in his testimony, said that, and so, you know, I know they don't have to do that. Are they doing it to provide my circuit? I have no way of validating that at all.
Q. Okay. Issue 11 proposing to strike the word excessive out of the - let me see exactly. "Conditioned loops are loops from which excessive bridge taps" - are removed, I'm just saying you want to remove the word "excessive." Are you implying that Embarq should remove all bridge taps or that they currently are removing all bridge taps?
A. I've been told that that's a policy of Embarq to remove all bridge taps, and we've, in fact, been billed for all the bridge taps being removed even though it's HDSL technology. I think the change in that language was because we know that all of them don't have to be taken off.
Q. COI does not believe that all bridge taps
need to be removed to make a line DSL capable? (Discussion off the record.) THE WITNESS: Was there a question there I can answer?
By Ms. Russell:
Q. Does COI believe - I think you answered it before. You said you don't believe that all bridge taps need to be removed to make a line DSL capable?
A. Right. We checked with the manufacturer. Embarq's using that manufacturer. So, you know, it's pretty common knowledge at this point in time.
Q. Has COI ever ordered loop make-up information from Embarq?
A. We're required to do a prequalification on the -- order a prequal. report on a circuit that we put in. However, that has only been to decide whether it is -- we want to accept the charges or not, when we're talking about DS1 through Embarg.
Q. Was COI charged for that loop make-up information?
A. Don't know about that. If it was, it wasn't enough for me to worry about, considering the conditioning was anywhere from $\$ 100$ to $\$ 1,000$ at times.
Q. Thank you. I have no further questions. EXAMINER LYNN: Miss Green.

MS. GREEN: Yes. EXAMINATION
By Ms. Green:
Q. Mr. Vogelmeier, does COI purchase four-wire loops from Embarq?
A. Well -- UNE loops or UNE-P loops?
Q. Yes, four-wire ones.
A. Four-wire UNE loops?
Q. Yes.
A. Not today, no.
Q. Okay. Does COI purchase DS1 loops from Embarq?
A. Yes.
Q. Yes. Okay. In the current
interconnection agreement that is now expired, which bands, rate bands, does COI purchase the DS1 loops out of?
A. It was normally in Bands 2 and 3 .
Q. Can you estimate a percentage of the DSI loops that are purchased out of Bands 2 or 3? Say, for example, you have 10 percent you purchase in Band 2, 20 percent you purchase in Band 3, just a rough estimate.
A. I don't know. There would be more in Band 2 than Band 3.
Q. Okay.

72
A. Band 2 is the most cost effective.
Q. In the interconnection agreement that's being proposed in this arbitration, which bands would that correspond to currently, in this new interconnection agreement? As far as in your old interconnection agreement, you purchased out of Bands 2 and 3. Would that still be Bands 2 and 3 in this current interconnection agreement that's in this arbitration?
A. I've had a tough time interpreting it. We started out with four bands, and now they're talking about three bands, so it's -- it's - it's always going to be Band 2, I think, because Band 1 is Cincinnati Bell. Band 2 is us, and then whatever lies in those other areas.
Q. So, from your interpretation, it would be at least in Band 2 in the proposed interconnection agreement; correct?
A. Yes.
Q. Your Issue No. 10 in regards to the DS1 transport loop cap, based off of your testimony on Pages 8 and 9, what exactly are you asking the arbitration Panel to modify?
A. Well, I think that -- that transition from a DS1 to a DS3 has to be more cost effective. On the
1
2
3
4
other side - I'll give you an example. DSI transport
from Lima to Delphos is $\$ 132$. DS3 transport on the
CLEC side is $\$ 5,200$. It's about 20 Tls. Now --
EXAMINER LYNN: You said 20 TYs?
THE WITNESS: TIs.
EXAMINER LYNN: Tls?
THE WITNESS: Yes. DSI and T1, r'll use
that term kind of interchangeably, but the breakpoint
is about 20 . For me, it doesn't make sense to do that,
because I'm looking for an altemative carrier to do
that. For Embarq, they're going to lose the revenue,
so it kind of doesn't make sense for them, but their
pricing is kind of in their own world today, so --
By Ms. Green:
Q. Okay. So just for clarification, the

FCC's breakpoint, we'll say, is 10 . More than 10 DS1, a CLEC should be able to purchase a DS3?
A. Right.
Q. But you are under the belief that it
should be 20 DS1s to purchase before you move over to a DS3; is that correct?
A. Well, I put that number in there because the rationale that I was being told from the Embarq people was just as extreme the other direction. I
think it ought to be in the 11 to 13 range that a DS3
is cost effective. Historically, I've done business with United Telephone and Sprint and then Embarq. On the access side, break even on DS3s are 11 to 13. That's just the way it always normally is. Now that it's a CLEC issue, the cost of that fiber going between Lima and Delphos has gotten very expensive.
Q. So you're asking us to modify that cap point, then?
A. Right. I mean, it helps both sides, because I'm going to find some other way to get there. They lose the revenue and - but that's --
Q. Just a couple of more questions. In Miss Londerholm's testimony, she states on Page 47, Line 13, that COI's current interconnection agreement with Verizon, that COI pays a rate of $\$ 160$, I think it's 53 cents -- sorry. I've got it here. It's $\$ 160.31$. Does Verizon utilize a rate band system, also?
A. To some extent, not as -- as extensive than what Embarq does.
Q. Okay. So this rate that Miss Londerholm quotes in her testimony, is that a correct rate?
A. That's the rate that's contained in that interconnect agreement that we've had just as long as Embarq. However, we don't use that product, and we've never negotiated that rate.
76
Q. Okay.
A. It's kind of like Cincinnati Bell not negotiating the DSI rates in the current agreement. They don't use it.
Q. Okay. So the rate that's in her testimony, COI does not purchase those loops from Verizon?
A. Right.
Q. That's all the questions that I have. EXAMINER LYNN: Thank you, Miss Green. Mr. Agranoff, if you're ready, you can proceed with your questions. EXAMINATION
By Examiner Agranoff:
Q. Good morning, Mr. Vogelmeier.
A. Good morning.
Q. My questions are going to predominately focus on Issue 2. The first thing I just want to clarify is with respect to your customer base. Are you dealing strictly with business customers?
A. It's about 95 percent business and 5 percent residential.
Q. But the billing issue that we've been discussing this morning is inclusive of both the residential as well as the business customer base?
A. Page 3?
Q. Page 3 .
A. "Some background for our position" -
Q. No.

MR. STEWART: The next sentence. THE WITNESS: Each month Embarq renders ten COI bills?
By Examiner Agranoff:
Q. Correct.
A. Part of seven, most of eight. Okay.
Q. What I'm trying to do is somehow reconcile what your prefiled testimony says and give context to that somehow in relationship to what is actually occurring today. Is this - was this written based on what was happening or is this based on what is happening?
A. Well, we've been in a transition, so when this was written, it was based upon what had happened and what was -- what was going on at that point in time. We've been moving to -- and they've been moving billing dates around. I think the last month was the first month that we had just to January 3rd and they -not January. A 3rd bill date and an 8th of the month bill date. I think last month was the first month they finally moved all that around to get there.
Q. Can you turn to Page 3 of your prefiled testimony? Are you there?
A. Yes.
Q. If you go to Line 7, the middle of the
line where you discuss, "Each month Embarq renders to
COI ten bills" --
EXAMINER LYNN: Are you there?
COI ten bills" --
EXAMINER LYNN: Are you there?
THE WITNESS: On Line 7?
By Examiner Agranoff:
Q. It begins on Line 7, in the middle.
Q. Okay. But when you say you receive multiple invoices, you don't receive 10 separate bills, though, on 10 separate days?
A. No. They used to be, like, four different days, and there would be multiple bills come on that billing date. They've consolidated this in the last three months, for whatever reason they were doing it.
Q. And your prefiled testimony was premised off of what was being done previously or what was done subsequent to the change that you're discussing?
A. What we've done previously.
Q. Okay.
A. We're still in that process, and they're
moving things around; so, you know, it's tough to

25
A. Oh, sure. There's some of the residential questions that Mr. Stewart had asked, you were talking bout billing in arrears versus billing in advance?
A. Yes.
Q. Can you just clarify for me again what category of services are being billed in advance versus
hose that are being billed in arrears?
A. Any usage-based billing is billed in arrears, and local line costs, features, all those kinds of things are billed in advance.
Q. And if I understand your testimony with respect to the issue of billing, COI is advocating status quo?
A. Yes, uh-huh.
Q. Now, I was a little confused after reading your testimony that you prefiled in this case and then listening to your answers that you gave this morning. If I read correctly, in your preniled testimony you discussed the fact that COI receives 10 bills from Embarq on a monthly basis?
A. There's close to 14 invoices that come on the CDs or -- there's - in that box over there, one of the boxes, there's multiple invoices in that box.
80
Q. So today, currently, if you were to explain in your testimony as to what Embarq renders to COI, it would be two bills?
A. Well, on a CD there's -- they have multiple invoices, one box of bills, so there's still -- there's still the same bands, billing account numbers. They've just changed the bill date they're due. So we still have the same amount of billing account numbers, but they've moved around the date that they print them and send them out, so we're still getting the same amount of invoices or billing account numbers.
Q. So you're still getting ten?
A. Roughly, yeah.
Q. But you're getting them on two CDs?
A. Well, today -- last month we got them on one CD , so we're getting there. We're getting consolidated, but --
Q. And these ten bills, can you explain the manner in which they are configured, based on time period, customers?
A. Well, there's three distinct local bills. There's a UNE-P bill. There's a resale bill, and there's a UNE bill, but there's more bills that they've put in other bands for some reason. I don't -- I don't
know the logic of why we have bands that -- and I have a sheet that pretty much shows all that. The primary bills are UNE-P, resale, and UNE, but there must be seven or eight other bills that are smaller that come that are on different bands. I don't know why -- I think the resale, they put some of the resale on another band because they had too many to go on and so they start another band. I don't know the logic of why we get little pieces and parts on other bands. We just try to keep track of them.
Q. Now, you indicated that you are currently engaged in the testing for the electronic billing?
A. Right. I requested a test file last week, and Pam Zeigler said that she talked to her people and they'd be sending me a test file this week.
Q. Okay. And you indicated that the electronic billing was going to accelerate the time frame or shorten the time frame from the invoice date to the receipt date?
A. Right.
Q. And if I heard you correctly, I think you said that would bring it down to approximately a five-day interval?
A. That's what Embarq has stated is kind of the outside date. It ought to be only five days or
less to get that, is my understanding, so --
Q. And that is in comparison to what is currently occurring, which, if I understood your testimony correctly, is approximately a 15 -day interval?
A. Right.
Q. Is COI committed to using the electronic billing assuming the technical testing was successful?
A. Oh, sure. I've -- in another discussion I think I agreed to that.
Q. Can you give me some sense on a percentage basis what percentage of the bills that you're receiving you have found discrepancies in that have required remediation from Embarq?
A. Required mediation?
Q. Remediation.
A. Remediation. Well, we send disputes every month. June, June '06, one of the vice-presidents at Embarq got involved in it. He actually, from what he told me, had somebody go through and check every item on all of our bills, and from that point the problems haven't been as dramatic.
Q. Okay. But can you give me some sense of what percentage of a bill you had within the last month that you didn't pay?
A. For the most part, we pay all the bills.

We get them back as credits. Now, with the exception of the conditioning, we haven't done that. But with the exception of the period of time the bankruptcy when the bill was so dramatic, that's -- June of '06, we disputed the bill. We got roughly $\$ 300,000$ in credits, because we went ahead and paid the bill.
Q. Would COI be agreeable to utilizing that exact type of an approach to paying the bills in their entirety on an ongoing basis with the expectation that you would receive credits for those issues that you raise as being possible errors?
A. It becomes an economic question. If you get a bill for $\$ 177,000$ for a resale bill and $\$ 50,000$ of it's wrong, I'm not going to pay the $\$ 50,000$. If you get a bill for $\$ 177,000$ and you got $\$ 4,000$ wrong, Ill pay it and get the credit back so I don't have to have a conversation; so it becomes an economic thing, you know, and for the most part, we've always gotten credits for the billing, billing issues. Now, like I said, we haven't paid some of the conditioning charges, because 1 think that is --
Q. But that's more of a philosophical issue rather than a billing error issue?
A. Well, it appears to be, but the testimony
on their side kind of backs up my philosophical point of view, so --
Q. What other ILECs does COI deal with?
A. AT\&T, Verizon, a ton of the little ILECs. I mean, most of that is on the IXC side. Like I said, we started doing business with United Telephone in somewhere around late ' 91 or early ' 92 . So there's all kinds of companies out there that from the Interexchange Carrier side we do business with. We have three negotiated agreements, one with Verizon, one with Embarg, and one with - now I think it's -Ameritech is on the agreement, but it's AT\&T.
Q. And what type of billing arrangements do you have with them with respect to the issue of bill payment?
A. Same thing.
Q. Same parameters?
A. Uh-huh. Yeah, we haven't -- we've had the discussion with Embarq for years, but we've never had the real issue until the last -- this contract came up. Everybody understood the time frames and everybody worked within it, and it didn't seem to be a big issue.
Q. You had some discussion with Mr. Stewart with respect to Embarq's payments to COI. To your knowledge, that is not a matter currently before the

Commission in this proceeding?
A. No. We resolved that. We have a
settlement agreement for that.
Q. That's all I have.

EXAMINER LYNN: Thank you, Mr. Agranoff. EXAMINATION
By Examiner Lynn:
Q. Mr. Vogelmeier, I'll have some questions, and then we'll be able to wrap things up and you can actually take a seat somewhere else.
A. Okay.
Q. I'll be focusing on the issues list, indicating Issue 7 about the security deposits and your testimony concerning those. On Page 5 of your testimony, and it's Line 10, you're mentioning that COI has made what you call "steady substantial weekly payments" to Embarq. Is it typically the case that COI is making some sort of payments weekly?
A. For the most part, yes.
Q. Okay. And when you do so, are you - how often are you paying a bill in part because you're disputing part of it versus how often are you able to pay it in full?
A. Well, like I said, the only thing that I know lately that we have not paid are the conditioning
charges. We - we normally pay the bill, send the thing, the paperwork to the dispute people, and then we get, you know, a credit basically.
Q. Thank you. If you go to Page 6 of your testimony, let's see, Line 19, 18 and 19, you were mentioning that, "There is no need for a security deposit from COI because COI has proven its financial responsibility for ten years." Now, earlier in your testimony today and also when I was reading the testimony of Embarq's witness, Mr. Hart, there was some reference made to the time when COI had to file for bankruptcy, and I was trying to reconcile your statement about how COI proved its financial responsibilities for ten years with the fact that you had to file for bankruptcy. Could you help me reconcile those two things again?
A. Well, in my mind the only reason I was into bankruptcy is because they, Embarq, wouldn't discuss the billing issues. That's -- there was no other need to be there other than that. We were paying everybody else. There wasn't any need to be in the bankruptcy other than that.
Q. The bankruptcy, then, was filed to resolve some of those billing issues you're saying?
A. Well, when I talked to our - - when I hired
the bankruptcy attorney, I explained the whole scenario
to him, and he said, well, you know, if they're not going to talk to you, they're not going to hold off until they look at the bill, see if it's right, then that's you're only choice. Then you can use your regulatory past to work on the billing issues and the bankruptcy helps that process.
Q. All right. Thank you. Let's see. Page 7 of your testimony, this would be on Lines 19 and 20, you stated that Embarq -- you had indicated on Lines 19 and 20, "Embarq withheld payment of invoices from COI for four months without issuing a dispute of any type." When did that occur? You didn't really elaborate there.
A. That was in March - April or -- April, May, or June. I think it's May of this past year, of 2007.
Q. I see. Thank you. Has that kind of issue come up frequently with Embarq, where they wouldn't end up paying invoices from COI?
A. Well, my biggest struggle was the fact that - I had two issues with that. Number one, they didn't notify me, and, number two, when they did, they operated outside the terms of the contract, and that seems to be something that happens quite regularly,
88
that the contract is good for me, but it's not necessarily good for them.
Q. When you say "operated outside the terms of the contract," can you explain what you meant by that?
A. Well, in that specific instance, you're supposed to pay any undisputed charges. They said they were all disputed. I'm saying it can't be all disputed. You know, there's got to be something there that's good, so -
Q. All right. Thank you for those comments. Let's see. This would also be on Page 7 of your testimony. I can't find the line number right now, but you were referring to the amount of the -- in deposits that Embarg was seeking from COI and you were referred to the amount as "staggering" being asked for. When I looked at the proposed language from both parties in the issues list, though, you were both saying that security deposits would be subject to a minimum level of $\$ 10,000$. In other words, you were -- you were going to require the same thing of Embarq as they were requiring of you.
A. Right.
Q. Again, if you felt whatever Embarq was seeking as a security deposit was unreasonable, what do
you feel is reasonable and how to approach that matter?
A. I have a real struggle with the whole security deposit concept because -- like I said, I went into business November 15th of 1990 . We started service with United Telephone in late '91, early '92, no security deposit was required. It became a CLEC in 1998. No security deposit was required. We went through two and a half years of bankruptcy, came out of banknuptcy, no security deposits required. That would have been a big area that you would have thought something would have showed up. And now we're negotiating a new contract, and all of a sudden after ten years they're at risk. I have a real struggle with that, because I paid -- the only thing -- ultimately, all I want them to do is send me a good bill, send it on time, and I'll pay it. That's all I've ever asked. I've had all kinds of conversations with people. That's all I want. It's a real simple process. They can send it to me ovemight. They can FTP it. I don't care how I got it as long as I have time to review it, and Ill pay the bill.
Q. My impression based on what you said there is that COI is proposing security deposit language because -- primary because Embarq is requiring it of COI? You want it to be reciprocal?
A. Well -- right. And when you take the issue in June, they were outside the terms of the contract. They didn't send me a dispute. When they did send it, they said well, we've overpaid you, so we don't have to pay what's good. Well, the contract doesn't say that. It says you pay what's undisputed. doesn't say that. It says you pay what's undisputed.
It doesn't matter if they made a mistake and overpaid me, because you don't know that's the case; so that's the -- that's the point, you know, and every day Embarq's outside the contract at some level. Monday they were outside the terms of the contract, and it doesn't seem to be an issue with them. There's no -doesn't seem to be an issue with them. There's no --
there's no recourse that COI has against Embarq for being outside the terms of the contract. Live by the contract. I live by it. It works out pretty well.
Q. So you're thinking that -- you referred to Embarq being outside of the contract periodically, so you're thinking, therefore, COI better require a security deposit of Embarq as well?
A. Well, sure. I wanted some compensation for their -- for their inability to work within the terms of the contract.
Q. All right. Finally, and this came up earlier in some of your testimony, too, the issue about the Letter of Credit.

## A. Right.

Q. Did I understand you correctly that you had not given much consideration to the Letter of Credit or you didn't really understand what it involved or -- what was your answer on that again?
A. It relates back to the same -- when you're looking at a deposit, and I provided -- they've provided me service for ten years. I have no other carrier that I have a Letter of Credit with, and most of the issues that we've been sitting at the PUCO over the last years is because they've billed me improperly; so I'm having a little struggle with me giving them anything to pay on time. I do it. All they have to do is send me a bill. It's real simple.
Q. So whether it be a security deposit, Letter of Credit, anything of that nature, you're you would object because you feel COI has paid in a timely manner and so forth?
A. Right. I try to work with those people any time I can to resolve whatever the issues are. That's --
Q. Thank you. Believe it or not, I have no further questions.
A. Okay.

## REEXAMINATION

By Examiner Agranoff:
Q. I did have one further question, Mr. Vogelmeier, getting back to the testing of the electronic billing. What is your projected timetable for having that completed?
A. Once I get that file this week and if the software works, we're probably looking at the next month bill dates as being ready to implement that. I'm -- you know how software is and developing it, so I'm saying we're probably a month out. It won't take that long to fix whatever we have to fix to be able to read it, but - and then there's -- I got to change the profile and then the Embarq people have to start sending it that way, so I don't know whether that fits in their time frame or not, but I'm thinking a month or a month and a half at the latest we ought to be able to do that.
Q. Assuming that all works as expected, would you be able then to live with the expedited time frames that are being proposed by Embarq?
A. Yeah. I -- yes. We've had this
discussion in another venue, and we kind of already said that that's where we'd be, so --
Q. Thank you.
additional question?
MS. GREEN: Yes, a clarifying question. REEXAMINATION
By Ms. Green:
Q. I believe I had asked you earlier a question and you had stated that COI mostly purchased their DS1 loops from Band 2 out of Embarq.
A. (Witness nods head.)
Q. And I believe you had said, I'm just clarifying, I believe you had said that you are unable to determine which band you would still be purchasing out of in their proposed interconnection agreement, you're not sure if that's still Band 2?
A. Well, I think it still remains Band 2. I just don't know whether it's going to be Band 3 or like I said, they changed it from Band $3 \mathrm{~s}-$ or changed from a four-band schedule to a three-band schedule, and I'm -- I haven't done the research to see totally where we will be buying those.
Q. Okay. When COI purchases DS1 loops, do you know prior to actually placing the order which band it would fall into?
A. Oh , yes.
Q. Okay. And in the current interconnection
agreement that you have with Embarq that's now expired, are you able to explain how that rate band system was structured?
A. Oh, sure.
Q. Could you tell me that, please?
A. Well, it's based upon wire centers, so we look at the wire center, and if it's cost effective, then we buy in that wire center; if it's not, you don't.
Q. And as far as the rate bands, are they grouped by a certain area in the current interconnection agreement that's expired or --
A. It's wire centers.
Q. Are they, like, wire centers that are in a certain area that are grouped together or are -
A. No, not really. It's all over the Embarq area. They group certain cities based upon whatever they do with their pricing or whatever, so --
Q. And how does that rate band system in the current interconnection agreement differ from what's in the proposed? In your mind, how is that different?
A. It brings -- well, if you have four bands, four or five bands in some cases and you go to a three-band system, it moves people around that might have been cost effective in the bands that aren't cost
effective anymore.
Q. So the basis is the wire centers have been moved around from the current bands that were in your current interconnection agreement?
A. Right.
Q. They're now in different bands in the proposed agreement?
A. Right.
Q. That's all I have.

EXAMINER LYNN: Any need for clarifying questions from either party? Miss Bloomfield first.

MS. BLOOMFIELD: Yes. REDIRECT EXAMINATION
By Ms. Bloomfield:
Q. I do have a couple clarifying questions for you. Isn't it the case, Mr. Vogelmeier, that COI is not disputing that the FCC says that a carrier can recover for conditioning, merely that it is COI's position that Embarq has already recovered for conditioning in certain circumstances?
A. Right, right.
Q. And you were asked a number of questions about the number of bills. I just want to clarify. Currently, today, when you got your CD, it contained PDF files; correct?
A. Yes.
Q. And there were a number of bills, there were a number of documents that were in PDF form; correct?
A. Right.
Q. And each of the -- and a number of those, there were - these documents represented separate bills? There might have been multiple pages, but you had a number of separate bills in that PDF?
A. Right.
Q. Is it the case that there is a separate
bill for each rate band for some services?
A. No, they're not -- they're not based on
rate bands. Like I said, on the local side, there's
three major bills, and about seven or eight others that
I'm not sure why they got started, but -
Q. But they are listed as a separate invoice?
A. Yeah, separate band, yes.
Q. And you were asked a question about the interval, the interval that will occur once the BOS format is pushed through from Embarq to COI on the FTP pipe; correct?
A. Uh-huh.
Q. And is it the case, then -- so the interval we're talking about, are we not, or that you
responded to has to do with the fact that in that case, the bill date that you will receive in BOS-45 format through the FTP pipe will be approximately five days prior to the time that you receive BOS format through the FTP pipe; correct?
A. Ask that again.
Q. There's the five-day period that we're talking about?
A. Right.
Q. You are still going to have the invoices in whatever format -- in the format that they are received, which is the BOS-45?
A. Right.
Q. They are still going to be -- that bill date is still going to be five days before you actually get the BOS-45 format through the File Transfer Protocol; is that correct?
A. Yes.
Q. So that's the five-day interval you were talking about?
A. That's right. Mr. Hart and I talked about that in different conversations.
Q. That's it.

EXAMINER LYNN: All right. Mr. Stewart. MR. STEWART: Thank you, Your Honor.

## RECROSS-EXAMINATION

By Mr. Stewart:
Q. Mr. Vogelmeier, is it your understanding that different rate bands are based on Embarq's cost to provide the service in the various rate bands and that's the basis for dividing them up?
A. Well, that's what I've been told, yeah.
Q. Do you have any basis for thinking differently?
A. You know, when you look at wire center density on some of the ones that are included in higher bands, I don't know how they got there, but Im not an inside-Embarq person.
Q. And you're not a cost-study person either; right?
A. No, no. I just look at Lima and the mall area that's close to Lima is a $\$ 500$ loop under the new - under the new category, and it's fed fiber ring from the Lima main, and, you know, Lima is in a Band 2 area; so we have a real struggle getting there, but I understand that fiber is just as expensive as copper, so --
Q. You don't understand that your expert, Dr. Ankum, has taken issue with the appropriateness of putting certain areas in particular rate bands even
though we can probably agree he's disputed the overall cost analysis?
A. What I do agree is he is the cost-study person, so he -- he appears to know what he's talking about based on other issues or other areas that he's testified.
Q. Well, I'm sure he appreciates that answer. My question, though, was do you understand that Dr. Ankum has taken issue with the rate banding concept and whether certain exchanges -- or certain wire centers should be in different rate bands? He hasu't done that, has he?
A. I've read a lot of the documents -

MS. BLOOMFIELD: Your Honor, may I insert an objection here? Mr. Stewart is asking Mr. Vogelmeier questions about what our expert has testified to. He's supposed to limit his direct -- or cross rather to what was asked by the Panel members. I don't think we're even close. I don't think it's appropriate that Mr. Vogelmeier is supposed to interpret what Dr. Ankum has said. I think this is totally inappropriate, and I move to strike the question.

MR. STEWART: Well, if I may be heard? EXAMINER LYNN: Please.

24
25
part of the questions and never part of his answer, and I think that -- I think he's loading the question that has nothing to do with anything that the witness was asked by the Panel members.

MR. STEWART: Well, my recollection is that Mr. Vogelmeier mentioned a wire center near Lima, the name of which I couldn't quite understand, but he was saying that he didn't understand why that wire center which is close to Lima, which is Rate Band 2, I believe, should have a $\$ 500$ loop rate; so he certainly was arguing that a particular wire center was in the wrong rate band.

MS. BLOOMFIELD: He said he didn't understand it.

EXAMINER AGRANOFF: Why don't we do it this way, Mr. Vogelmeier, what is the basis on which you stated your opposition to some of the rate band structure?

THE WITNESS: Well, from my perspective, it boils down to the facilities, fiber connectivity much more efficient than copper, those types of things, and when you have a city - well, an entity that's close to a large metropolitan area, it doesn't make sense to me that that cost would now increase five times. Having other discussions with Embarq over the
years, they seem to move these cities around kind of wherever they want to move them, and it doesn't necessarily relate to any cost factor; so that's the struggle I have with it. Now, if this was Huntsville, which probably has 600 homes and one grain elevator, I could understand that, but Elida, where you have the Lima mall, all kinds of businesses, it doesn't seem to fit in my mind that all of a sudden that cost goes up five times.

EXAMINER AGRANOFF: Mr. Stewart. By Mr. Stewart:
Q. Your answer to Mr. Agranoff suggests that your disagreement with the banding of a particular wire center is based on a lack of understanding and a feeling rather than your having reviewed any hard evidence that might actually bear on the actual costs. Is that a fair characterization?
A. No. I think it probably is a fact that I haven't reviewed any of the Embarq costing mechanism, but like I said, rationally it just doesn't make sense to me. I can't imagine that copper in Elida, with the mall, is that expensive.
Q. Well -
A. Now, the first question you asked me was about his reviewing the cost study and that kind of
thing. I have no idea how he's getting the way he's getting to it. I'm just telling you that there's certain areas that, well, it was $\$ 97$ in the old contract and now it's 500 for a loop. I can understand that if there's two houses in the area and they gotta go ten miles to get there, but --
Q. But you haven't reviewed any empirical data to support your intuitive belief that the rate handing doesn't make sense to you?
A. No, no. I've looked at, what, eight years of contracts, and basically the contracts have been pretty much the same up to this one, and most of the people that are testifying have been in those positions over the eight years, so you kind of wonder why the price went up now. Couldn't figure it out eight years ago.
Q. On Page 7 you were asked some questions regarding a contract between Embarq and COI, and you were stating that Embarq was operating outside the contract. That contract to which you were referring is a contract separate from the interconnection agreement that we're arbitrating here today?
A. No.
Q. It's not?
A. No.
Q. I thought you answered a question of Mr. Agranoff's that was --
A. Reciprocal comp is part of the interconnection agreement.
Q. Okay. Then what was the contract that is separate from the interconnection agreement that was the basis for your answer to Mr. Agranoff that --
A. I have not talked about any other contract.
Q. Well, perhaps you and I both misunderstood Mr. Agranoff. I thought he asked you whether that was the agreement we're arbitrating here today, and I understood you to say no.
A. He asked me about other issues of -- he asked me about that reciprocal comp for that settlement agreement. That settlement agreement in that part of the dispute is not part of the arbitration. It is part of the ICA agreement.
Q. Okay.

EXAMINER AGRANOFF: Just so that I can now get some understanding, since I was the one that generated the question, the question I had asked of you was whether or not issues that you were alleging that Embarq is in violation of, whether or not those issues are to be addressed in the context of this proceeding.

|  | 105 |  | 107 |
| :---: | :---: | :---: | :---: |
| 1 | THE WITNESS: No, no. They're part of the |  | merits of the dispute. I'm just asking you whether |
| 2 | interconnection agreement, but they're not part of this |  | that's what Embarq said. |
|  | proceeding. |  | A. Embarq said they should have been billing, |
| 4 | By Mr. Stewart: |  | that's right. |
| 5 | Q. You made reference to interconnection | 5 | Q. Now, given your testimony about how often |
| 6 | agreements with Verizon, AT\&T, Starting with Verizon, | 6 | Embarq makes a mistake in billing, why is it so hard |
| 7 | w many days after the invoice date is COI's payment |  | for you to accept they made that mistake? |
| 8 | e to Verizon? | 8 | A. It's not tough. It's not tough to |
| 9 | A. I think it's 30 days. |  | accept. I mean, you have all the same people in place |
| 10 | Q. What, if any, consequence is there for |  | doing both the jobs, and Embarq might want to look at |
| 11 | going beyond the 30 days with respect to Verizon? |  | that. |
| 12 | A. Haven't been. | 12 | Q. You mentioned -- again, I couldn't |
| 13 | Q. Does their interconnection agreement give |  | nderstand the name of one of the exchanges, but I |
| 14 | them the right to charge COI interest? |  | think you talked about a route from Lima to Delphos? |
| 15 | A. Late charges. | 15 | A. Right. |
| 16 | Q. One and a half percent? | 16 | Q. Then you were comparing a transport rate |
| 17 | A. I don't know. |  | in two different situations. Did I hear that right? |
| 18 | Q. Is the same true for AT\&T, $\mathbf{3 0}$ days beyond | 18 | A. Lima to Delphos was the TRRO conversation |
| 19 | which COI incurs a late charge? |  | about transport. |
| 20 | A. Could be. I haven't looked at those | 20 | EXAMINER AGRANOFF: Just so that the |
| 2 | specific sections of the agreement. |  | cord is clear as to what the acronym TRRO stands for? |
| 22 | Q. Has either Verizon or AT\&T sought a | 22 | THE WITNESS: I don't know that one. |
| 23 | security deposit? | 23 | MR. STEWART: Let's try Triennial Review |
| 24 | A. No. |  | Remand Order. |
| 25 | Q. Do you know roughly what the average | 25 |  |
|  | 106 |  | 108 |
| 1 | monthly billing is for each of them to COI? |  | By Mr. Stewart: |
| 2 | A. No. AT\&T is 40,000 . Verizon is maybe a | 2 | Q. Okay. What two rates were you comparing, |
| 3 | hundred. | 3 | if you recall, in that part of your testimony? |
| 4 | Q. A lot smaller than Embarq? | 4 | A. On the Lima/Delphos? |
| 5 | A. Well, I'm trying to get Embarq there. | 5 | Q. Yes. |
| 6 | Q. I think it was Ms. Green's question, | 6 | A. That was a discussion about what the |
| 7 | in any event, it had to do with Embarq's billing of | 7 | breakpoint was for DS3 based upon 10 or 11 Tls . |
| 8 | line conditioning under the current, most recent, now | 8 | Q. And I thought you said that one particular |
| 9 | expired interconnection agreement. For a certain | 9 | transport rate was $X$, but another one was multiples of |
| 10 | period of time Embarq did not bill COI for certain line | 10 | that? |
| 11 | conditioning; is that right? | 11 | A. Right. The DS1 transport from Lima to |
| 12 | A. Yes. | 12 | Delphos is \$132 a month. The price I got for a DS3 was |
| 13 | Q. And then Embarq started billing COI for | 13 | \$5,200 a month on the CLEC side. Now, I can go on the |
| 14 | line conditioning? | 14 | access side and buy that same DS3 for \$2,600 a month. |
| 15 | A. Right. | 15 | Q. From Embarq? |
| 16 | Q. And Embarq -- didn't Embarq tell COI that | 16 | A. From Embarq. |
| 17 | they made a mistake and failed to bill it before? | 17 | Q. So you're saying that Embarq - |
| 18 | A. Well, they started billing it. Then I | 18 | A. The cost is higher. Their cost is higher |
| 19 | disputed it. That -- that was -- that's what they |  | if it comes to my fill load by way of the CLEC Tariff |
| 20 | said, right. |  | instead of the Access Tariff. |
| 21 | Q. So Embarq was admitting to a mistake in | 21 | Q. You talked a bit about bridge taps and the |
| 22 | billing, namely failure to bill something that they |  | need for their removal. Do you recall that? |
| 23 | claimed they had the right to bill? | 23 | A. Yes. |
| 24 | A. It depends on how you read the contract. | 24 | Q. Were you saying that in a number of |
| 25 | Q. Well, I'm not asking you to rule on the | 25 | situations it's not necessary for Embarg to remove all |

the bridge taps?
A. That's correct.
Q. Is it your testimony that Embarq takes the position that Embarq needs to remove all the bridge taps in every situation?
A. That's correct. I have an e-mail from my account manager. They discussed it with Judy Crowe, and Judy Crowe says they take them all off, and they even take them all off for Embarq when Embarq does a Tl.
Q. I'm sorry, when --
A. When Embarq does a Tl for their customer, they take all the bridge taps off.
Q. So then your argument is Embarq is removing bridge taps that it might not need to and charging COI for that activity?
A. Right. There are two issues. They're taking off ones they don't need to, and I have no way to validate whether they do the work at all.
Q. Did you read Mr. Maples' testimony?
A. I read - a long time ago I read it. I read through some of it yesterday in regard to the conditioning.
Q. Do you recall that Mr. Maples was taking the position that Embary does not believe all bridge 110
taps need to be removed?
A. Yeah, that's kind of what I got from his testimony.
Q. Doesn't that agree with what you're saying now, that not all bridge taps need to be removed?
A. It's agreeing with what I'm saying. It's not agreeing with the way you bill me.
Q. So, then, you're agreeable -- and not only agreeable, but you would prefer that Embarq not remove excessive bridge taps?
A. You based the --
Q. Or only remove excessive bridge taps. I misspoke.
A. You remove the bridge taps based upon the line length and the length of the bridge tap and how far it is from the CO .
Q. COI does not want Embarq to remove all bridge taps if that's not necessary?
A. Right. We - we buy UNE loops, and we're allowed to tell them what bridge taps to take off and which ones to not. We buy DS1 loops. We're not allowed to tell them that. The only thing we're allowed to do is say do you want to go for the $\$ 600$ to have them all taken off or not.
Q. So you're claiming that Embarq acts
inconsistently with what Mr. Maples has suggested is the proper way to do this -- or you're not -- you can't validate it, so you're not sure?
A. Well, I mean, he's testifying under oath, so I'm taking him for what he's saying. The other side of it, I can't validate if I -- if they're going to take them all off, that they don't go out and take off the ones they have to provide the service and bill me for the rest.
Q. Well, in fact, don't you have to take pretty much everything on faith? You don't even have a way to validate there's a bridge tap on the circuit, do you?
A. Not today. We will in about another week.
Q. How will you do that?
A. Test equipment.
Q. You're going to go out and test the circuits?
A. Uh-huh.
Q. So then this -- I'm sorry. Go ahead.
A. We'll be able to test every circuit that comes in to us for length, bridge taps, load coils.
Q. And will that enable COI to determine which ones absolutely have to be removed?
A. That will validate whether the prequal. is
correct or not. See, you have two issues here. In my mind, you have two issues. You have conditioning that's being taken off because that's the way Judy Crowe said that they were supposed to be done. She's the guru, and so -- and Mr. Maples said technology -it doesn't have to be that way with that technology. Well, I agree with that, with that technology. So you have the issue of should they be taken off or shouldn't they and which ones after that should be taken off, and the ones after you decide whether there's some to be taken off are based upon length, length of the bridge tap, and what the distance is from the CO for those bridge taps.
Q. So if your testing demonstrates that, let's say, two of the four bridge taps properly should be removed, then COI is okay with paying for that?
A. Well, I guess.
Q. Is that a yes?
A. Sure.
Q. Okay.
A. I'll go with that one. Ill give you one there.
Q. Well, thank you. That's all I have. (Witness excused.) EXAMINER LYNN: All right. Thank you.

We'll go off the record now -- I'm sorry. We need a motion for Exhibit 1.

MS. BLOOMFIELD: Right. Your Honor, I would move that Mr. Vogelmeier's prefiled testimony which 1 believe was made on June 24th be marked as -- I think it's already been marked as COI Exhibit 1, and I move that it be admitted into the record.

EXAMINER LYNN: Mr. Stewart, any objections?

MR. STEWART: No objection.
EXAMINER LYNN: All right. That will be admitted into evidence, then. Thank you. Now we'll go off the record.
(EXHIBIT ADMITTED INTO EVIDENCE.) (Lunch recess taken.)
EXAMINER LYNN: Back on the record, then. Everyone welcome back. We'll be proceeding to COI's next witness, Dr. Ankum, and I'll swear him in and then I'll make a comment about confidential parts of his testimony and how we will be handling that. Dr. Ankum, if you would raise your right hand, please.

AUGUST H. ANKUM, Ph.D.,
being by Examiner Lynn duly sworn, as hereinafter certified, testifies and says as follows:

EXAMINER LYNN: Thank you. We'll now be
entering a closed part of the record, so anyone who has not signed or otherwise verbally agreed to the confidential parts of the agreement would be asked to leave the room at this point in time.

Having said that, are you ready to go
ahead with your questions?
MS. BLOOMFIELD: Yes, Your Honor. We have already called to the stand Dr. August Ankum.

DIRECT EXAMINATION
By Ms. Bloomfield:
Q. I wonder if you would state again your name and spell your last name for the record, please.
A. August H. Ankum, and Ankum is spelled A-n-k-u-m.
Q. By whom are you employed and in what capacity?
A. QSI Consulting. Im Senior

Vice-President.
Q. Were you engaged by COI for purposes of this arbitration?
A. Yes.
Q. And did you -- is this testimony, which we can now mark as COI Exhibit 2 which states Prefiled Testimony of August H. Ankum, Ph.D., is this your testimony?
A. Yes, it is.
Q. And if I would ask you the same questions today, would your answers be the same?
A. Yes, they would be.
Q. Do you have any additions, deletions, or corrections to this testimony?
A. No, I don't.

MR. STEWART: Excuse me.
EXAMINER LYNN: What about the supplemental?

MR. STEWART: Well, no. I was going to ask there's a confidential and then a public version, and I wasn't sure which one to mark as Exhibit 2.

MS. BLOOMFIELD: May I make a suggestion that we mark the -- first of all, to make it clear for the record, we're only talking about his confidential version at this point. 1 am assuming that the public version would, what, also be marked Exhibit 2, the one that was filed on June 24th?

EXAMINER AGRANOFF: Actually, it would be my preference that we would mark the public as Exhibit 2A.

MS. BLOOMFIELD: 2A. Then we have supplemental testimony that was filed later on August 20th, and how would you like that marked, Your Honor?

EXAMINER LYNN: Exhibit 3, then.
MS. BLOOMFIELD: Exhibit 3 and 3A?
EXAMINERLYNN: Yes.
MS. BLOOMFIELD: The 3 will be the confidential, and 3A will be the public version. By Ms. Bloomfield:
Q. Is the preflled supplemental testimony that was filed August the 20th, 2008, is that also your testimony Dr. Ankum?
A. Yes.
Q. Likewise, if I would ask you the questions from the supplemental today, would your answers be the same?
A. Yes, they would be.
Q. And do you have any corrections, additions, or deletions to this?
A. No, I don't.

MS. BLOOMFIELD: That's it. Dr. Ankum is ready for cross-examination.

EXAMINER LYNN: Mr. Stewart, you may proceed.

MR. STEWART: Thank you, Your Honor. CROSS-EXAMINATION
By Mr. Stewart:
Q. Good afternoon, Dr. Ankum.
A. Same to you.
Q. Let's start with COI Exhibit 2, the confidential version of your testimony of June 24th. Directing your attention to Page 4, Lines 4 to 5 , being Table 1, is it correct that all the information in Table 1 was reproduced in your supplemental testimony?
A. Yes.
Q. Okay. May we agree to delete Table 1 on Page 4, then, from the direct testimony?
A. Are you asking me or --

EXAMINER LYNN: Because it's duplicated in the supplemental?
(Discussion off the record.)
EXAMINER AGRANOFF: What's the harm, Mr.
Stewart, in leaving it in for purposes of the context of Exhibit 2?

MR. STEWART: Well, perhaps none. If we can agree that if I ask a question about something that, say, appears in the direct and also appears in the supplemental, that I don't have to refer to both testimonies in connection with the question.

EXAMINER AGRANOFF: I don't see why there would be a problem with the understanding that when you're asking the question, it applies to any location in which such information would be contained.

MR. STEWART: Okay. Is that fair -okay. Then we need to go through that exercise. By Mr. Stewart:
Q. Please look at Page 6, Line 16 -- or, I'm sorry, 13 through 16 of the direct. There you suggest that possibly having a small company engage in a TELRIC proceeding would be a barrier to entry. Do you see that section?
A. Yes.
Q. All right. Are you aware of any court or commission having so held that - requiring a CLEC to participate in a TELRIC proceeding would be a barrier to entry?
A. Not in this specific language, but the intent, I would say yes, and I think Id refer back to - actually, Im not referring to this necessarily, but l've been advised by counsel that this Commission has expressed in some form that a small company like COI is not required to engage in a full-fledged TELRIC proceeding with a company such as Embarq.
Q. Please look at Page 8 of your direct. Now, the table at the top of that page contains rates from -- for both Embarq and AT\&Tin various states for each of those companies, Embarq and AT\&T, and various bands?
A. Yes.
Q. Directing your attention to the AT\&T in Ohio rate bands, have you done any comparison between the AT\&T rate bands and the Embarq rate bands with respect to customer density?
A. Yes. And you want me to explain?
Q. Well, let me ask another question or two and then perhaps. Now, Rate Band 3 for AT\&T Ohio is their most rural rate band; is that correct?
A. That's correct.
Q. And I think on Lines 3 through 6 you compare Embarq's rates in Band 1, which you say are Embarq's lowest, for the denser rate band, noting that those are higher than AT\&T's rate in rural areas. So I take it, then, the comparison is between Embarq Rate Band 1 and AT\&T Ohio Rate Band 3?
A. The comparison is more general. Given that we don't have approved TELRICs for Embarq, we need to do some red-face tests to see are the rates that Embarq or the costs that Embarq has proposed, do they fall within a ballpark of what is reasonable, and one of the things that I'm proposing that the Commission does is to look at rates for companies that do have proposed TELRICs, and I am offering to give to the Commission the AT\&T rates, which, of course, are the
old SBC rates, and as the Commission and the judges know, we've spent many, many months going through those cost studies, and while nobody would claim that they're perfect, at least they have been subject to a Commission review many times, and so I think they can serve as a reasonable standard. Now, the question is can you do a direct apples-for-apples comparison, and I think what you're asking me about is the differences in the two companies.
Q. Well --
A. What I am proposing to you is not just -EXAMINER AGRANOFF: Doctor --
By Mr. Stewart:
Q. Let me just try to make this a little more specific and perhaps briefer. Comparing AT\&T Ohio Rate Band 3 to Embarq Rate Band 1, do you know what the customer densities are for each of those, how they compare?
A. I can look those up. I don't have the numeric numbers off top of my head for any of those companies. If you ask me qualitatively, the rural areas for AT\&T are the standard rural areas which are low density, and the Embarq Band 1 are more the centers of the cities and, therefore, urban.
Q. So is it your belief that AT\&T Ohio Rate

## Band 3 is denser than Embarq Rate Band 1 ?

A. No. The other way around. The AT\&T Rate Band 3 would be fairly sparse, i.e., high cost, and so I'm doing the most conservative comparison. I'm comparing the highest cost situation of AT\&T, and then I'm telling the Commission, look, even the highest cost areas of AT\&T are lower than the cheapest facilities in Embarq's studies; therefore, that tells me that something is wrong. That doesn't pass the red-face test.
Q. Is it your testimony that the average loop blank in AT\&T Ohio Rate Band 3 is greater than the average loop blank in Embarq Rate Band 1?
A. I would expect, yes.
Q. Do you know for sure or is that something you -
A. Well, that's in the nature of the way that these rate bands are constructed. For AT\&T, which operates in the rural parts of Ohio, the Rate Band 3 is supposed to capture those rural areas, and rural areas are characterized by low density and long loop blanks, and the metro area for Embarq is not supposed to be the pure rural areas, but are supposed to be closer in areas in the cities.
Q. I understand the general principle, but
did you compare and confirm that, in fact, the average loop blank for AT\&T Ohio Rate Band 3 is greater than the average loop blank for Embarq Rate Band 1?
A. I can't qualify it for you, but my answer is the same as I just stated.
Q. Well, but the question was at some point did you check and compare?
A. I did not have the proprietary studies of AT\&T available to me, but this is based on my 15 years of expertise and particular expertise with the SBC studies that the Staff and MCI and AT\&T, prior to having merged with SBC , having spent many months reviewing those studies, and I think I have a decent feel for the AT\&T studies.

MR. STEWART: I'm going to move to strike everything after that portion of the answer that said
he was not able to compare the actual quantitative data.

EXAMINER LYNN: I'd ask that the question and answer be read back.
(Question and answer read back.)
EXAMINER LYNN: Mr. Stewart, what part was it you wanted to strike again?

MR. STEWART: Well, the question had to do with whether Dr. Ankum knows for a fact that the
average loop blank is longer in AT\&T Rate Band 3 than Embarq Rate Band 1, and the very first sentence, I think was just one sentence of the answer, Dr. Ankum said he didn't have access to the AT\&T data so from that -- well, that answered the question. The inferential answer is he cannot know. The rest of it is just speculation and not responsive.

MS. BLOOMFIELD: Your Honor, I don't think -- I think Mr. Stewart mischaracterized the question. The question was did you review, and he said no, but. He's explaining his answer, and he is explaining why he believed, given all the constraints, it wasn't even necessary for him to review it because he was very familiar with it in the past. I think that is a legitimate explanation of his answer, and the answer should stand. It was not the question that Mr . Stewart said it was. He was -- I believe he should be allowed to explain his answer.
(Discussion off the record.)
EXAMINER LYNN: Ill let the answer stand as is. Thank you.

MR. STEWART: Thank you, Your Honor.
By Mr. Stewart:
Q. Dr. Ankum, what was your source for the rates you show in Table 3 for AT\&T Ohio?
A. Those were constructed under my supervision. I believe they came out of existing UNE tariffs.
Q. One of your colleagues did that, then?
A. Yes.
Q. Who was that?
A. Dr. Denney.
Q. I'm sorry, what was the last name?
A. Dr. Denney, D-e-n-n-e-y.
Q. Did you look at any interconnection agreements between COI and Ameritech?
A. No, I have not.

MR. STEWART: Off the record for a second.
(Discussion off the record.)
MR. STEWART: Back on the record. I think to expedite some matters, we may be able to stipulate to some rates that are in the currently effective interconnection agreement between Ameritech Ohio and COI .

MS. ENGLE: I need to see the front of
it.
MR. STEWART: (Indicating.)
(Discussion off the record.)
EXAMINER LYNN: Are you ready to go back on the record, Mr. Stewart?

## MR. STEWART: Yes.

By Mr. Stewart:
Q. On Line 4 of Page 8 you use the word "essentially." How are they different?
A. Line 4 ?
Q. Yes, Page 8 , Line 4.
A. Of the direct?
Q. Yes, confidential version of the direct. It says, starting at the start of Line 4, "Higher rates for essentially the same facilities."
A. That's on my Line 3. I might have printed off my testimony from a different copy, but for future reference, our lines, our spacing is slightly off, but, yes, I do use the term "essentially."
Q. How did you -- how do the facilities differ?
A. I would think they're very much the same in terms of their functionality. A DS1 would be a DS1.
Q. Would you agree with me that AT\&T has greater scale economies than does Embarq?
A. Yes.
Q. Wouldn't those scale economies serve to lower AT\&T's costs even in AT\&T's rural areas?
A. Yes, generally they would.
Q. If you would please turn to Page 14.
A. Yes.
Q. Now, telecommunication companies' costs vary over time, do they not?
A. Yes.
Q. Might go up, might be going down?
A. Yes.
Q. Do you know the vintage of the cost study that was done that produced the costs shown in your Table 5, which is back, I'm sorry, on Page 13?
A. Not off the top of my head, if you have the information, which I presume you do. It's somewhere in my testimony.
Q. Please turn to Page 18. You make a reference there to "invisible programming" on Line 16. What do you mean by that?
A. What I mean by that is that the - that there is a set of algorithms in calculations that lie at the core of the model that you can't inspect. You can't see exactly what is happening. By contrast - to illuminate the answer, by contrast, if you use Excel, you can see in Excel -- if the formulas are in Excel, you can see exactly what is being calculated by what and what is being computed, so that you can follow the logic of the model, and "invisible" means that part of the logic that lies at the core of the model is not
visible.
Q. Are you familiar with Microsoft Access?
A. Yes.
Q. What is that?
A. It's a Microsoft product that deals with data management on a larger scale than the ordinary Excel.
Q. And is that part of the Embarq cost study?
A. Yes.
Q. And were you able to access any -- or all parts of the cost study that were in Microsoft Access?
A. No. We were able to access the portions that were in the ordinary Microsoft Excel.
Q. So are you saying that there was nothing in the Embarq cost study in Microsoft Access or that you weren't able to determine that?
A. That information was not accessible.
Q. Were you able to open all the workbooks in the Embarq cost study?
A. In the Excel component of it, yes.
Q. Does that mean that you were not able to open workbooks that were in the Microsoft Access portion of it?
A. It's not a matter of opening them up, but -- like the model -- the way that the model was
provided to us, as I explain in my supplemental testimony, it was not an executable model that you could run. It came, in fact, with files that listed, as I indicate in my -- as you review my supplemental testimony, because I explained there were log files that had hundreds of error messages in there.
Q. Did you alone undertake the analysis and review of the Embarq cost study or were you assisted by one or more of your colleagues?
A. I was assisted by Dr. Denney that I mentioned earlier and very early on by Mr. James Webber, W-e-b-b-e-r.
Q. What functions did Mr. Webber perform?
A. Inside QSI or with respect to this proceeding?
Q. With respect to the Embarq cost study.
A. He generally looked at the model outputs and results early on. The larger share of the analysis was done by Dr. Denney and myself.
Q. What did Dr. Denney do with respect to the analysis of the Embarq cost study as contrasted with what you did?
A. It was a joint product, so I'm not sure that we can separate out what she did and what I did. The way that typically these type of analyses take
place is that you deal with a large model and a complex
issue, and you work through it together and you use each other as a sounding board as you're working through the analysis; so I'm not sure I can parse that out for you.
Q. Do you know whether the amount of time each of you, you and Dr. Denney spent working on the Embarq Cost Model, how that amount of time compared?
A. She's so much more diligent than I am. I think the intention was $50 / 50$, but $I$ wouldn't be surprised if it was $60 / 40$, with her spending 60 percent and me spending 40 , much like the stock market that we were talking about earlier, getting distracted, but I think the intention was $50 / 50$.
Q. Please turn to Page 24. Do you know when Embarq first offered to make its cost study available to COI ?
A. I don't. And let me ask you which cost study, the one that was filed or the one that QSI reviewed first?
Q. Well, let's start with the one that QSI reviewed first.
A. My answer is as I stated, I don't really know. The second one, of course, that was actually filed, the first time we saw that was when it was

## 

Q. Were you told that COI had declined to sign a nondisclosure agreement in order to receive the cost study that QSI first reviewed?
A. I have no knowledge beyond what was discussed this morning on the witness stand with the COI witness, and I understand that COI didn't think that they needed to engage in an expensive undertaking of reviewing studies that weren't TELRIC studies.
A. Yes, we are.
Q. How much are they being paid?
A. We have two contracts. The first contract, I believe, was for 24,000 , which pertained to the preparation of my direct testimony which was
expanded on the Cost Model that was provided to us, but
substantially discarded by Embarq. Then when Embarq
expanded on the Cost Model that was provided to us, but
substantially discarded by Embarq. Then when Embarq presented an entirely new cost study, we had to engage in a new contract that was for 16,000 given the compressed time period, but nevertheless a significant new review was needed for that supplemental contract; so in total 40,000 , in two phases.
Q. Would you agree that the cost study filed with Ms. Londerholm's direct testimony was very similar

## 1

2
in methodology to the cost study that QSI first reviewed?
A. In some regards yes, and in some significant regards no. Of course, in the regard that matters most to the client, which is ultimately the prices that come rolling out of those models, the results, of course, are very different, and so while in some sense certain components of the model are the same, the ultimate outcome was so significantly different that it warranted basically extending the contract and reengaging in Sherlock Holmes type of activities of seeing where the bodies were buried.
Q. The price differences that resulted from the newer model were primarily driven by changes in inputs, were they not? Perhaps I should say different inputs.
A. Well, I can't really say that since in both filings there are underlying studies that are simply not there, like studies relating to the annual charge factors, studies relating to labor expenses, and so there's a limited extent to which you can ascertain the differences between models in that regard.
Further, there are, of course, significant reclassifications in terms of the rate bands that make a huge impact, so that's an additional change in the
model that is not related to inputs; so I can't say that those are the only differences, as you presented it to me.
Q. Well, I didn't say they were the only differences. I was just suggesting that the change in the inputs was the primary cause for the different prices.
A. How do you qualify "primary"?
Q. Greater than half.
A. I don't think so, by that - judged by that criterion.
Q. You said that it's difficult to know because some of the aspects of the new model and some of the aspects of the first model you couldn't gain visibility to. Is that a fair characterization of what you said?
A. Yes. Among other reasons, yes.
Q. For those things, those areas that were invisible, did you make any inquiry of Embarq to ask Embarq what underiaid - underlay those areas that you couldn't see?
A. It was my understanding that when we received the testimony and the new study, that we received permission to do supplemental testimony, but I don't think that we could do additional discovery, so
the answer is -- well, it's neither a no or a yes. I never thought we had a possibility of doing discovery in -- the time frame in which we used to turn around the supplemental testimony, I don't think would have allowed for much discovery regardless.
Q. For the Cost Model QSI first reviewed, I think you indicated there were parts of it that were invisible, did you try to discover what was not visible to you either formally or informally, formally through discovery or informally by seeing if you could talk to the Embarq cost people?
A. I have participated in many cost proceedings, and I - I don't recall any situation where you can just pick up the phone and talk to the other party's cost analyst and say let's have a cup of coffee and work this out. So I don't know exactly what we did ask. I didn't review the discovery that was exchanged, but it didn't even occur to me to do the reasonable thing in a way, but it just -- it just never happens, and I think the reason it never happens is because there is never a two-way street there unfortunately.
Q. Please look at Page 27 of your direct. What are the differences between a four-wire loop and a two-wire loop apart from the additional two loops?
A. That's basically it.
Q. Aren't there some other, I'll call them, facilities used to provision the two-wire loop and a four-wire loop?
A. What are you thinking of?
Q. Well, can you think of anything?
A. Well, the - when you used the phrase loop, do you mean a couple wires or the loop as a configured circuit?
Q. I'll use your definition. I'm not trying to trick you. Let's go back. What makes up the two-wire loop?
A. Depending on how it is provided, there are many different ways in which you can provide it, but it typically starts in the central office, rumning off a main distribution frame, running over a feeder facility that may or may not be -- well, let's assume that it's copper and you go through a feeder distribution interface. Then the loop extends over the distribution facility, hits the drop -- well, a piece of equipment before that, but then the drop, and then you go into the customer premises. That's the general notion.
Q. Okay. Is there a line card involved?
A. Yes.
Q. Where does that fit in?

134
A. The line card would be on the switch.

Now, to make a -- to create a functioning circuit, now the unbundled loop, when it is provided by -- let's say that Embarq offers the unbundled loop to CO . It would be COI that provides the line card on the switch, so that wouldn't be part of the loop, but would you say is it part of creating a functioning circuit, the answer would be yes.
Q. So, in your view, then, the cost of the line card would not be a proper part of costing out the loop, to sell the loop as an Unbundled Network Element?
A. If you're talking about the line card in the switch -- for example, I believe that COI is purchasing UNE-P from you. There the line card would be part of the service that you offer, and, therefore, COI appropriately compensates you for that facility; so it depends on the circumstance.
Q. For the two-wire or four-wire loop is there a different line card than the one you've just been talking about?
A. It depends on how the facility is provided, whether it's over copper or over fiber.
Q. Do you know how the cost of the line card for a two-wire loop compares to the cost of the line card for the four-wire loop?
A. Not off the top of my head.
Q. And I don't mean to ask you to give me a number, but is it your belief that the cost of the line card for a four-wire loop is more than twice as much as the cost of the line card for the two-wire loop?
A. Twice would be the upper limit, I would presume, but chances are it would be less, but it could be twice, if you could duplicate it, but I wouldn't think you could duplicate it.
Q. On Page 27, in Table 8 you list a ratio of four-wire and two-wire loop rates for various interconnection agreements. You list the COI current ICA and in parentheses "2/5." Did you review a cost study that purported to be the basis for the rates that were in the COI Interconnection Agreement 2/5?
A. Which column is that? My copy is a little fuzzy.
Q. Starting with the band column, fifth column over to the right.
A. No, I did not.
Q. Please turn to Page 28. Do you believe -excuse me. I direct your attention to Lines 3 through 7. Are there, to your mind, any legitimate explanations that could produce the result that you describe there as rational -- irrational? And let me
be more specific, because you actually have two situations there.
A. Uh-huh.
Q. The first one is where the cost of the DSI is lower than the cost of a four-wire loop. You describe that result as irrational, and my question is can you think of legitimate reasons why such a result could attain and not be irrational?
A. Yes. It could be on a more limited scale than the 21 wire centers, but, yes, you could have that situation if you're comparing the DS1 loop that is based on fiber versus four-wire loops that are mostly copper.
Q. Could that anomalous result also be caused by demand differences that result in different scale economies for the two services?
A. Yes and no.
Q. Let's go with yes.
A. First. Then I'll explain the no. Yes, within your model, and it has to do with the fact that you used actual fills, which has to do with the degree of utilization of the facility, and in your model you use the actual level of utilization, which means that the spare capacity that is floating around in the network, the cost of which then in your model falls on
the facility that actually is being used, so the more spare there is, the more expensive are the units that you're actually selling; so that dynamic exists within your model. And now the no. I don't think it should exist, but the Commission has found, and you have read my testimony where I explained that, but as the Commission has found, you should not be using your actual fills. It should be a hypothetical fill, forward-looking or a fill consistent with TELRIC, in which case that dynamic is -- should be taken out of the model. So, yes, it exists in your model, but, no, it shouldn't exist in the TELRIC model.
Q. Are you saying that if one utilizes the appropriate fill factors, appropriate in your view, this anomalous result could not be produced by differing scale economies based on different demands for the two services?
A. Not within the range that exist given that you're dealing with a joint network provided by Embarq. If there were two completely distinet companies offering this, operating under different circumstances, each having their own independent network, then those kind of demand qualities or the differences in how many qualities are demanded would have an impact on costs through the economies of scale
that you're alluding, but this is the same company that's purchasing in bulk, whatever that bulk is, but it's purchasing in bulk from its manufacturers, and whatever its negotiating position is with its manufacturers, that's what it is for most of their facilities, and there is still a good portion of these networks that are jointly maintained through the same outside field technicians, et cetera, et cetera; so within the same company I don't see this difference being possible due to demand differences.
Q. Greater demands ‥ or a greater demand for DS1 services and a lesser demand for four-wire loop changes the allocation of certain costs between those two services, does it not?
A. Probably not in terms of percentage. In real terms it may. For example, the markup for sharing common costs let's say were 20 percent. The 20 percent would apply to a four-wire loop, a DS1 loop and still be 20 percent. Now, it's the underlying qualities that will then translate into different nominal dollars; so in that sense, yes, but as a percentage, no, and it truly wouldn't explained the price difference.
Q. What shared costs do you see between the DS1 service and the four-wire loop service?
A. The general share in common costs, which

140
in the Embarq model is a percentage markup --
Q. Let's exclude common costs and just talk about shared -- well, do you agree with me that shared costs are a different animal than common costs?
A. Conceptually, yes.
Q. Let's exclude common for the time being anyway. What costs, in your view, are shared between the DS1 and the four-wire loop?
A. I'd have to review your model to trace that back.
Q. Are there certain electronics that are shared?
A. They wouldn't show up as shared costs that would be directly assigned in the TELRIC study.
Q. Well, putting aside the electronics, then, based on your answer, in talking about a cost, whatever it might be that is shared between the two, if the demand for the DS1s was a thousand units and for the four-wire loop two units, in that situation, wouldn't the shared cost allocation be considerably different than if the demand were equal for the two services?
A. I think my answer is the same as I
previously gave, that percentagewise chances are they would stay the same, but in nominal dollars, they would obviously differ since the underlying quality is
different.
Q. Thank you. Please turn to Page 30. Let's look at the column for the residential retail rate in Table 9. Did you include the subscriber line charge in the residential retail rate?
A. I'm not sure. Again, this was prepared under my supervision, and I would have to check that.
Q. Do you know whether the -- what Embarq called - do you know what the IAF is for Embarq?
A. IAF?
Q. IAF, like Indian Africa Frank.
A. That's what the acronym stands for?
Q. No. It's a mnemonic so you can know the letters I'm saying.
A. No, I don't.
Q. So I take it, then, you wouldn't know whether that was included in the rate either?
A. I don't know.
Q. Now, in providing residential basic local exchange service, there are costs for switching and transport; correct?
A. Yes.
Q. And there are also revenues derived from those costs?
A. Yes.
Q. And it appears to me that you included neither the cost nor any revenues resulting from the switching and transport functions or your colleague, I assume?
A. Well, there's no switched access, if that's what you're talking about. Switch access revenues are not included.
Q. That's what I thought.
A. Right. We're trying to come as close as we can to an apples-to-apples comparison, that in its barest form, you want to look at a local exchange service, that loop facility going out to the central office and comparing to what COI would be paying if it were to purchase a two-wire loop. So it's doing again some sanity check to see are the loop costs produced by the loop Cost Model, how do they stack up against what we see Embarq doing in the marketplace.
Q. But the point I take it you're making here in alleging that Embarq violates the pricing rule, the rule that you're addressing there doesn't speak in terms of pricing residential retail service above the cost of the two-wire loop, does it? And what I'm suggesting is that to determine whether this rule is being violated, one would need to look at the various costs of providing basic local exchange service, which

[^0]2
3

25
you previously agreed include switching and transport, and the revenues that are derived from the services that those costs allow Embarq to provide.
A. I'm not -- I don't read that in the

Commission's rule. That may be how the Commission ends up interpreting it, and I imagine if you have to litigate it, I suppose you will argue it that way. What I'm trying to do here is to take one of those cost components, not all of them, but just one, and compare that one cost component, which is the loop, and say this is one of the components of your local service, and that one component already gets you into difficulties, because that one component is already significantly higher than your tariff service; so right there you have a problem. Now, the problem can have, as I explain, can have two sources. Either you priced your retail service too low or, and this is what I think, your cost study has produced costs that are too high, but either way, there is -- something doesn't fit there.
Q. In many places in your testimony you discuss percentage increases.
A. Yes.
Q. Now, if a barrel of oil costs $\$ 100$ today and costs $\$ 110$ tomorrow, the price has gone up $\$ 10$ and
the percentage increase in the price of the barrel of oil in that situation is $\mathbf{1 0}$ percent.
A. Yes.
Q. So the methodology that's appropriate to determine the percentage increase is to look at the two prices, subtract the smaller, which is the earlier, since we're assuming an increase, from the greater, and then divide that difference by the original price?
A. Within the context of your example, I have no problem with what you're doing.
Q. Well, just as a general -- methodology may be too fancy a word, but simple math, isn't that the right way to calculate the percentage increase?
A. To calculate a percentage increase, if that's how you phrase it, yeah, and that's how you present it, yes. That's how you would calculate it --
Q. So if someone --
A. -- within that phraseology.
Q. Fair enough. So if someone says the price of oil has increased 10 percent, that fits the $\$ 100$ to $\$ 110$ ?
A. Yes.
Q. Okay. Now, if you would look at Table 10 on Page 32, at the top there, the two-wire loop, the column - there's a column, third one in, 1 suppose,
"COI Current ICA," $\$ 35.69$. Then the next column over
is the Model, $\mathbf{\$ 5 1 . 4 5}$. Now, the increase between
those - or the difference rather between those two rates is approximately -- well, just under \$16, by my math, and using the methodology we just talked about, the percentage increase would be approximately 44 percent; correct?
A. Yes.
Q. And so when you say "increase over" current rates, that's not quite what you really should have said, is it?
A. That's correct. Throughout the testimony I think we fairly consistently used "increase to," and you're correct, and I'd like to make this correction in this table, and it occurs on three lines where it says, "Increase over Current COI Rates," and it should be increase to current COI rates, i.e., it's --
Q. Well, I suggest -
A. -- 140 percent -- 144 percent --
(Discussion off the record.)
By Mr. Stewart:
Q. I apologize. I didn't mean to interrupt. Go ahead.
A. It's 144 percent, the current rate being 100 percent, and the proposed rate then that you're
conventions instead of what I would regard as the correct way.
A. We'll correct those hopefully, because it's not my intention to create confusion there. There shouldn't be.
Q. I was confident it was not intended to mislead.
A. Thank you.
Q. In fact, if you look at Table 11 on Page 34, those changes are described using a different convention, and what I would submit is the clearer way to say it, if you look at the middle slot there, "Weighted Average Rates as Percent of COI's Current Rate," the first one there, two-wire, it says 113 percent, and that would reflect, I hope you would agree with me, a 13 percent increase over the current rate?
A. Yes. And that table we just corrected is interpreted in exactly that same way.
Q. Although the language used is different?
A. Well, if you want to correct the previous table to reflect this language, I'm perfectly comfortable with that, if that clears it up. I'm not trying to be unnecessarily difficult. I just want to make it as clear as possible.
Q. Okay. Now, on Page 35, Lines 8 and 9, you

## 148

refer to a price increase for copper cable, and the observed increase is not 144 percent, but the new price is a hundred and - I'm sorry. I said 144. I meant to say 148. The new price is 148 percent of the earlier price?
A. Yes.
Q. Okay.
A. Per that previous statement.
Q. Now, one of your tests to examine or evaluate the validity of the Embarq rates that are proposed by the model you were reviewing in your direct testimony is to - and basically what you did was start with the rates in the current interconnection agreements -- agreement and then apply the various inputs, these -- and I apologize for not knowing the nomenclature here - inflation indices to inflate inputs based on the change of the cost of those inputs over time?
A. Generally, yes.
Q. That's a fair statement?
A. Yes.
Q. I'm not trying to trick you here. As part of that exercise, it's an implicit assumption that the rates in the current interconnection agreement are correct?

## complex.

Q. If the rates in the current interconnection agreement were grossly overstated, then applying these inflation indices would produce another rate that was grossly overstated; fair enough?
A. Yes.
Q. And we could remove grossly from that example, and it would still be true. By the same token, if the rates in the current ICA were understated applying these inflation indices, and we'll assume these inflation indices are right for purposes of this discussion, that would produce rates that were similarly understated?
A. Yes, generally speaking. I see you don't like it when I agree with you.
Q. If we struck the "generally," I'd be happier, but I'm not going to ask you the question that I'm tempted to ask you. Thanks. Let's turn to Page 46. Now, you criticize Embarq's cost study for several reasons here on Page 46, and I take it your answer would be the same as when I asked you earlier did you make any effort to contact Embarq or ask your attorney to ask me to contact an Embarq person to try to clear up any of this stuff, and it didn't happen for whatever
might have about Exhibit 2A, I believe, the supplemental - 3A. Pardon me. My apologies. MR. STEWART: I have the confidential version of the supplemental as COI Exhibit 3. Is that right?

EXAMINER LYNN: You're correct. Thank you.
By Mr. Stewart:
Q. Dr. Ankum, do you have COI Exhibit 3 before you, your confidential supplemental?
A. Yes.
Q. Please turn to Page 5, Table 2, the Embarq new model and proposal for the four-wire loop shows there as (redacted), and that constitutes a (redacted) percent increase over the current ICA rate of (redacted); is that right?
A. Yes.
Q. And, similarly, on the DS1, the (redacted) rate of the EQ new model is an increase of (redacted) percent over the COI current ICA rate of (redacted)?
A. Yes. And the other percentages in that table would be similarly interpreted.

MS. BLOOMFIELD: I couldn't hear you.
THE WITNESS: I said the other percentages in that table should be similarly interpreted.

By Mr. Stewart:
Q. Namely by taking out 100 percent and characterizing the remainder as the increase?
A. Over, yes.
Q. On Page 6 of your supplemental testimony in several points you discuss the sustainability of the CLEC business in certain wire centers; correct? And if you need a reference, Line 13 and also Line 2.
A. Yes.
Q. Would you agree that there's no legal requirement that the prices resulting from a cost study must be prices that enable a CLEC to succeed or, to put it in your terms, sustain its business?
A. I don't think that is quite true. If you want me to explain.
Q. Well, let me ask it a different way. Can you suggest any authority, FCC, state commission, that suggests that cost-based rates must necessarily result in a rate that enables the CLEC to sustain its business?
A. I think that the FCC in, for example, its local competition order is talking about the pro-competitive intent of the Telecommunications Act of 1996. Now, prices for Unbundled Network Elements should be set at TELRIC, but given that we don't have

TELRIC costs in the record, the Commission will look, I would hope, at what is going on in this negotiation in a broader context of the Telecommunications Act of 1996, and within that broader context I think a consideration of how rates are evolving over time and whether the proposed increases are consistent with the sustainability of local exchange competition I think is something that should definitely concern the Commission, and I think also -- I don't want to call it a legal requirement, but - of course, I'm not a lawyer and I -- that's the main reason, but I think it's appropriate within the context of the 1996 Act.
Q. If the Commission established a rate based on TELRIC principles and that rate, for whatever reason, turned out to be one that CLEC couldn't sustain its business pursuant to, isn't that just unfortunate? I mean, the object is to set cost-based rates, and if they don't work, they don't work for the CLEC?
A. As long as the Commission is assured that rates are indeed based on valid TELRIC costs, then I think the fact that a particular CLEC may not be able to conduct business is unfortunate, but should not necessarily alter the Commission's decision.
Q. Fair enough. In fact, CLECs have been going out of business regularly?

## 154

A. They go out of business sometimes or come back into business, yes.
Q. I take it you've conducted a lot of cost studies yourself?
A. Yes.
Q. Have you both analyzed other people's and also developed your own?
A. Yes.
Q. And is there a model you use when you develop your own cost study?
A. The cost studies that QSI has done and I've been involved in, I believe all of them, they typically are ground up cost studies, where we look at the specific facilities and services offered by whatever the client may be, but by the telephone company for whom we're doing the cost study, and so there's no generic study that we use. We build them custom-made, so to speak.
Q. So, then, you don't use, for example, the Hatfield Model or one of the other big-name models? You use your own unique model?
A. Typically not. QSI may have used one of those models in some instances, but generally speaking, if we do a cost study, we tailor it to the specific network and services of the client.
Q. Have you done dozens, hundreds, or - how many, roughly?
A. Reviewed, that would be in the humdreds, Build would be in the dozens.
Q. When you built one, have you ever made a mistake?
A. I'm sure we have.
Q. Are you familiar with CALIX, C-A-LrI-X, Digital Line Card?
A. I've heard of it, but I couldn't answer any questions about specifics.
Q. Now, did both you and your colleague experience the phenomenon you described in certain places as being invisible, where you can't get behind the calculations that the Embarq Cost Model makes?
A. Yes. Like we couldn't get the new model -- for example, we couldn't get the new model to run, and as I've already explained, there were log files that stated -- that gave all the error messages.
Q. Now, is there a specific type of error message that one gets when the model won't run as opposed to an error message that one gets that means something else? The model runs, but the error message refers to something else?
A. Well, I would find either one troubling,
but since we couldn't run the model, I don't know what variations in error messages there are.
Q. Well, you refer to a couple of different types. If you look at Page 14, at the top, Lines 1 through 5 , you refer to several different error messages, the first one being, "Operation is not supported for this type of object." What does that mean?
A. I have no idea.
Q. So was that an error message your colleague received and told you about?
A. No. This is in the $\log$ file, and you can read it.
Q. Okay. So you saw it, but you don't know what it connotes -
A. Right.
Q. -- denotes? Is that also true for, "Data type conversion error"?
A. Yes.
Q. And I like this one, "Microsoft Jet Engine could not find the object." Do you know what that means?
A. I know we chuckled over that.
Q. Okay. Now, when you got those error messages, did that stop the study from running?
A. Well, the .- we ran the model, we tried to run it, and it never came to a solution. It didn't solve. We let it run, and it just never really -- it kept running, so we never got a resolution of the model run.
Q. I see. Now, is it correct that certain error messages aren't particularly important and could result, for example, when - when a field is left blank and there may be another field for the same cost that's filled in, for example, you might have two different brands of a line card and the line card cost field for one brand is filled in, the other field is left blank. When that field is left blank, that can produce an error message; correct?
A. Not in the models that I typically look at, but I don't know with respect to this particular model. An error message is disturbing. It tells you that something is in error. That's what the purpose of the error message is.
Q. Sometimes when you run a cost model, one gets a warning; is that correct?
A. Most of the cost models that I have analyzed are just Excel based, and you don't get warning messages or error messages in those. You can trace through the model and see where, you know, the
calculations are all the way to the inputs, and there are no warning messages that pop up.
Q. I apologize if you already answered this, but did you say both you and your colleague had this same experience, not just your colleague?
A. We worked on it jointly; so, in that sense, yes.
Q. Did you have any discussions with Mr. Vogelmeier regarding the cost studies?
A. We've had a number of conference calls generally about the case in which we talked about all aspects of the case, including, you know, the cost that we were reviewing and our preliminary take on those cost studies. I don't recall details of that.
Q. Did Mr. Vogelmeier ever discuss with you any information he received from Embarq regarding the cost study that underlay the current ICA rates?
A. I don't recall.
Q. Now, with respect to two-wire loops and DS1 loops and shared costs, is construction cost a shared cost for those two services, for example, the cost of burying the loops?
A. Could be.
Q. Is that how the models you design handie the cost of burying the two loops, as a shared cost

## between them?

A. If they share facilities, we would find some way of allocating those costs to the extent they share.
Q. So sometimes construction costs are shared between the two-wire and the four-wire?
A. Could be.
Q. Do you know whether, in the Embarq model that was part of Miss Londerholm's testimony, whether construction costs are shared costs between the two-wire and the DS1 loop?
A. I don't think it would be readily apparent from the model. I would have to dig in deeper with that specific question in mind.
Q. Now, if two-wire demand increases and DS1 loop demand increases, then would that result in a greater allocation of the shared construction costs to the DS1?
A. Probably not within your model, because the model is costing out your network as it exists, and there's so much spare facility in your network, that the increases in demand would just be absorbed by the spare capacity that's availabie, and I don't see the model picking that up and sharing of facilities or the shared costs.
Q. In a forward-looking model would you say the same thing?
A. It depends on how you -- again, this goes back to the discussion we had this moming about fill factors, how you employ your fill factors, and if you have an appropriate TELRIC model consistent with this Commission's findings where you do not base your fill on your actual fill but on a theoretical fill, then you could get some of that dynamic, but your model follows a different convention, where you use actual fill, and so I don't see that dynamic playing out necessarily.
Q. Well, what fill percentage did you
recommend? I have forgotten. Sixty-some percent?
Yes, Page 15, and it appears - there at the bottom of Page 14 you say, 'Embarq's New Model uses fill factors ranging from (redacted) percent and (redacted) percent," and then you refer to Commission-approved SBC fill factors, 61.87 percent and 69.14 percent. Now, let's look at the lower ranges of each, between (redacted) and (redacted), roughly a 9 percent change in fill factor. Why does that percentage change in the fill factor change or, I guess in your view, rebut the proposition that a greater percentage of the shared costs would be allocated to DS1 loops as that demand increases and the demand for two-wire loops decreases?
A. Again, this is - this is in part
conjecture because we don't have the model in front of us and you're asking me just some general questions about what I anticipate may happen in, one, the TELRIC model and, two, the Embarq model. Those are two distinct cost situations. Now, with respect to the Embarq model -- and then you're referring me here to the fills, the actual fills that are listed on Page 15, as opposed to the fills that the Commission approved for SBC, the Commission approved the fills for SBC, i.e., those fills are fixed, and so when demand figures begin to move around, it drives costs through the model because the fill factors don't adjust. With the Embarq model, fill factors are an output, and so you begin to increase demand on the network, but if that demand is just accommodated by the existing spare, it just increases the fill, but the allocation between the different types of loops is really driven by what your existing network is. So if the existing network and existing number of loops don't change, the only thing you're changing is the utilization of those loops, but the number of these loops may be invariant to demand. Then there's really no reason in the model to necessarily change the allocation.
Q. Does your conclusion there depend upon the
ability to accommodate the entirety of the increased demand with the existing plant?
A. In part, yes.
Q. How much of a part? I mean --
A. Well, given that - again, qualifying my answer here by saying that we don't have the model specifics in front of us, and so I don't want to make absolutist or absolute statements or categorical statements because it's all contingent on -- it's all contingent on me here on the stand giving my intuition about the model without having the model in front of me.
Q. Excuse me a second.
(Discussion off the record.)
By Mr. Stewart:
Q. Is it correct that four-wire loops are in pretty low demand by COI?
A. I have no primary knowledge of that. I heard the discussion this morning, and I believe that Mr . Vogelmeier indicated that there were some, but I don't have primary knowledge.
Q. In general, is a four-wire loop much in demand compared to, say, DS1?
A. It depends on the entity. I can't answer.
Q. Did you examine the rates that COI pays to

## Verizon for DS1 services?

A. My understanding is that they don't really purchase DSI from Verizon, but I did not examine those rates other than through the testimony of Embarg where those rates, I believe, were tendered.
Q. Now, you acknowledge that certain rates in the Embarq new model actually went down?
A. Yes, I believe so.
Q. Probably, if you look at Page 9, Table 3, the new model's four-wire rate is roughly ten percent lower than the CBT rate. Do you see that?
A. I'm actually looking at Page 5 , which is comparing the current rates with Embarq's newly proposed rates. Actually, I don't think that those rates are going down. I was thinking about some of the loop conditioning charges, I believe, went down, but those aren't non-recurring charges.
Q. Well, if you look on Page 5, Table 2, the total for four-wire is lower under the Embarq new model than it is under the CBT $12 / 7$ Interconnection Agreement?
A. Yes.
Q. Turn back to Page 11 if you would, please.
A. Yes.
Q. Now, you theorize on Lines 3 through 8 that certain price increases would occur with certain expectations based on copper cables, the price increase, the fact that it's a -- you state that it's a more prominent inpat for four-wire loop than it is for a DS1 loop. Do you see that?
A. Yes.
Q. Now, again, if you're comparing price increases from an existing interconnection agreement to the Embarq current Cost Model, the expectation that you express here is dependent upon there being an accurate relationship between the cost and the existing current interconnection agreement? In other words, if the relationship between the four-wire loop costs and the DS1 loop costs in the existing interconnection agreement is out of whack, then what you expect to happen here might not happen when an accurate cost study is done?
A. Well, I think ultimately what would shed light on all of this would be an approved TELRIC study. In the absence of that, all we can look at is whether proposed changes make sense in light of the changes in the underlying inputs.
Q. Well, I don't think you really answered the question. If the initial prices and the
relationship between them were -- out of whack is not a very good way to say it, is it -- wrong, then the expectation that you express here might well not apply?
A. I think the concern would still apply. I would think that the rates in the current ICA extend in some relationship to the underlying Cost Model that has been maintained by Sprint and now Embarq, that there's a genesis in that model, and even though I imagine the changes could have taken place in that model, I think the movement of proposed prices over time should still be informed by the changes in the underlying input prices, and so the overall concern I think is still valid and is informative. It should inform the Commission's decision-making.
Q. But if one were to assume that an error was made in an earlier cost study, then, as we talked about before the break and in your direct testimony, using an inflater or inflation indices to get to a new rate really wouldn't work right because it would be the garbage in, garbage out function? I think you said that was generally true earlier.
A. Give me a second. I think the hypothetical revolves around the notion that somehow that in the current ICA, that this relationship between the four-wire loop and DS1 loop is just grossly
distorted, and if that were so, I think all of us would be able to look at these rates and see something very disturbing, but I think the relationship between the four-wire loop and the DS1 loop in the current ICA, that relationship doesn't seem particularly disturbing. If you go back to my direct testimony, Page 8, where I'm introducing the AT\&T rates which present the four-wire rates as well as the DS1 rates for AT\&T, the relationship between the four-wire rates and the DS1 rates in COI's current ICA move in the same direction as AT\&T's. There doesn't seem to be any notion or any reason to believe that the current ICA rates, that that relationship you're talking about is out of whack, quote-unquote.
Q. I want to return for a moment to the invisible programming issue. Now, the Embarq Cost Model has a number of workbooks that are between the begimning and the end. That may not be technical cost-study language, but do you understand what I'm saying?
A. Yes.
Q. Okay. And did you - were you able to open all the workbooks?
A. I don't know what the full extent of the workbooks are. We never got the model to run, and you
can't look at the exact algorithms that drive the model. There's a black box component.
Q. Does the black box component exist because you can't open the particular workbook or one or more workbooks?
A. I think the -- well, I mean, of course, there's a limit to which I can answer that question. I mean, I couldn't get the model to run or we couldn't get the model to run, and surely not within the expedited time periods without the benefit of discovery and asking where the problem may be; so, you know, to be honest, I can't really tell you. It's part of the problem of dealing with -- examining this Cost Model in a compressed time period.
Q. From what you're saying, and I've never run a cost model, it sounds as though if you can't make the model run, that prevents one from opening the various workbooks. At least that's what I take you to be saying. Is that right?
A. Not really.
Q. Okay. You said you couldn't get the model to run, and I thought that was the reason for your answer you couldn't look at all the workbooks, but I must have misunderstood you.
A. Well, I'm not really sure what you're
referring to about "all the workbooks." The model is an executable file and it sets itself up, and then, you know, you just hit various buttons to get the model to run in different scenarios, and then the model does its thing.
Q. Well, my understanding is that the workbooks contained intermediate steps that get you from -- that ultimately get you to the cost output. Is that a fair characterization?
A. Conceptually, yes.
Q. And so based on that understanding, isn't it correct that in order to get as much information about what the model is actually doing and the assumptions it's making and the algorithms it's using, one must look at the workbooks that constitute these steps getting to the output; is that --
A. Well, conceptually --
Q. - roughly right?
A. Yes.
Q. Okay. So, then, it seems to me in order to gain as much visibility to all the assumptions and data a model is using, one would need to look at each of the workbooks; is that correct?
A. The calculations in the algorithm of the model are not readily observable, so to speak. You
can't just -- if you have an Excel sheet, you can use the audit functions in Excel and it will lead you from cell to cell. Like there's a function called Trace Precedent, and by using this function, it will tell you each cell is linked to previous cells, and if you follow through that, you can trace all the calculations all the way from start to finish - or from finish to start rather. You go backwards. With the model presented by Embarq, you can do that. There is -there are output workbooks from which you can glean a certain amount about the model is -- you know, and what we have been able to unravel and presented in our testimony, but it comes a point where you just can't look inside the heart of the model, what it's doing.
Q. So, then, it sounds as if what you're saying is even if one were able to and did open all the workbooks, you wouldn't be able to accomplish the level of analysis that you believe is appropriate?
A. Not with what we have received, so --
Q. And, again, I apologize --
A. Ultimately, of course, one can. You know, given enough time and resources, obviously one can analyze what's going on, but not within the time frame we have and with what has been presented to us.
Q. Did you say you were able to and did open
all the workbooks or did you not say that?
A. Well, we've opened everything that was presented to us.
Q. Was there anything you tried to open that wouldn't open?
A. Everything that was given to us we could open.
Q. Thanks.
(Discussion off the record.)
By Mr. Stewart:
Q. Did you draft the Interrogatories that -or did QSI draft the Interrogatories that COI sent to Embarq?
A. We drafted some.
Q. Okay. Interrogatory 12, and I'll read it to you, although I'm happy to show it to you, it says, "Regarding the 28 workbooks in folder LMA titled LMAII 1 through LMAII 28 as they appear after the setup file was run," and the Interrogatory then goes on to state, "Please confirm or deny that all or some of these workbooks (the versions contained on the model CD) are not generated by the model run that produced the recurring cost estimates for loops in Ohio in this case. Please fully explain your answer." I take it that that's the Interrogatory that probably came from
you or one of your colleagues as opposed to COI?
A. Yes.

MS. BLOOMFIELD: Your Honor, can we ask that Dr. Ankum have a chance to look at that? We don't have it, and it's a pretty long Interrogatory.

EXAMINER LYNN: It is long.
MR. STEWART: (Indicating.)
THE WITNESS: Yes, I've read it.
By Mr. Stewart:
Q. May I have that for a second?
A. Yes.
Q. Now, in the response to that

Interrogatory, Embarq states - did you read the response, also?
A. Yes.
Q. Okay. Embarq states this, "Embarq confirms that these workbooks are not" - - quote -"generated" -- end quote .- "by the model run. Please refer to file titled Loop Module Methodology.doc starting on Page 23 to understand how the module runs and uses these workbooks." Did you follow that instruction or do you know if your colleagae, Dr. Denney, did?
A. Well, first, that's not the entire answer. The first part of the answer is an objection
that the information is not relevant; right?
Q. That is correct.
A. Okay. Now, secondly, we asked for a full explanation, and there was - is that one or two sentences? So that's Point 2, and Point 3, yes, and this kind of illuminates my point that the -- well, yes, we did go through the model documentation and we read the model documentation. My point is that the workbooks that were presented to us do not represent the inherent algorithm of the model, and that's why we're being referred to the Microsoft Word document that is explaining what the model does, but that explanation is -- will only get you there part of the way. To see what a model does you need to see the underlying algorithm, so you can trace that two plus two is indeed four.
Q. So I take it you're saying that you referred to the file titled Loop Module Methodology.doc, and even after you did that, that was insufficient to enable you to understand how the module runs and uses the workbooks?
A. Yes, and that's my point.
Q. Okay. The proposal that you make for Embarq's rates -- this is Table 1 on Page 3 of your supplemental direct -- do those proposed monthly
recurring charges include loop conditioning costs?
A. They don't include rates, but the
intention is that they do include the -- that they include compensation for loop conditioning, yes, consistent with, I believe, the current ICA.
Q. I didn't quite hear the first part of your answer. You said they don't include rates?
A. That's right, the compensation for costs.
Q. Are you meaning to say that they don't include a separate rate for loop conditioning in there, but overall your intent was to cover the cost of loop conditioning?
A. Yes.
Q. Now, my understanding is that QSI did not do its own cost study in order to determine the cost of loop conditioning; is that correct?
A. That's correct.
Q. Did your study of the Embarq model reveal to you that Embarq removed over (redacted) from non-recurring rates?
A. I think I addressed what is being removed on Page 21, and I refer to Miss Londerholm's discussion of that, and it appears to us that the costs that are being removed associated with non-recurring activities pertain to the drop, and I discuss that in the last
paragraph on Page 21. Given that loop conditioning doesn't pertain to the drop element but to, you know, the non-drop portion of the loop, it seemed to us that the necessary adjustments have not been made, and, therefore, the costs must still be in the model.
Q. All right. On Line 17 of 21 , in that answer, the only answer in which you talk about loop conditioning, you're careful to use the word "appear." I take it you used "appear" because it wasn't evident in looking at the model whether loop conditioning costs were excluded; is that fair?
A. Yes. To perfectly ascertain it, you would need discovery or deposition.
Q. Here again QSI did not make an inquiry to try to clarify that?
A. My answer is the same as it was previously to that question.
Q. Going back to Page 12, Line 5, it's the third line in that paragraph, it indicates -- our pagination is different.
A. Excuse me, which page?
Q. Twelve. The paragraph starts on my Line 3 with the words, "To summarize," the number there, (redacted) percent, this is another situation where the actual increase is, according to my calculation,
(redacted). So my question is whether you would agree with that change?
A. Yes, I would agree with that.
Q. And similarly, below that on Line 11, the DS1 loop counts increased to (redacted), as opposed to "by (redacted)"; is that right?
A. Yes, I would agree.
Q. If you look - please look at Page 14, Line 14 where you state, "The New Model builds (redacted) lines to each housing unit." I don't know whether you can do this now, but if you would refer to the input page definition, the number of lines per each housing unit is actually (redacted), is it not?
A. I can't ascertain that. I give a precise reference, so I think we can both look that up.
(Discussion off the record.)
By Mr. Stewart:
Q. Please look at Page 16, your table there looks at economic lives, and this is - well, the general subject of depreciation; correct?
A. Yes.
Q. Is it fair to say that over time depreciation rates have increased for the accounts that you show here, with the result being that economic lives are shorter now than they used to be?

$$
3
$$

A. I don't think that's true in general. For example, I don't think that buildings is really - is necessarily changing, where lives become shorter for that category, so it kind of depends.
Q. Okay. Well, let's take buildings out, because they're, at least to my mind, not a particularly telecommunications specific asset. For well, we can go through this one by one. For aerial copper, is it your belief that economic lives have shortened over the past 10 to 15 years?
A. I provide two benchmarks for the Commission, which is the SBC Approved and the FCC Synthesis Model depreciation rates. To do a review of depreciation rates, you need to, you know, do an extensive study with life cycles for the particular facilities or a particular product. I don't want to do that just on the witness stand here. It's a conjecture. I think the two benchmarks that I'm comparing to and I think my point is that Embarq did not support its depreciation rates, and if you compare them to what the Commission has previously approved is shorter, but I haven't done my own depreciation study, which is, you know, a specialization I don't have, to do an independent study, depreciation lives.
Q. Are you generally familiar with
depreciation rates as they"ve been approved by Commissions and the FCC over the last 10 to 20 years?
A. I've looked at them, yes.
Q. And so are you saying you don't have an opinion about whether over time economic lives for things like copper cable, telephone poles, have generally gotten shorter?
A. I don't think that you can generally say that. I think there has been a - in part a movement due to the introduction of competition that may have, you know, caused regulators to take different dynamics into account that may shorten economic lives, but most of that took place after 1996, and now this new paradigm where there is competition and some of those adjustments that might have caused economic lives to shorten I think would have well played out at this point.
Q. It's fair to say that as competition increases, that tends to shorten the economic lives?
A. For some facilities it may. For others it may not.
Q. Is it fair to say that increased competition in telecommunications doesn't result in longer economic lives for any asset that you could identify?
A. Not necessarily. If you have poles, poles are still being used, and the onset of competition, particularly through cable that uses poles to the same extent that a telephone company does, that particular facility - and poles is listed here somewhere -
Q. Third up from the bottom.
A. Yeah. The introduction of competition or the development of competition doesn't necessarily impact the economic life of that facility because competitors as well as the incumbent use that facility.
Q. Well, again, let's -- poles aren't a particularly high tech area. But copper, over the years hasn't the useful life of copper declined given the advent of the use of fiber in the network?
A. I think that's probably true to some extent. On the other hand, I think the incumbents have found that competitors still like copper, and where companies like Verizon and AT\&T, that are overbuilding the networks, their existing networks with fiber, they are actually maintaining copper facilities precisely because this new demand has emerged from competitive carriers; so where Verizon might initially have removed copper facilities, they now leave those facilities in place. In fact, there are many proceedings across the country that involve precisely that issue, where copper
facilities are being maintained against the will of an incumbent and thus lengthen the economic lives.
Q. Now please turn to Page 18. Look at Lines 5 through 9, and you talk about Account 6613 Product Advertising, and I understend what you say the Commission said to SBC, but is it your belief that there are not wholesale advertising costs?
A. Well, I'm not saying there are no wholesale advertising costs so much as that they -they're not costly related to the Unbundled Network Elements, the UNE loops that a company like COI is purchasing from you.
Q. What facilities or services do you think properly incur wholesale advertising costs?
A. I think there may be some special access products that possibly you could make an argument for that you're competing against Competitive Access Providers and that to be able to compete with those, that you want to be out there advertising your facilities, but there is no substitute for -- well, there -- it is a monopoly element that COI is coming to you with a request for these facilities. I think it's coming to you not because you advertised for it, but COI is coming to you because it needs those facilities, and you're required to make them available under the

## 180

act, which is widely available to everybody, so it doesn't need to be advertised that it is available. Everybody knows that it should be available.

MR. STEWART: Your Honor, I think I'm almost done. May I have a few mimutes?

EXAMINER LYNN: Sure.
EXAMINER AGRANOFF: Yes.
(Discussion off the record.)
MR. STEWART: I am done.
EXAMINER LYNN: Please go ahead.
MR. STEWART: No more questions at this time.

EXAMINER LYNN: What we'll do at this point is take a break, and then you can do your round of questioning; okay?

MS. BLOOMFIELD: Yes.
EXAMINER LYNN: Thank you. Ten minutes again, back by four.
(Recess taken.)
EXAMINER LYNN: Back on the record, please, and Miss Bloomfield.

MS. BLOOMFIELD: Yes, Your Honor. I just have a few questions.

## By Ms. Bloomfield:

Q. Dr. Ankum, this is to clarify the record. There was a lot of discussion about CDs, the model CD, workbooks, et cetera, and isn't it the case that you could open the various -- some at least, some of the files on the CD that you received with Miss Londerholm's testimony?
A. Yes. Actually, more than that. We could open all of the files. It's not the files themselves don't open. It's rather that the files are not the totality of the model.
Q. Fine. Is it true that for those - for those -- some of those files that are called workbooks, those are - those are essentially Word documents, some of them at least; correct?
A. Well, the -- there are Excel-based workbooks that are related to the model, and then there are additional files that are model documentation files, and those are in Microsoft Word. They just give descriptions of what the model does, et cetera, et cetera; so of the module -- none of the model logic is explained in the Microsoft Word document.
Q. So you were able to open -- as you mentioned, you were able to open the files in the CD;
you just weren't able to make the program work?
A. That's right.
Q. And you also indicated that some of the workbook files didn't appear as complete as you would like to see them - I shouldn't say that, but where the workbook files, particularly the Word-based workbooks, they have sufficient information for you to verify the cost of service study?
A. Yes. The Excel-based workbooks do not give you access to the underlying algorithms, the calculations that drive the reconstruction, the hypothetical reconstruction of the network that takes place in the model. You can't see that in the Excel-based workbook. The Microsoft Word documents will describe the logic of what is going on in the model, but short of seeing the actual equations that are being carried out so that you can trace from Excel workbook to Excel workbook exactly what is taking place, you simply can't verify the model.
Q. Was the information that was in the various files on the CD sufficient for you to support your conclusions in this case?
A. Yes. My testimony is based on what we were able to see, as well as, of course, I have discussions there about comparisons between different
scenarios, et cetera, et cetera, that are almost independent off the model, but the discussions about the model go back to the worksheets and the workbooks that we're able to inspect, and so there is a certain amount that you can understand about the model and that I have discussed in my testimony, but, again, the underlying algorithm you can't see.
Q. Mr. Stewart gave you some discovery responses that Embarq had given back to COI. Isn't it the case that those discovery responses referred not to the CD that is part of Miss Londerholm's testimony, but rather the prior CD of the Cost Model that has now been abandoned?
A. That's correct.
Q. And you testified, did you not, that because of the supplemental testimony time frame and the fact that the discovery had closed, you were not able to get additional information, additional information about the CD that was attached to Miss Londerholm's testimony; correct?
A. That's correct.
Q. That's all I have.

EXAMINER LYNN: Mr. Stewart, do you have any questions?

184

## RECROSS-EXAMINATION

By Mr. Stewart:
Q. The one discovery question and answer that we discussed when I was speaking with you earlier, are you saying that was not applicable to the new model CD?
A. That question pertained to the old model CD, and that answer pertained to the old model CD. We did not have discovery on the new model.
Q. I appreciate that the question was asked with respect to the earlier CD and you got it before you got the new model CD, but what I'm asking is whether that question and answer were applicable to the new model CD. In other words, let's say you hadn't received the earlier model and had just received the model that was attached to Ms. Londerholm's testimony. Would you have asked that particular question and would the answer have been helpful?
A. Well, you're asking me would you have answered the question in the same way, and, of course, I don't know what you could have answered.
Q. I'm not asking you that.
A. Part of the answer seemed to be germane -if that's what you're asking. The new model CD does have loop -- does also have Cost Model documentation in there, so to some extent I imagine there might have
been an overlap if we asked you for something specific about the old model, and I don't necessarily know what you would have answered. That's up to you.
Q. No, I don't mean to - I didn't mean to ask you to speculate on what we would have answered, but was the answer that we looked at germane to the new model?
A. Well, it informed our understanding of the new model, but, again, I think in all fairness, you were asking me to speculate, even though you're saying that you're not asking me to speculate, but -
Q. Well, I don't mean to ask you to speculate. Did you do for the new model what that answer suggested be done for the earlier model?
A. Well, the - as I recall the question, it's asking you about certain worksheets and workbooks and it's asking whether those are generated by the model run, and it's asking you to explain that, and with respect to the old model, you said that they're not generated by the model run. Now, I used that answer to inform my understanding of the new model, but, of course, on my part that is in part conjecture since I never got to ask that question of you.
Q. Well, the answer suggests referring to the file titled Loop Module Methodology in order to
understand how the module runs and uses the workbooks. Was that reference one that was meaningful for the new model and --
A. That particular component, yes, and that's what I'm trying to differentiate.
Q. So for the new model you would have referred to the Loop Module Methodology to gain understanding?
A. Yes, but there's another component to that question and answer.
Q. That's all.

EXAMINERLYNN: Any other questions?
Miss Green, do you have any questions? EXAMINATION
By Ms. Green:
Q. From an engineering perspective, what is the difference between a DS1 loop and a four-wire loop with regard to the provisioning requirements for each?
A. Well, I mean, they may be using different network components, if that's what you're asking about. Like the DS1 loop could be riding over fiber. The four-wire loop that COI is asking about is going to be a copper loop, so the implication is they are both for how you would cost them out, but also how to provision them.
Q. In regards to your discussion of the fill factors, did you do any fill factor adjustment to the cost study model based upon the concerns you have raised in your testimony?
A. No. I made no adjustments to the model for a number of reasons. First, we were never able to run the model. Secondly, I don't really want to make recommendations based on an unexamined model. The model hasn't been approved by the Commission. Within a two-week time frame there's no way that anybody can really verify the functioning of that model. I also believe that the model doesn't really produce rational and consistent results; so we never tried to modify the model. Instead, we presented an alternative proposal that simply takes the existing rates in COI's interconnection agreement and then asked the question how much would those rates have gone up in view of increases in input prices, and we went to the Bureau of Labor Statistics and Bureau of Economic Analysis, and they present inflation factors for the various loop components. We used that to estimate by how much the rates in COI's ICA would have gone up, and that's our counterproposal that is before the Commission.
Q. That's all I have.
A. Thank you.
EXAMINER LYNN: Miss Russell, any
questions?
MS. RUSSELL: No.
EXAMINER LYNN: Mr. Agranoff, any
questions on your part?
EXAMINER AGRANOFF: The only question I
have is one of clarification, and I'm not sure whether
or not the witness would be the individual that would
know this information or whether or not counsel would
be best able to provide this, and that's simply with
respect to the interconnection agreements that Dr.
Ankum used for comparison purposes, I would like to
know the case numbers for those interconnection
agreements and the dates on which the Commission
approved them.
MS. BLOOMFIELD: Would we be able to
provide those at a later time? I don't have them.
EXAMINER AGRANOFF: Sure.
MS. BLOOMFIELD: I believe that QSI pulled
those, so I'm not sure which ones they are, but we can
certainly get them for you.
EXAMINER AGRANOFF: What I was looking at
offhand was the ones referenced in Table 10 of Dr.
Ankum's direct testimony. Specifically it was on Page
32.



129:13 135:12
135:20 140:3
140:16 142:6
145:5 146:1
151:1 152:22
155:11 156:11 158:11,11 160:4 161:4 162:11 163:15 165:17 166:13 168:1,13 169:11 174:7 177:5 179:4 181:4 182:25 183:2,5,19 185:2,16 186:21, 22
above 142:21
absence 164:21
absolute 162:8
absolutely 39:12 111:24
absolutist 162:8
absorbed 159:22
accelerate 81:17
accept 41:20
42:6 71:17
107:7,9
access 13:19,22 75:3 108:14,20 123:4 127:2,10 127:11,12,15 127:22 142:5,6 179:15,17 182:10
accessible 127:17
accommodate 162:1
accommodated 161:16
accomplish 169:17 according 23:16 51:6 174:25
account 17:12 29:18,19 80:6 80:9,11 109:7 177:12 179:4 accounts 11:11 11:23 12:10, 12 175:23
accuracy 57:23
accurate 146:6 164:11, 17
ACH 18:17,21,22 19:1
acknowledge 163: 6
acronym 13:17
17:21 107:21 141:12
acronyms 13:6
acrosa 178:24
act 1:7 4:9 152:23 153:3 153:12 180:1
activities 131:12 173:24
activity 109:16
acts 110:25
actual 6:17
58:12 102:16 122:17 137:21 137:23 138:8 160:8,10 161:8 174:25 182:16
actually 23 :11
28:6 48:24
52:1,4,5,13
56:22 59:10
79:13 82:19
85:10 93:22
97:15 102:16
115:20 118:16
129:24 137:1
138:1,3 163:7
163:12,14
168:13 175:13
178:20 181:9
190:10
adamant 42:22
addition 53:5 150:3
additional 5:23
93:2 131:25
132:25 133:25 181:19 183:18 183:18
additions $8: 25$ 115:5 116:16
addressed 104:25 173:21
addressing 142:20
adhering 27:12
adjust 151: 13
adjusted 58:7
adjustment 187:2
adjustment: 174:4 177:15 187:5
admission 5:19
admit 30:17, 20
admitted 29:15 113:7,12,14 190:1
admittedly $29: 13$
admitting 106:21 adopting 5:13
ADSL 68:1
advance $25: 4,8$ 25:11,17,22,24 26:2 77:5,8,12
advent 178:14
adversarial 43:1
advertised 179:23 180:2
advertising 179:5,7,9,14 179:19
advice 40:25
advised 17:18 118:17
advocated 7:4
advocating 77:14
aerial 176:8
affirmation 6:14
Africa 141:11
after 5:22 10:14 14:6,14 15:2 20:7 21:4,8 23:14 24:6 36:3,12,24 50:6 55:19 60:16 61:1.8 77:17 89:12 105:7 112:9,10 122:15 170:18 172:19 177:13 190:21
afternoon 116:25
again 5:17 8:10 9:17 18:24 22:15 24:7 26:7 34:22 35:19 37:4 50:9 61:5 77:7 86:16 88:24 91:5 97:6 107:12 114:11 122:23 141:6 142:14 146:8 160:3 161:1 162:5 164:8 169:20 174:14 178:11 180:18 183:6 185:9
againat 90:13 142:16 179:1 179:17
ago 19:25 103:16 109:21
Agranoff $1: 10$ 3:8,9 4:11 6:21 7:7,11 10:5 13:5:11 $13: 13,16 \quad 32: 18$

36:543:17
66:25 67:6
76:11,14 78:24
79:8 85:5 92:2
101:15 102:10
102:12 104:7
104:11,20
107:20 115:20
117:14,22
120:12 180:7
188: 4, 6, 18, 22
189:4,8 190:16
190:19 191:1
Agranotf's 104:2
agree 25:3 44:3
99:1,3 110:4
112:7 117:8,18
125:19 130:24
140:3 147:15
149:16 152:10
175:1,3,7
agreeable 83:8
110:8,9
agreed 6:13,16
30:21 45:13
53:6,9,18
82:10 114:2
143:1
agreeing 110:6,7
agreement 6:9,15
30:23 31:9
32:9 33:9 35:8
45:3 66:19
67:18 69:21 72:15 73:2,5,6 $73: 8,18 \quad 75: 14$
75:23 76:3
84:12 85:3
93:13 94:1,12
94:20 95:4,7
103:21 104:4,6
104:12,16,16
104:18 105:2
105:13,21
105:9 114:3
124:18 130:3
136:15 148:14
148:24 149:4
163:21 164:9
164:13,16
187:16
agreements 84 : 10
105:6 124:11
136:12 148:14
188:11,14
ahead 47:9 83:7
111:20 114:6 145:23 180:10
algorithm 168:24
172:10,15

Page 2

183:7
algorithms
126:17 167:1
168:14 182:10
alleging 104:23
142:19
allocated 160:24
allocating 159:3
allocation
139:13 140:20
159:17 161:17
161:24
allow 143:3
allowed 56:3
110:20,22,23
123:18 133:5
allowing 27:23
allows 40:5
69:13
alluding 139:1
almoat 180:5 183:1
alone 128:7
along 69:4
already 7:18
22:13 51:16,17
66:18 69:4
92:23 95:19
113:6 114:8
143:12,13
155:18 158:3
alter 153:23
alternativa 64:24 74:10 187:14
although 49:4 147:19 170:16
altogether 53:11 53:13
always 26:21 73:12 75:4 83:19
Ameritech 84:12 124:11,18
Among 132:17
amount 24:23 30:12,21 39:17 45:3,7 62:17 80:8,11 88:14 88:16 129:6,8 169:11 183:5 amounts 10:25 11:10 12:3.5 31:6 42:17
analyses 128:25 analysis 99:2 128:7,18,21 129:4 169:18 187:19
analyst 133:15
analyxe 54:8
57:22 159:23
analyzed 47:11 47:14 154:6 157:23
analyzing 7:5
animal 140:4
Ankum 3:11,19,20
3:22,24 5:11
6:10 33:18
34:2 98:24
99:9,21 113:18
113:20,22
114:8,13,13,24
116:9,18,25
122:25 123:3
123:24 151:9
171:4 181:3
188:12
Ankum's $35: 5$ 37:18 100:12 188:24 189:25 190:20
annual 62:16 131:19
anomalous 137:14 138:15
another 4:11
24:6 29:11
32:2 47:13,22
81:7,8 82:9
92:23 108:9
111:14 119:7
149:5 157:9
174:24 186:9
answer 20:15,21
21:3,15,23
34:18,23 35:1
35:9,10,14,19
60:10 65:8
71:4 91:5 99:8
101:1 102:12
104:7 122:4.16
122:20,21
123:3,6,11,15
123:16,18, 20
126:20 129:23
133:1 135:7
140:16, 22
149:21 150:2,4
155:10 162:6
162:24 167:7
167:23 170:24
171:25,25
173:7 174:7,7
174:16 184:3,7
184:12,17,22
185:6.14.21, 24 186:10
answered 21:8 71:6 104:1 123:5 158:3 164:24 184:19 184:20 185:3.5
answers 8:22 77:19 100:19 100:23 115:3 116:12
anticipate 161:4
anybody 6:6 16:24 31:17 45:21 187:10
anymore 59:4 95:1
anyone 114:1
anything 6:20 7:11 56:17 69:22 91:13,16 101:3 134:6 170:4
anytime $33: 22,24$ 33:25 61:4
anyway 25:8 140:7
anywhere 17:4 71:23 100:22 apart 133:25 apologies 151:2
apologize 145:22 148:15 158:3 169:20
apparent 159:12
apparently 12:7
appear 170:18
174:8,9 182:4
appearance $4: 15$
APPEARANCES 2:1
appears 83:25 99:4 117:19,19 142:1 160:14 173:23
applea-tor-ap... 120:7
apples-to-apples 142:10
applicable 184:5 184:12
applies 19:24
117:24
apply 28:13 139:18 148:14 165:3,4
applying 149:5 149:11
appreciate 184:9
appreciates 99:7
approach 83:9 89:1
appropriate 9:21 99:20 100:22 100:25,25 138:14,14 144:4 153:12 160:6 169:18
appropriately 135:16
appropriateneas 98:24 100:4,14 100:18
approved 35:16 37:8 46:17 47:3 119:18 161:9,10 164:20 176:12 176:21 177:1 187:9 188:15
approximate 62:5
approximately 42:12 50:14 53:8 81:22 82:4 97:3 145:4,6
approximation 20:3 62:20
April 87:15,15
arbitrating 103:22 104:12 arbitration 1:4 4:8 7:1,21 33:23 56:20 57:2 67:3 73:3 73:9,23 104:17 114:20
arbitrationa 7:20
area 89:10 94:11 94:15,17 98:17 98:20 100:12 101:23 103:5 121:22 178:12
areas 73:15 98:25 99:5 103:3 119:14 120:22,22 121:7,20,20,23 121:24 125:23 132:18,20
argue 29:4 57:7 143:7
arguing 101: 11
argument 109:14 179:16
arguments 68:14
ARMSTRONG 1 : 22
around 14:3
16:25 17:6
40:19 45:20 78:14 79:21،25

80:9 84:7
94:24 95:3
102:1 121:2
133:3 137:24
161:12 165:23
arrangements 1:5 84:13
arrears 25 : 12,14
25:15,20 77:5
77:9،11
art 33:8
amcertain 131:21
174:12 175:14
aside 140:15
asked 16:24
19:19 21:11
34:14 35:3
38:20 39:22
42:9 46:1,17
48:21 51:20
52:19 57:11
58:10 64:3,5
77:4 88:16
89:16 93:6
95:22 96:19
99:18 100:18
100:20 101:4
102:24 103:17
104:11,14,15
104:22 114:3
149:22 172:3
184:9,16 185:1
187:16 189:13
asking $24: 8 \quad 67: 1$
73:22 75:7
99:15 106:25
107:1 117:10
117:24 120:8
161:3 167:11
184:11,18,21
184:23 185:10
185:11,16,17
185:18 186:20
186:22
aspects $132: 13$
132:14 158:12
asset 176:7
177:24
assigned $4: 6,10$
43:14 140:14
assist 7:4
assisted 128:8
128:10
associated
173:24
28*ume 22:10
134:17 142:4
149:11 165:15
assuming 68:8
82:8 92:19

115:17 144:7
assumption 148:23
aseumptions 168:14,21
assured 153:19
attached 183:19 184:15
attain 137:8
attention 21:22 117:4 119:2 136:22
attorney 4:10,12 30:15 44:19 87:1 100:3 149:23
attorneys 30:14
AT\&T 84:4,12
105:6,18, 22
106:2 118:23
118:24 119:2,4
119:8,16,25
120:15,22,25
121:2,5, 7,12
121:18 122;2,9
122:11,14
123:1,4,25
125:19 166:7,9
178:18
АT\&T's $119: 14$ 125:23,23 166:11
audit 169:2
August 3:11, 18 3:20,22, 24 42:14 113:22 114:8,13,24 115:24 116:8
authority 152:17
automated 16:13 19:1
available 18:14 37:16 38:4 57:4,8 122:9 129:16 159:23 179:25 180:1,2 180:3
average 14:6 24:2 25:19 27:25 60:12 62:6 105:25 121:11, 13 122:1,3 123:1 147:13
aware 7:12,16 18:13,16 19:8 28:18,20 47:4 67:11,17 118:10
away 42:25 60:4 60:7,8 150:10 A-n-k-u-m 114:14 a.m1:14 190:11

back 7:5 10:8 18:1 20:17,20 20:21 21:2,3 22:16,18 28:18 29:23 33:22 34:22,23 42:20 54:13 55:3 70:6 83:2,17 91:6 92:4 113:16.17 118:15 122:20 122:21 124:15 124:24 126:9 134:11 140:10 150:24 154:2 160:4 163:23 166:6 174:18 180:18,20 183:3,9 1.90:11 190:22
backed 45:15
background 11:16 44:20 79:3
backs 84:1
backwarde 169:8
bad 20:11
ballpark 119:21
band 72:21,22,23
72:24 73:1,13 73:13,14, 17 75:17 81:7.8 93:8,12,14,15 93:16,17,22 94:2,19 96:12 96:18 98:19 100:14 101:9 101:12,17 119:8,9,12,13 119:16,16 120:16,16. 23 121:1,1,3,12 121:13,19 122:2,3 123:1 123:2 136:18
banding 99:9 102:13 103:9
bands 72:16.16 72:18,20 73:3 73:6,7,11,12 80:6,25 81:1,5 81:9 94:10,22 94:23,25 95:3 95:6 96:14

98:4,5,12,25 99:11 100:5,19 118:25 119:3,4 119:4 121:18 131:24
bank 18:11, 22 26:11
bankruptcy 19:17 19:18 28:19,22 28:25 29:2,7 29:12,24 30:8 30:10,11, 18 31:4 42:10,12 44:14, 14, 16, 19 45:2,19, 22
55:22,24 83:4
86:12,15,18, 22
86:23 87:1,7 89:8,9
barest 142:11
barrel 143:24 144:1
barrier 118:7,12
base 76:19, 25 160:7
based 5:8 7:17
28:3 45:12
46:12,25 57:3
60:11 66:20
69:9,14,17
73:21 79:14, 15
79:18 80:20
89:22 94:6,17
96:13 98:4 99:5 100:6,9 100:10 102:14 108:7 110:11 110:14 112:11 122:9 137:12 138:16 140:16 148:17 153:13 153:20-157:23 164:3 168:11 182:23 187:3,8 189:12
basic 141: 19 142:25
basically 12:2 18:18 35:18 40:4 42:4 60:15,21 86:3 103:11 131:10 134:1 148:12 190:21
basis 18:6 26:25 31:8,22 32:9 33:20 35:7 59:7 62:1 77:22 82:12 83:10 95:2

98:6,8 101:16
104:7 136:14
bear 102:16
became 89:6
Becky 43:8
become 176:3
becomea $83: 13,18$
before 1:1, 10
5:5,16 9:20
11:20 30:25
37:15,17,18
38:2,13 43:4
43:12,24 48:24
53:771:7
74:20 84:25
97:15 106:17
134:21 151:10
165:17 184:10
187:23 189:11
189:20
began 49:12
begin 7:9 11:10
41:19 47:3
48:16 161:12
161:14
beginning 49:13 166:18
begins 78:25
begun 15:18
behalf 2:5,8 4:16.18 11:6 130:11
behind 155: 14
being 5:5 8:4 11:20 25:11,12 29:21 48:21 54:20 59:7, 8 69:19 70:3,21 73:3 74:23 77:8,9 78:9 83:12 88:16 90:14, 17 92:9 92;21 112:3 113:23 117:4 126:22,23 130:11,13 138:1 139:10 140:6 142:24 145:24 150:16 155:14 156:6 164:11 172:11 173:21,24 175:24 178:2 179:1 182:17
belief 20:6 23:18 58:2 74:19 103:8 120:25 136:3 176:9 179:6
believe 5:23
6:19 13:3 14:2
14:5,13 33:3
34:18 49:15
57:6,16 58:12
70:25 71:6,7
91:22 93:6,10
93:11 101:10
109:25 113:5
123:17 124:2
130:15 135:13
136:21 151:1
154:12 162:19
163:5, 6, 16
165:12 169:18
173:5 187:12
188:19
believed $31: 5$ 123:12
Bell 73:14 76:2
below 175 : 4
benchmarks
176:11,18
benefit 167:10
besides 55:23
best 57:4,8
100:21 146:3 188:10
better 90:18
between 7:19
10:21 12:9
28:16 30:14
31:10 33:9
37:19 40:5
41:2 43:18
54:21 58:18
60:13 61:1
63:19 75:5
103:18 119:3
119:15 124:11
124:18 131:22
133:24 139:13
139:23 140:7
140:17 145:2,3
159:1,6,10
160:19 161:17
164:12,14
165:1,24 166:3
166:9,17
182:25 186:17
beyond 105:11, 18 130:5
big 57:11 84:22 89:10
bigger 26:23
biggest 87:21
big-name 154:20
bill 11: 9, 13,24 12:14,21 13:2 13:4,20,25

14:8,17 15:24
16:1,15 20:12 21:16 23:10,16
24:3,17 26:2
27:3 29:5,20
30:25 36:3
48:23.24.24
49:1,2 51:3,3
51:8,10,12,14
51:21 52:4,13
54:9,14,25
55:7,16,19
57:17,22 58:20
$59: 14,21,25$
$60: 14$ 61:2
62:13 63:1
64:24 79:23,24
80:7,23,23,24
82:24 83:5,6,7
83:14,14,16
84:14 85:21
86:1 87:4
89:15,21 91:14
92:9 96:12
97:2,14 106:10
106:17,22,23
110:7 111:8
billed 11:21, 21
25:11,12,14,14
25:17,20,22,23
26:1 29:6 31:3
69:11 70:21
77:8,9,10,12 91:11
billing 12:17
13:4,14,15,15
13:22 14:1,14
14:15 15:23,23
16:3,23 20:11
21:15 25:8
29:5 42:3 43:4
54:21 60:17
61:12,15 62:6
62:16,16 69:5
76:23 77:5,5
77:10,14 78:6
79:21 80:6,8
80:11 81:12,17
82:8 83:20,20
83:24 84:13
86:19,24 87:6
92:5 106:1,7
106:13,18,22 107:3,6
billings 39:9
bills 10:21 11:3
11:6,19 12:16
15:11,19 16:10
16:21 18:14
20:10 21:12

22:25 23:4
25:10,14 26:15
26:16,17 36:2
38:21,25 39:2
39:11 40:11
42:4 48:20,22
51:14 53:9
57:12,13,23
58:4,6 59:5,8
61:23 62:1
64:4 77:21
78:2,5,21 79:7
80:3,5,19,22
80:24 81:3,4
82:12,21 83:1
93:9 95:23
96:2,8,9,15
bit 108:21 149:1
black 167:2,3
blank 121:12,13 122:2,3 123:1
157:8,12,13
blanks 121: 21
Bloomfield2:2
3:4,5,6,10,12
3:13 4:18,20
6:7 7:15,23
8:8 9:3,6,8,23
10:1 21:10
23: 8, 15, 19, 24
$32: 4,11,16,20$
32:23 33:1,4
34:24 35:1,11
35:13 37:19
38:15,17,19
43:20,21 53:21
63:13,16 65:13
65:16,20 66:5
66:8 95:11,12
95:14 99:14
100:16 101:13
113:3 114:7,10
115:14,23
116:2,4,6,18
123:8 151:23
171:3 180:16
180:21,22
181:2 188:16
188:19 189:1,5
189:11,14,22
190:17,24
board 129:3
bodies 131: 12
boils 101:20
Bonnie 11: 15
BOS 96:20 97:4
BOS-45 40:13
41:2,21 42:6
54:17,18 63:23
64:7 97:2,12

97:16
both 14:25 26:13
49:22 66:13
75:9 76:24
88:17,18
104:10 107:10
117:20 118:23
131:18 154:6
155:12 158:4
175:15 186:23
bottom $60: 9$
55:24 70:6
160:14 178:6
bought 17:7,9 33:7 41:7
box 10:24 77:24
77:25 80:5 167:2,3
boxes 39:7 77:25
Brad 17:15
brand 157:12
brands 157:11
break 12:9 38:12 38:12 75:3 150:22 165:17 180:14
breakpoint 28:7 28:16 74:8,16 108:7
Bricker 2:2 4:20
bridge 68:5,6 69:2.14 70:15
$70: 17,18,20,21$ 70:25 71:7
108:21 109:1,4 109:13,15,25 110:5,10,12,14 110:15,18,20 111:12,22 112:11,13.15
briefer 120:15
briefing 6:22
briefs 6:1,2,23
bring 7:17 38:24 81:22
brings 94:22
Broad 1:13 2:7 $5: 2$
broader 153:3,4
brought 7:8 21:22
build 154:17 155: 4
buildinga 176:2 176:5
builds 175:9
built 155:5
bulk 139:2,2,3
bunch 51:20 58:19

Bureau 187:18, 19
buried 131: 12
burying 158:22 158:25
business 75:1
76:20,21,25
84:6,9 89:4 152:7,13, 20 153:16,22,25 154:1,2
businesses 102:7
buttons 168:3
buy 28:8,8 94:8 108:14 110:19 110:21
buying 55:18 93:20
B-0-S $40: 14$
—— $C$
cable 148:1 177:6 17B:3
cables 164:3
CABS 13:4,13,14 13:23 15:23 25:14 39:14 59:5,6,6,7,9 59:11 62:3
calculate 144:13 144:14,16
calculated 126:22
calculation 174:25
calculations 126:17 155:15 158:1. 168:24 169:6 182:11
CALIX 155:8
call 10:1 17:8,9
31:24 32:2,12
41:23 54:12
55:10 57:19
85:16 134:2
153:9
called1:14
18:17 114:8
141:9 169:3
181:14
call:31:19
36:24 43:7
158:10
came 19:18 29:7
34:13 46:15
49:19 53:12 84:20 89:8
90:23 124:2 128:3 157:2 170:25
cap 73:21 75:7
capable 71:1,8
capacity 114:16
137:24 159:23
caps 40:14
capture 121: 20
card 134:23 135:1,5,10,12 135:14,19,23 135:25 136:4,5 155:9 157:11 157:11
care 6:8 89:20
careful 174:8
carefully 192:5
carried 182:17
carrier 13:12,19 13:22 63:9 67:12,14 74:10 84:9 91:9 95:17
carriers 178:22
case 1:5 4:6,11
6:19 8:19 9:22
12:7 17:6 28:1
29:25 42:12,16
43:13 46:4
48:23 49:16
51:2 52:25
77:18 85:17
90:8 95:16
96:11,24 97:1 138:10 158:11 158:12 170:24 181:5 182:22 183:10 188:13
cases 7:1 94:23
categorical 162:8
category 77:2,8 98:18 176:4
cause 132: 6
caused 137:14
177:11,15
CBT 163:11, 20
CD 10:24 12:17 13:1 14:1,5,7 14:15,18, 25
15:5,6 49:6,9
49:10,13,17,18
49:20 50:8,9
50:19,21, 22
57:14,15 58:13
58:15 59:2,11
59:23,25 60:14
$60: 21,22,23,24$
80:4,17 95:24
170:22 181:4,7
181:25 182:21
183:11،12,19

184:5,7,7,10 184:11,13,23
CDs 12:22 49:11 49:12 50:1
60:7,18 64:11 77:24 80:15 181:4
cell169:3,3,5 cells l69:5
center 94:7,8 98:10 101:6,9 101:11 102:14
centers 94:6,13 94:14 95:2 99:11 100:4 120:23 137:10 152:7
central 134:15 142:12
cents 56:13 75:16
Centurytel 26:13 26:15
certaln 25:7 94:11,15,17 95:20 98:25 99:10,10 100:4 103:3 106:9.10 131:8 139:13 140:11 152:7 155:13 157:6 163:6 164:2,2 169:11 183:4 185:16
certainly 100:1 101:10 188:21
CERTIFICATE 192:1
certified 8:5 113:24
certify 192:2
cetera 139:8,8 181:5,21,22 183:1,1
chance 171:4
chances 136:7 140:23
change 59:9 70:22 78:10 92:13 100:19 131:25 132:5 148:17 160:20 160:21,22 161:20,24 175:2
changed 68:13 80:7 93:17,17
changes 131:14 139:13 147:10 164:22,23

165:9,11
changing 14:2 57:17 161:21 176:3
Chapter 29:7 42:23 43:2
characterization 102:17 132:15 168:9
characterized 121:21
characterizing 152:3
Charge 54:7 55:6 67:19,23 68:23 69:19 105:14 105:19 131:20 141:4
charged 11: 11
67:22 68:2.4 70:3 71:19
charges 12:3,4 67:25 71:17 83:21 86:1 88:7 105:15 150:6,9 163:16 163:17 173:1
charging 68:19 68:19 109:16 cheapest 121:7
check 12:24 17:20 18:10,21 20:5 24:22 82:20 122:7 141:7 142:15
checked 16:25 55:13 71:9
checks 24:22,22
choice 87:5
chuckled 156:23
Cincinnati 73:13 76:2
circuit 68:1,6
70:10 71:15
111:12,21
134:9 135:2,7
circuits 68:16
68:17 69:3.25 111:18
circumstance 135:17
circumstances 95:20 138:22
citation 7:3
cities 94:17 102:1 120:24 121:24
city 101:22
claim 28:24
29:24 30:8

45:12,12 56:10 120:3
claimed 106: 23
claiming $42: 16$
56:6 110:25
clarification
32:5 63:14
74:15 188:7
189:13
clarify 42:11
76:19 77:7
95:23 174:15
181:3
clarifying 93:3
93:11 95:10,15
clear13:6 22:1
23:9 43:18
67:1 107:21
115:15 147:24
149:24
clearer 147:11
Clearinghouse 19:2
Clears 147:22
CLEC 63:9 74:3
74:17 75:5
89:6 108:13,19
118:11 152:7
152:12,19
153:15,18,21
CLECs 16:19
62:25 153:24
Clevel and 31:16 31:20
client 131:5 154:15, 25
close 16:2 77:23
98:17 99:19
101:9,23 142:9
189:10 190:10
closed 6:4 114:1
183:17 191:4
closer 62:8
121:23
CO 69:15 110:16 112:12
coffee 133:16
COI 3:16 5:9 7:21 8:15 9:21
10:2,13,18,21
11:3,7 12:14
12:18 14:7
15:11,16,18
16:3,9,15
17:16,18 18:4
18:7 19:5,9,24
20:6 21:21,21
22:5,7,10,13
22:13,25 23:12
24:3,5 27:10

28:18 29:13
30:7,12,18
31:2,10,23
35:6 36:2,14
36:25 37:3,16
37:18 38:2,4
40:8 41:1
42:17,17 44:9
45:4,22 47:5
52:3,20 53:3,9
53:16,18 54:24
55:22 57:23
58:23 59:3
61:1 62:1,6
63:5,20 67:11
67:22 68:2
69:18 70:25
71:6,12,19
72:4,11,16
75:15 76:6
77:14,21 78:21
79:7 80:3 82:7
83:8 84:3,24
85:15,17 86:7
86:7,11,13
87:11,20 88:15
89:23,25 90:13
90:18 91:17
93:7,21 95:16
96:21 103:18
105:14,19
$106: 1,10,13,16$
109:16 110:17
111:23 112:16
113:6 114:19
114:23 117:2
118:19 124:11
124:19 129:17
130:2,7,7,11
135:4,5,13,16
136:12,15
142:13 145:1
145:16,17
146:5,10,13
151:4,9,20
162:17,25
170:12 171:1
179:11,21, 24
183:9 186:22
189:23
coila 68:4
111:22
COI's $20: 18$
25:10 68:7,22
75:14 95:18
105:7 113:17
147:13 166:10 187:15,22
colleague 142:3
155:12 156:11

158:4,5 171:22
colleagues 33 :18
124:4 128:9 171:1
Columbua $1: 14,23$ 2:4,7 4:22 5:2
column 136:16, 18 136:19 141:3 144:25,25 145:1
come 8:1 10:23 12:16,17,22 42:5 59:5 68:5 77:23 78:5 81:4 87:19 100:14 131:6 142:9 154:1
comes 11: 10
12:21 14:13
15:6 20:13 40:13 108:19 111:22 169:13
comfortable
146:7 147:22
coming 59:6
60:18,21
179:21,23,24
comraent 113:19
commenta 88:11
commisalion 1:1
1:13 4:5,13
27:7 57:3 67:4
85:1 118:11,17
119:22,25
120:1,5 121:6 138:5,7 143:5 152:17 153:1,9 153:13,19 161:9,10
176:12,21 179:6 187:9,23 188:14 192:11.
Commissions 177:2
Commisaion's 143:5 153:23
160:7 165:14
Commisaion-ap... 48:15 160:17
committed 82:7
common 71:11
139:17,25 140:2,4,6
Communication
1:3 2:5 4:7,16 4:19 8:14
comp 104:3,15
companies 13:10
55:11,14 63:25
84:8 118:24

Page 6

| 119:23 120:9 | computed 51:7,24 | confirmed 21:13 | 117:25 168:7 | 177:6 178:12 |
| :---: | :---: | :---: | :---: | :---: |
| 120:21 126:2 | 51:25 52:13 | confirms 171:17 | 170:21 | 178:13,17,20 |
| 138:21 178:18 | 126:23 | confused 77:17 | contains 13:2 | 178:23,25 |
| company 1:6 4:24 | concept 89:3 | confuaion 147:4 | 14:1 118:22 | 186:23 |
| 8:16 13:9 | 99:10 | conjecture 161:2 | contention 68:18 | copy 58:23 |
| 43:23,24 118:6 | conceptually | 176:18 185:22 | contest 28:24 | 125:12 136:16 |
| 118:18,20 | 140:5 168:10 | connection | context 60:3 | core 126:18, 25 |
| 139:1,9 154:16 | 168:17 | 117:21 | 79:12 104:25 | Corporation 2:6 |
| 178:4 179:11 | concern 153 | connectiv | 117:15 144:9 | 2:8 |
| compare 11:19,20 | 165:4 | 101:20 | 153:3, 4, 12 | correct 5:13 |
| 119:12 120:18 | concerning 44:19 | connotes 156:15 | contingent 162:9 | 10:12,18,19,25 |
| 122:1,7,17 | 85:14 | consequence | 162:10 | 11:4 15:10 |
| 143:9 176:20 | concerns 187:3 | 105:10 | continued 19:20 | 22:8 23:16 |
| compared 25 : 12 | conclude 23 : 5 | conserva | 19:21 | 29:14 38:22 |
| 69:19 129:8 | 46:23 | 121:4 | continuing 28:8 | 39:10,23 40:8 |
| 162:23 192:5 | concluded 191:5 | consider | contract 17:17 | 40:21 41:11 |
| compares 135:24 | concluding 26:25 | considerab | 23:17 26:20 | 43:15 45:8,24 |
| comparing 107:16 | conclusion 23:7 | 10:20 | 27:1,6,19 | 46:20 47:19 |
| 108:2 120:15 | 24:8 44:4 58:1 | considerably | 31:12 51:6 | 48:2,6,8,18 |
| 121:5 137:11 | 161:25 | 140:20 | 68:13,15 84:20 | 50:3,18 51:4 |
| 142:13 163:13 | conclusio | considerati | 87:24 88:1,4 | 51:18, 22 52:14 |
| 164:8 176:19 | 182:22 | 91:3 153:5 | 89:12 90:3,5 | 52:23 53:19 |
| comparison 82:2 | condition | considerin | 90:10,11, 14, 15 | 55:21 58:21 |
| 119:3,15,17 | 69:7 | 71:22 | 90:17,22 103:4 | 63:12,20,24 |
| 120:7 121:4 | Conditioned | consist 12 | 103:18,20,20 | 64:12 67:5 |
| 142:10 188:12 | 4 | consintancy | 103:21 104:5,9 | 73:18 74:21 |
| comparisons | conditio | 146:21 | 106:24 130:15 | 75:21 79:9 |
| 182:25 | 67:9,13,15,19 | consistent 138:9 | 130:20,22 | 95:25 96:4,22 |
| compensates | 67:23,25 68:8 | 153:6 160:6 | 131:11 | 97:5,17 109:2 |
| 135:16 | 68:10,20,23 | 173:5 187:1 | contracts 27:13 | 109:6 112:1 |
| compensation | 69:5,19,23 | consistently | 103:11,11 | 117:5 119:9,10 |
| 90:20 173:4,8 | 70:3,8 71:23 | 145:13 | 130:14 | 141:21 145:7 |
| compete 179:18 | 83:3,21 85:25 | consolidated | contrast 126:19 | 145:12,14 |
| competing 179:17 | 95:18,20 106:8 | 14:15 15:4 | 126:20 | 145:4 147:2,3 |
| competition | 106:11,14 | 58:17,19 7 | contrasted | 147:20 148:25 |
| 152:22 153:7 | 109:23 112:2 | 80:18 | 128:21 | 151:6 152:7 |
| 177:10,14,18 | 150:9 163:16 | constitute | convention | 157:6,14,21 |
| 177:23 178:2,7 | 173:1,4,10,12 | 168:15 | 146:20 147:11 | 162:16 168:12 |
| 178:8 | 173:16 174:1,8 | constitute | 160:10 | 168:23 172:2 |
| competitive 63:9 | 174:10 | 151:14 | conventions | 173:16,17 |
| 178:21 179:17 | Conditions | constrain | 146:21 147: | 175:20 181:16 |
| competitors | conduct 153:22 | 123:12 | conversatio | 183:14,20,21 |
| 178:10,17 | conducted 154:3 | constructed | 16:23 17:22 | 192:3 |
| complete 35:10 | conference 43:7 | 121:18 124: | 33:6 52:17 | corrected 147:17 |
| 182:4 | 158:10 | construction | 58:1 83:18 | correction |
| complete | confiden | 158:20 159: | 107:18 | 145:14 146:2 |
| completely | confiden | 159:10,17 | conversation | corrections 8:25 |
| 138:20 | 3:11,19 | consultant 47: | 44:18,23 46:10 | 115:6 116:15 |
| complex 1 | 6:16 113 | 47:18,19,23 | 54:5 60:3 | correctly 54:10 |
| 149 : 2 | 114:3 115:1 | 48:1, 5 | 61:11 68:2 | 77:20 81:21 |
| component 127:2 | 115:16 | consulted 16:18 | 89:17 97:22 | 82:4 91:2 |
| 143:10,12, 13 | 117:3 125 | Consulting 36:20 | conversion | correspond 73:4 |
| 167:2,3 186:4 | 151:3,10 | 114:17 | 156:18 | cost 19:9 28:4,5 |
| 186:9 | 189:24 | contact 149:23 | convoluted 45:17 | 31:8,22 32:3,5 |
| components 131:8 | Confidentiality | 149:24 | copies 38:24 | 32:6 33:19 |
| 143:9,11 | 6:9 | contacted 19:19 | copper 98:21 | 35:6 36:20 |
| 186:20 187:21 | configured 80:20 | contain 13 : 1 | 101:21 102:21 | 37:1,16 38:3 |
| compressed | 134:9 | contained 31:9 | 134:18 135:22 | 41:14 46:2,6 |
| 130:21 167:14 | confirm 122:1 | 66:22 67:2 | 137:13 148:1 | 46:12,24 47:5 |
|  | 170:20 | 75:22 95:24 | 164:3 176:9 | 47:16,19,22 |

48:5,5,11,15
56:21 57:7
60:5 67:13
73:1,25 75:1,5
94:7,25,25
98:4 99:2
101:24 102:3,8
102:25 108:18
108:18 120:3
121:3,5,6
126:7 127:8,11
127:15,19
128:8,16,21
129:8,16,18
130:4,17,19,24
131:1 133:6,11
133:12,15
135:9,23,24
136:3,5,13
137:4,5,25
140:16,20
142:2,16,22
143:8,10,18
148:17 149:20
150:3,7,8
152:11 154:3
154:10,11, 13
154:16,24
155:15 157:9
157:11,20,22
158:9,12,14,17
158:20,21,22
158:25,25
161:6 164:10
164:12,17
165:6,16
166:16 167:13
167:16 168:8
170:23 173:11
173:15,15
182:8 183:12
184:24 186:24
187:3
costing 102:19
135:10 159:20
costly 179:10
costs 77:11
102:16 119:20
125:23 126:2,8
138:25 139:13
139:17,23,25
140:2,4,4,7,13
141:20,24
142:15,25
143:3,18,24,25
153:1, 20
158:20 159:3,5
159:10,10,17
159:25 160:24
161:12 164:14

164:15 173:1,8
173:23 174:5
174:10 179:7,9
179:14
cost-based
152:18 153:17
cost-study $98: 14$ 99:3 100:8 166:19
counsel 4:16,23
5:22 7:12
44:24,24 57:11
118:17 188:9
counterproposal 187:23
country 178:25
counts 175:5
couple 17: 22
55:11 75:12
95:15 134:8 156:3
course 21:20 119:25 129:24 131:4,7,23 153:10 167:6 169:21 182:24 184:19 185:22
court 30:10,11 44:15 118:10
cover 6:5 173:11
covered 6:4
create 135:2 147:4
created 190:21
creating 135:7
credit 19:5 44: 8 44:9 53:8,8 83:17 86:3 90:25 91:4,9 91:16
credited 29:18 53:18
creditor 28:22
creditors 55:23
$56: 1,7,8,13,16$
credite 11:11
12:3,4 20:11.
20:17,18 21:20
53:17 56:9
61:23 83:2,6 83:11,20
criterion 132:11
criticize 149:20
crose 99:18
crossover 28:3
cross-examina. . .
3:5,12 5:20
9:10,14 116:19 116: 23
croas-axamining 54:6
Crowe 109:7,8 112:4
cup 133:15
current 32:11
72:14 73:8
75:14 76:3
93:25 94:11,20
95:3,4 106:8
136:12 145:1
145:10, 16, 17
145:24 146:5
146:10,13,14
146:14,15,16
147:13,16
148:13,24
149:3,10 150:6
151:15, 20
158:17 163:13
164:10،12
165:5,24 166:4
166:10،12
173:5
currently 18:4
32:19,24 48:4
49:4 64:1,6
67:18 70:18
73:4 80:1
81:11 82:3
84:25 95:24
124:17
Customarily 7:20
customer 11:20
42:6 48:25
76:19,25
109:12 119:5
120:17 134:22
customers 11:3
36:2,15 76:20
80:21
custom-made
154:18
cycle 49:2
cycles 58:15 176:15
C-A-L-I-X 155:8
$\bar{D}$
data 103:8
122:18 123:4 127:6 156:17 168:22
date 10:14 14:7 14:17 15:1,5 16:2 20:8
21:16 23:11,14 23:15,16 24:6 33:1 36:3,5,6

36:9,22 48:22
48:23 49:1
51:3,3,7,8,10
51:13,15,17,22
58:6,12 59:22
60:13,13 61:1
61:1 78:6
79:23,24 80:7
80:9 81:18,19
81:25 97:2,15
105:7
dated 14:24,25
51:14 58:22 59:12
dates 14:10,12 15:1,8 36:10
58:18 79:21
92:9 188:14
day 5: 6 14:19 21:16 34:5 90:9 190:9,10
days 5:4 10:14
14:6,14 15:2
16:8 19:25
20:3,7 23:5,9
23:10,11,13
24:5 25:23
$26: 2,3,10 \quad 36: 4$
36:10,11,12
48:22 51:10,16
51:21,25 52:4
$52: 7,8,12,12$
58:6 60:13,16 61:2,7 78:3,5 81:25 97:3,15 105:7,9,11,18
deal 84:3 129:1
dealing 76:20 138:19 167:13
deals 127:5
debt 29:13,16
December 6:2,2 19:18
decent 122:13
decide 71:16 112:10
decided 17:5 47:12
decision 7:6 153:23
decision-making 165:14
declined 37:3 130:2 178:13
decreases 160:25
deeper 159:13
defaulted 26:17
definitely 153:8
definition 65:11 66:16,17

134:10 175:12
definitions
66:13,18
degree 137:21
delete 117:8
deletions 9:1
115:5 116:16
delineate 7:1
delivered 68:25
delivering 69:6
delivery 12 :18
12:23 36:8,12
Delphos 74:2
75:6 107:14,18 108:12
demand 137:15
138:23 139:10
139:11,12
140:18,21
159:15,16,22
160:24,25
161:11,15,15
161:22 162:2
162:17,23
178:21
demanded 138:24
demands 138:16 139:11
demonstrates 112:14
Denney 124:7,9 128:10,19,20 129:7 171:23
denotea 156:17
denser 119:13 121:1
denaitiea 120:17
density 98:11 119:5 120:23 121:21
deny 170:20
depend 161:25
dependent 164:11
Depending 134:13
depends 29:16
106:24 135:17
135:21 160:3
162:24 176:4
deposit 19:6
86:7 88:25
89:3,6,7,23
90:19 91:7,15
105:23
depomition 174:13
depoalta 36:14 85:13 8B:14,19 89:9
depreciation
175:20,23

Page 8

176:13,14,20
176:22,24 177:1
derived 141:23 143:2
describe 136:25 137:6 182:15
described 147:10 155:13
descriptions 181:21
design 158:24
details 158:14
determine 29:21 93:12 111:23 127:16 142:23 144:5 173:15 190:14
determined 28:3
develop 17:5 154:10
developed 55:11 57:22 60:23 69:1 154:7
developers 17:10
developing 16:11 16:18,20 17:14 92:10
development
178:8
DHL 12:22
Dickson 11 : 25
differ 94:20 125:16 140:25
difference 33:9 139:9,22 144:8 145:3 186:17
differences
120:8 131:13 131:22 132:2,5 133:24 137:15 138:24 139:10
different 14:4 46:6 48:5 49:20 60:11 78:4 81:5 94:21 95:6 97:22 98:4 99:11 107:17 125:4,12 131:7 131:10,15 132:6 134:14 135:19 137:15 138:16,21 139:20 140:4 140:20 141:1 147:10,19 150:2 152:16 156:3,5 157:10 160:10 161:18

168:4 174:20
177:11 182:25 186:19
differentiate 150:5 186:5
differently 60:11 98:9
differing 138:16
difficult 132:12 147:23
difficulties 143:13
dig 159:13
Digital 155:9
diligent 129:9
direct 3:4,12 5:18 8:7 9:18 39:6 99:17 114:9 117:9,19 118:5,21 120:7 125:7,8 130:16 130:25 133:23 136:22 148:11 150:10,17 165:17 166:6 172:25 188:24 189:25
directed 21:7
Directing 117:4 119:2
direction 8:18 74:24 166:11
directly 140:14
disagree 21:11 $70: 2$
disagreement 102:13
discarded 130:18
discharge 29:12
disclosed 190:15
discover 133:8
discovery 132:25
133:2,5,10,17
167:10 174:13
183:8,10,17
184:3,8
discrepancies 82:13
diecuse 43:12 78:20 86:19 143:22 152:6 158:15 173:25
discussed 6:1,22
49:3 57:19
62:25 77:21
109:7 130:6 183:6 184:4
discussing 76:24 78:10
discussion 5:5
6:3 7:18 10:7
11:1 17:25
18:25 29:8
37:12 57:18
59:16 61:6,8
65:22 66:10
71:2 82:9
84:19,23 92:23
108:6 117:13
123:19 124:14
124:23 145:20
149:13 150:14
160:4 162:14
162:19 170:9
173:22 175:16
180:8 181:4
187:1 189:9
190:12 191:2
discussions 5:9
30:14,15 31:7
33:1745:18
46:8 61:18
101:25 158:8
182:25 183:2
diake 20:2
disprove 46:24
47:2 48:11
diapute $30: 7$ 42:21 43:4
86:2 87:12
90:3 104:17
107:1
disputed 42:17
83:6 88:8,9
99:1 106:19
disputes 58:3 82:17
disputing 85:22 95:17
distance $13: 8,9$ 112:12
distinct 80:22 138:20 161:6
distorted 166:1
distracted 129:13
diatribution 134:16,18,19
disturbing 157:17 166:3,6 divide 144:8 dividing 98:6 Doctor 120: 12 document 172:11 181:23
documentation 172:7,8 181:19 184:24
documented $30: 23$
documents 6:17
96:3,7 99:13 181:15 182:14
doing 18:18, 23 60:4 70:10 78:7 84:6 107:10 121:4 133:2 142:14 142:17 144:10 154:16 168:13 169:14
dollar 45:3,7 56:14
dollars 22:12 30:19 44:9 139:20 140:24
Donahue 43 : 8
done 6:25 75:1
78:9,9,11 83:3 93:19 99:12 112:4 119:3 126:8 128:19 154:11 155:1 164:18 176:22 180:5,9 185:14
down 12:9 23:2 81:22 101:20 126:5 163:7,15 163:16
dozens 155:1, 4
Dr 5:11 6:10
33:17 34:2
35:5 37:18 98:23 99:9,21 100:12 113:18 113:20 114:8 116:9,18,25 122:25 123:3 123:24 124:7,9 128:10,19,20 129:7 151:9 171:4,22 181:3 188:11,23 189:24 190:20
draft 170:11,12
drafted 170:14
dramatic 82:22 83:5
drawn 18:10
drive 167:1
182:11.
driven 131:14 161:18
drives 161:12 drop 134:20,21 173:25 174:2 dropped 62:1.4
DSL 71:1,8

DS1 28:4,11
65:11 66:13
68:6,15,20
69:3 71:18
72:11,16,19
73:20,25 74:1
74:7,16 76:3
93:8,21 108:11
110:21 125:18
125:18 137:4
137:11 139:12
139:18,24
140:8 150:7
151:18 158:20
159:11,15,18
160:24 162:23
163:1,3 164:6
164:15 165:25
166:4,8,10
175:5 186:17
186:21
DS1s 27:23,25
28:1,9,16
67:25 74:20
140:18
Dg3 27:24 28:1,5
28:8,12,17
73:25 74:2,17
74:21,25 108:7
108:12,14
DS3s 75:3
due 6:1 10:14
36:3 48:22,23
51:6,17 80:8
105:8 139:10
177:10
duly 8:4 113:23
duplicate 136:8 136:9
duplicated
117:11
during 27:19
30:16 31:12
33:23 46:3,4,4 47:5,5,7 53:5
53:13 61:17,17
62:15
dynamic 138:3,10 160:9,11
dynamice 177:11
D-e-n-n-e-y
124:9
d/b/a1:64:24
$\frac{E}{\frac{E}{\text { each 21:18 39:19 }}}$
49:6,14 50:3
$78: 20 \quad 79: 6$
96:6,12 106:1

118:24 120:17
129:3,7 138:22 160:19 168:22 169:5 175:10
175:12 186:18
earlier 77:3
86:8 90:24 93:6 128:11 129:13 144:6 148:4 149:22 165:16, 21 184:4,10,14 185:14
early 84:7 89:5 128:11,18
easier 8:15
East 1:13
Eckler 2:2 4:20
economic $83: 13$ 83:18 175:19 175:24 176:9 177:5,12,15,19 177:24 178:9 179:2 187:19
economies 125:20 125:22 137:16 138:16,25
effective 60:5 73:1,25 75:1 94:7,25 95:1 124:17
efficient 60:5 101:21
effort 149:23
eight 14:13 15:1 52:18 79:10 81:4 96:15 103:10,14,15
eighty-tive 25:16
elther 5:22 26:22 59:14 60:14 61:17 95:11 98:14 105:22 133:9 141:17 143:16 143:19 155:25
elaborate 87:14
elected 15:16
electronic 15:12 15:19 16:20 17:14 61:15 81:12,17 82:7 92:5
electronically 40:9 42:5
electronics 140:11,15 element 135:11 174:2 179:21

Elements 59:18 59:19 152:24 179:11.
elevator 102:5
Elida 102: 6, 21
Embarq 1: 6 2:6,8 4:25 5:11 6:9 6:13 10:13,16 10:22 12:15 15:10 16:10,15 17:11,18 18:5 18:14 19:6 22:6,7,11,13 22:25 24:3,11 25:10 26:12,14 26:16,17,21,24 27:8,9,25
28:21 29:9,10
29:14,24 30:7
30:11,12,14,18
30:19,22,24
31:2,3,7,10,21
32:3 33:19
34:15 35:6,16
36:25 37:1,15
38:3,22 39:8
40:8,10,25
42:24 43:19,24
44:2 46:3,5,19
48:12,25 49:6
49:13,25 52:2
52:20 53:2,9
53:18 55:23
56:5,6,11,19
56:20,20 57:7
57:13 60:5
61:11,14,23
62:1,6 63:20
64:3,6 70:6,17
70:20 71:13,18
72:5,12 74:11
74:23 75:2,19
75:24 77:22
78:20 79:6
80:2 81:24
82:14,19 84:11
84:19 85:17
86:18 87:10,11 87:19 88:15,21 88:24 89:24
90:13,17,19
92:14,21 93:8 94:1,16 95:19 96:21 101:25 102:19 103:18 103:19 104:24 106:4,5,10,13 106:16,16,21 107:2,3,6,10 108:15,16, 1.7

108:25 109:3,4
109:9,9,12,14
109:25 110:9
110:17,25
118:20,23, 24
119:4,15,18,20
119:20 120:16
120:23 121:1
121:13, 22
122:3 123:2
125:20 127:8
127:15,19
128:8,16,21
129:8,16
130:18, 18
132:19،20
133:11 135:4
138:20 140:1
141:8,9 142:17
142:19 143:3
148:10 149:23
149:24 151:12
155:15 158:16
159:8 161:5.7
161:13 163:4,7
163:19 164:10
165:7 166:16
169:9 170:13
171:13,16,16
173:18,19
176:19 183:9
Embarg's 21 : 22
27:23 28:24
36:20 68:9
71:10 84:24
86:10 90:10
98:4 106:7
119:12,13
121:8 149:20
160:15 163:13
172:24
embedded 146:19
emerged 178:21
empirical 103:7
employ 160:5
employed 114:15
employee 17:11
17:16
employees 57:13
enable 54:8,9
57:23 111:23
152:12 172:20
enablen 152:19
end 78:15 87:19
166:18 171:18 endeavors $130: 11$
ended 29:10
30:18
ends 143:5
engage 118: 6,19 130:8,19
engaged 81:12 114:19
Engine 156:20
engineering 186:16
Engle 6:11 124:20
enough 71:22 144:19 149:6 153:24 169:22
entering 114:1
entire 34:17 47:6 66:21 171: 24
entirely 130:19
entirety 26:4 83:10 162:1
entities 13:9
entity 16:19 101:22 162:24
entry 18:2 118:7 118:13
EQ 151:19
equal 28:12 39:17 140:21
equaled 28:5
equally 56:9
Equala 146:11
equationa 182:16
equipment 111:16 134:20
erroneous 53:9
error 31: 23, 25 32:3 83:24 128:6 155:19 155:20,22,23 156:2,5,10,18 156:24 157:7 157:14,17,18 157:19, 24 165:15
errors 21:22 33:19 35:6 53:15 83:12
Esq 2:2, 3, 6
essentially 125:4,10,14 181:15
establish 43 :1B
established 61:7 153:13
estimate 39:18 41:13 72:19,22 187:21
estimated 12:6
estimates 170:23
et 139:8,8 181:5 181:21,21

183:1,1
evaluate 148:10
even 22:21 24:14
26:10 51:12
56:16 70:21
75:3 98:25
99:19 109:9
111:11 121:6
123:13 125:23
133:18 146:2
165:8 169:16
172:19 185:10
event 106:7
events 50:18
ever 31:13 49:16
58:23 67:22
71:12 89:16
155:5 158:15
every 11:9,13
20:12 27:3
82:17,20 90:9
109:5 111:21
everybody 14:4
42:24 45:20
84:21,21 86:21
180:1,3
everyone 113:17
189:19
everything 6:4
14:5 15:4
20:13,24 21:8
39:13 42:25
46:22 60:9
62:3 64:11
111:11 122:16
170:2,6
evidence 57:4,8
102:16 113:12 113:14
evident 174:9
evolving 153:5
exact 36:21 83:9 167:1
exactly 70:13
73:22 126:19
126:22 133:16
147:18 182:18
examination 3:4
3:5,6,7,7,8,8
3:10,12,13,14
8:7 38:13,18
63:15 65:4
72:2 76:13
85:6 95:13
114:9 181:1
186:14
examine 148:9
162:25 163:3
Examiner 3:8,8,9
4:4,23 5:3,15

| 6:18,21 7:7,11 | 182:17,18 | expected 92:19 | 125:10,15 | Fax 1:24 |
| :---: | :---: | :---: | :---: | :---: |
| 7:16,25 8:4,6 | Excel-based | expedite 124:16 | 134:3 139:6 | FCC 27:15 28:2 |
| 9:5,7,11، 25 | 181:17 182:9 | expedited 92:20 | 154:14 159:2 | 28:10,13 67:11 |
| 10:3,5,8 13:5 | 182:14 | 167:10 | 159:24 176:16 | 95:17 152:17 |
| 13:11,13,16 | except 27:6 | expense 130:10 | 177:20 178:20 | 152:21 176:12 |
| 20:19,22 21:1 | 32:16 146:19 | expenses 131:20 | 178:23,23 | 177:2 |
| 21:4,25 23:21 | exception $83: 2,4$ | expensive 75:6 | 179:1,13,20,22 | FCC's 74 :16 |
| 32:18 34:21,24 | excessive 70:13 | 98:21 102:22 | 179:24 | features 11:20 |
| 35:11, 20, 23 | 70:14,16 | 130:8 138:2 | facility 134:16 | 77:11 |
| 36:5 37:10,21 | 110:10,12 | experience 11:16 | 134:20 135:16 | fed 98:18 |
| 37:24 38:11,15 | exchange 63:9 | 155:13 158:5 | 135:21 137:22 | feeder 134:16,18 |
| 43:17 53:23 | 67:12 141:20 | expert 98:23 | 138:1 142:12 | feel 89:1 91:17 |
| 63:8 65:1,23 | 142:11,25 | 99:16 | 159:21 178:5,9 | 122:14 |
| 66:3,7,25 67:6 | 153:7 | expertise 122:10 | 178:10 | feeling 102:15 |
| 71:25 74:4,6 | exchanged 133:18 | 122:10 | Eact 26:10 27:22 | feet 68:16,17 |
| 76:10,14 78:22 | exchanges 99:10 | expired 31:11,23 | 29:15 33:6 | 69:14,18, 20, 23 |
| 78:24 79:8 | 107:13 | 32:10,15 72:15 | 34:12 68:25 | 70:1 |
| 85:5,7 92:2 | exclude 140:2,6 | 94:1,12 106:9 | 69:4 70:20 | felt 35:14 41:16 |
| 93:1 95:10 | excluded 174:11 | expires 192:11 | 77:21 86:14 | 88:24 |
| 97:24 99:25 | exclusively | explain $80: 2,19$ | 87:21 97:1 | few 37:11 67:9 |
| 101:15 102:10 | 63:23 | 88:4 94:2 | 102:18 111:10 | 180:5,23 |
| 104:20 107:20 | excuse 52:3 | 119:6 123:18 | 122:1,25 128:3 | fewer 20:7 |
| 112:25 113:8 | 115:8 136:22 | 128:1 137:19 | 137:20 147:9 | fiber 75:5 98:18 |
| 113:11,16,23 | 162:13 174:21 | 143:16 152:15 | 153:21, 24 | 98:21 101:20 |
| 113:25 115:9 | excused 112:24 | 170:24 185:18 | 164:4 178:24 | 135:22 137:12 |
| 115:20 116:1,3 | 189:18 | explained 87:1 | 183:17 | 178:14,19 |
| 116:20 117:11 | executable 128:2 | 128:5 138:6 | factor $36: 7,11$ | 186:21 |
| 117:14,22 | 168:2 | 139:22 155:18 | 102:3 160:21 | field 139:8 |
| 120:12 122:19 | exercise 118:2 | 181:23 | 160:22 187:2 | 157:8,9,11,12 |
| 122:22 123:20 | 148:23 | explaining 21:14 | factors 131:20 | 157:13 |
| 124:24 150:12 | Exhibit 9:21 | 21:15 35:13,19 | 138:14 160:5,5 | Fiftan 36:4 |
| 150:15,18,21 | 10:2 113:2,6 | 123:11,12 | 160:15,18 | fifth 1:22 |
| 150:24 151:6 | 113:14 114:23 | 172:12 | 161:13,14 | 136:18 |
| 171:6 180:6,7 | 115:13,18,21 | explanation | 187:2,20 | fifty 24:25 |
| 180:10,13,17 | 116:1,2 117:2 | 21:23,24 | failed 106:17 | figure 78:15 |
| 180:20 183:23 | 117:16 151:1,4 | 123:15 172:4 | failure 106:22 | 103:15 |
| 186:12 188:1,4 | 151:9 | 172:13 | fair 20:3 23:7 | figures 161: 11 |
| 188:6,18, 22 | exhibits 3:16 | explanations | 62:20 100:6,12 | file 15:21 16:12 |
| 189:4,6, 8, 10 | 189:21,23 | 136:24 | 102:17 118:1 | 30:2 39:25 |
| 189:15,17,19 | 190:13 | explored 19:5 | 132:15 144:19 | 40:2 42:23 |
| 190:2,5,9,13 | exist 138:5,12 | express 164:11 | 146:17 148:20 | 63:18 81:13.15 |
| 190:16, 19 | 138:18 167:3 | 165:3 | 1.49:6 153:24 | 86:11,15 92:7 |
| 191:1,3 | existed 35:6 | expressed 118:18 | 168:9 174:11 | 97:16 156:12 |
| maminers 1: 11 | existing 124:2 | extend 165:5 | 175:22 177:18 | 168:2 170:19 |
| 4:10,12 100:3 | 161:16,19,19 | extending 131:10 | 177:22 | 171:19 172:18 |
| xamining 167:13 | 161:20 162:2 | extends 134:19 | fairly 121:3 | 185:25 |
| xample 18:14 | 164:9,12,15 | extensive 75:18 | 145:13 | filed 28:19 29:7 |
| 31:18 49:4 | 178:19 187:15 | 176:15 | fairness 185:9 | 29:24 42:12,15 |
| 50:20 72:21 | exists 138:3,11 | extent 25:7 | faith 111:11 | 43:2 55:22 |
| 74:1 135:13 | 159:20 | 75:18 131:21 | fall 77:2 93:23 | 67:4 86:23 |
| 139:16 144:9 | expanded 130:17 | 159:3 166:24 | 119:21 | 115:19,24 |
| 149:9 152:21 | expect 16:14 | 178:4,16 | falle 137:25 | 116:8 129:19 |
| 154:19 155:17 | 56:20 121:14 | 184:25 | familiar 123:14 | 129:25 130:1 |
| 157:8,10 | 164:16 | extreme 74:24 | 127:2 155:8 | 130:24 190:14 |
| 158:21 176:2 | expectation | e-mail 109:6 | 176:25 | files 7:20 15:24 |
| xamples 100:21 | 83:10 164:10 |  | fancy 144:12 | 40:5 63:25 |
| xcel 126:20,21 | 165:3 | F | far 5:17 43:13 | 95:25 128:3.5 |
| 126:21 127:7 | expectations | facilitieg | 48:4 73:5 | 155:19 181:7 |
| 127:13,20 | 164:3 | 101:20 121:7 | 94:10 110:16 | 181:10,10,11 |
| 157:23 169:1,2 |  |  |  | 181:14,19,20 |

181:25 182:4, 6 182:21
filing 33:22
filings 56:10,10 131:18
fill 108:19 138:8,9.14 160:4,5,7,8,8 160:10,12,15 160:18,21,22 161:13,14,17 187:1,2
filled 157:10, 12
filla 137:21 138:8 161:8,8 161:9,10,11
finally 50:19 53:17 79:25 90:23 191:4
financial 27:10 86:7,13
find 46:16 68:8 75:10 88:13 155:25 156:21 159:2
findings 160:7
fine 5:24 6:18 10:1 19:21 60:12 146:18 181:13
finish 169:7,7
finished 150:15
firm 4:19
first 5: 10, 12 7:19,21,24 B:4 16:22 20:15 46:11 47:16 49:11,17 50:6 51:3 50:16 76:18 79:22,24 95:11 102:24 115:15 123:2 129:16, 20,22 129:25 130:4 130:14 131:1 132:14 133:6 137:4,19 147:14 156:6 171:24,25 173:6 187:6 189:24
fit 102:8 134:25 143:19
fits 92:15 144:20
five 16:8 60:4 61:2,7 81:25 94:23 97:3,15 100:5 101:24 102:9
five-day 81:23 97:7,19
five-month 50:1
five-year 45:4
fix 92 : 12, 12
fixed 161:11
floating 137:24
focus 76:18
focuring 85:12
folder 170:17
follow 126:23 169:6 171:21
following 20:15 20:24 34:18 190:18
follows 8:5
113:24 160:9
Footnote 27:15
foregoing 192:2
forgotten 23:22 160:13
form 50:9 96:3 118:18 142:11
formal 43:11
formally 133:9,9
format $14: 7$
15:12,14,19
40:11,13,16
41:2,21 42:7
49:19,21,21,24
54:5,21 59:21
63:24 64:8,21
96:21 97:2,4
97:11,11,16
formats 14:4
formulas 126:21
forth 42 : 20
53:15 91:18
forthwith 6:17
Forty 25 : 21
forward-looking 138:9 160:1
found 41:1 68:21 82:13 138:5,7 178:17
four 14:11 50:16 61:2,7 73:11 78:4 87:12 94:22,23 112:15 172:16 180:18
four-band $93: 18$
four-wire 69:16
72:5,7,8
133:24 134:4
135:18,25
136:4,11 137:5
137:12 139:12
139:18,24
140:8.19 150:7

151:13 159:6
162:16,22
163:10,19
164:5,14
165:25 166:4,8
166:9 186:17
186:22
frame 38:8 60:22 81:18,18 92:16
133:3 134:16
169:23 183:16
187:10
frames 84:21
92:20
Frank 141:11
frequently 87:19
from 10:13,20,21
11:4 12:15
16:10 17:4
23:10,11 24:3
25:10 29:3
34:4,16 36:14
38:21 40:8,25
41:23 42:17.25
43:10 48:15,22
$51: 2,7,10,24$
51:25 52:13
53:7,14 54:24
55:6 56:7
61:23 62:6
65:1,17 67:13
68:8 69:14
70:6,14 71:13
71:23 72:5,11
73:16,24 74:2
74:23 76:6
77:21 81:18
82:14,19,21
84:8 86:7
87:11,20 88:15
88:17 93:8,17
93:18 94:20
95:3,11 96:21
98:19 100:2
101:19 103:21
104:6 107:14
108:11,15,16
109:6 110:2,16
112:12 116:12
117:9 118:23
123:4 125:12
131:13 133:25
135:14 139:3
141:23 142:2
143:2 144:7
149:8 152:11
156:25 158:16
159:13 160:16
163:3 164:9
167:15،17

168:8 169:2,7
169:7,10
170:25 173:19
178:6,21
179:12 182:17
186:16
front 24:14
124:20 161:2
162:7,11
FTP 15:15 16:3 16:12,23 39:23
54:5,8,14,25
55:19 57:18,22
59:7,11 60:7,9
61:6,14 63:18
63:22,25 64:4
64:12,15 89:19
96:21 97:3,5
FTP-type 63:7
full 31:3 56:2
56:12 85:23
166:24 172:3
fully 170:24
full-fledged 118:19
function 165:20
169:3,4
functionality 125:18
functioning 135:2,7 187:11
functions 128:13 142:3 169:2
further 9:4,5,8 38:13 53:22,24 63:12 64:25 71:24 91:23 92:3 131:23
future 15:20 125:12
fuzzy 45:20 136:17

- G
gain 132:14 168:21 186:7
garbage 165:20 165:20
gave 17:3 55:10 77:19 140:23 155:19 183:8
general 12:2,5 119:17 121:25 134:22 139:25 144:11 161:3 162:22 175:20 176:1
general1y 57:25 125:24 128:17

148:19 149:15
149:17 154:23
158:11 165:21
176:25 177:7,8
generated 104:22
170:22 171:18
185:17,20
generic 154:17
genesis 165:8
germane 184:22
185:6
gets 62:9 143:12
155:21, 22
157:21
getting 59:6,9
59:10 60:6,6
80:11,13,15,17
80:17 92:4
98:20 103:1,2
129:13 168:16
give 19:5 64:22
65:13 74:1
79:12 82:11,23
105:13 112:21
119:24 136:2
165:22 175:14
181:20 182:10
given 50:9 91:3
107:5 119:17
123:12 130:20
138:18 152:25
162:5 169:22
170:6 174:1
178:13 183:9
giving 91:12
162:10
glean 169:10
go 4:4 5:10 7:19
7:21 10:5 17:1
17:24 20:9
27:1,5,24
40:25 47:9
64:21 65:6
78:19 81:7
82:20 86:4
94:23 103:6
108:13 110:23
111:7,17,20
112:21 113:1
113:12 114:5
118:2 124:24
126:5 134:11
134:18,21
137:18 145:23
150:12,18,24
154:1 166:6
169:8 172:7
176:8 180:10
183:3 190:5,22
190:24

Page 12
goes 11:9 26:13
32:16 102:8
160:3 170:19
going 7:5 8:14
23:2 29:1
41:14 44:8,9
45:14 54:7
56:10,24 57:10
57:20 65:6,10
66:12 67:8
73:12 74:11
75:5,10 76:17
78:15 79:19
81:17 83:15
87:3,3 88:20
93:16 97:10,14
97:15 105:11
111:6,17
115:11 120:2
122:15 126:5
142:12 149:18
150:18 153:2
153:25 163:15
169:23 174:18
182:15 186:22
190:20
gone 21:21 60:7 60:8 68:12
143:25 187:17 187:22
good 9:16,17 76:15,16 88:1 88:2,10 89:15 90:5 116:25 139:6 165:2
gotta 30:25 103:5
gotten 19:11 47:17 64:10,12 75:6 83:19 177:7
grace 10:17
graciously 37:3
grain 102:5
grant 21:25 35:20,23
great 11:3
greater 28:12 121:12 122:2 125:20 132:9 139:11,11 144:7 159:17 160:23
Green 1:12 3:7,9 3:14 4:13 71:25 72:1,3 74:14 76:10 93:1,3,5 186:13,15

Green's 106:6
Grinaldi 19:21
grossly 149:4,6
149:8 165:25
ground 154;13
group 29:5 35:5 37:18 94:17
grouped 94:11, 15
guess 10:23
22:19 24:13 25:7 43:11
49:5 68:11
112:17 160:22
191:3
guru 112:5
$\frac{\mathrm{H}}{\mathrm{H} 3: 11,18,20,22}$ 3:24 113:22 114:13,24
half $38: 5$,8 89:8 92:17 105:16 132:9
Halliday 6:13
hand 8:2 113:21 178:16
handle 158:24
handling 44:24 113:20
happen 50:7,12
50:15 149:25 161:4 164:17 164:17
happened 42 :11 79:18
happening $30: 15$ 79:15,16 126:19
happeng 87:25 133:20,20
happier 149:18
happy 170:16
hard 102:15 107:6
harm 117:14
Hart 5:11 86:10 97:21
Hatfield 154:20
having 16:22
25:4 26:4 37:7
47:11 57:18
61:11 91:12
92:6 100:4
101:25 102:15
114:5 118:6,11
122:12،12
138:22 162:11
HDSL 68:25 69:6 69:13.15 70:6
$70: 22$
head 34:8 61:13 93:9 120:20 126:10 136:1
hear 4:10 9:7 36:17 107:17 151:23 173:6
heard 81:21
99:24 155:10 .162:19
hearing 1:10 4: 6 5:4,9 45:18,18 68:8 191:5
heart 169:14
held 67:11 118:11
help $86: 15$
helpful 184:17
helps 75:9 87:7
her 11: 16, 18
12:1 19:19
34:7 75:21
76:5 81:14
129:11
hereinafter $8: 4$ 113:23
high 121: 3
143:19 179:12
higher 62:2,10 62:18 98:11 108:18, 18 119:14 125:9 143:14
highest 121:5,6
him 29:4 34:3,6 34:10,19 41:25 65:14 87:2 100:6,13 111:5 113:18 123:13
hired 41:9 86:25
historically 20:10 60:10 62:5 75:1
hit 168:3
hits 134:20
hold 87:3
Holmes 131: 11
home 190:6
homes 102:5
honest 167:12
Honor 4:19 6:7 $7: 15,24 \quad 9: 3,13$ 9:24 20:14 21:10 22:3 23: 8 35:25 38:17 53:22 54:1 63:12,13 65:13 97:25 99:14 100:17 113:3 114:7

115:25 116:22
123:8,22 171:3
180:4,22 189:2
189:14
hope 58:2 147:15 153:2
hopefully 5:7 147:3
hoping 58:3,5
hours 12:6,7 21:13 58:4
houses 103:5
housing 175: 10 175:13
huge 131:25
hundred 25:16 40:19 106:3 148:3
hundreds 128:6 155:1, 3
Huntsville 102:4
hurry 64:23
hypothetical 138:8 165:23 182:12
$\frac{I}{\text { IAF } 141: 9,10,11}$
ICA 10:16 23:17 32:11,17 33:21 104:18 136:13 145:1 146:6 149:10 151:15 151:20 158:17 165:5,24 166:4 165:10, 12 173:5 187:22
1dea20:4 103:1 156:9
identify 57:11 177:25
ID'D $3: 16$
TLEC 67:12
ILECE 40:18
54:21 69:2
84:3,4
111uminate 126:20
111uminates 172:6
imagine 102:21 143:6 165:8 184:25
impact 131:25 138:25 178:9
impelled 42 :22
implement 92:9
implemented 16:4
implication

186:23
implicit 148:23
implying 70:16
important 150:5 157:7
1mpression 89:22
improperly 91:11
improvement 63:4
inability 90:21
inappropriate 99:22
Inc 1:4, 22 2:5
inches 39:19,19
include 68:9
141:4 143:1
173:1,2,3,4,7
173:10
included 56:17
67:3 68:20,22
98:11 141:17
142:1,7
including 158:12
incluaive 76:24
inconsiatently 111:1
Incorporated 4:8 4:17
increase 101:24
$144: 1,5,7,13$
144:14 145:2,6
145:9,13,16,17
146:3,4 147:16
148:1,2 151:15
151:19 152:3
161:15 164:4
174:25
increased 144:20
146:10 162:1
175:5,23
177:22
increasea 143:22
146:12,16
153:6 159:15
159:16, 22
160:25 161:17
164:2,9 177:19
187:18
incumbent 67:12 178:10 179:2
incumbents 178:16
incur 179:14
incurs 105:19
indeed 153:20 172:16
independent
138:22 176:24
183:2
Index 3:1

Indian 141:11
Indicate 128:4
indicated 5:10 19:20 22:25 24:2 40:20, 23 81:11,16 87:10 133:7 162:20 182:3
indicates 174:19
indicating 85:13 124:22 171:7
indices 148:16 149:5,11,12 165:18
individual 11:13 12:10 188:8
inferential 123:6
inflate 148:16
inflater 165:18
inflation 149:16 149:5،11,12 165:18 187:20
inform 165:13 185:21
informal 43:14 44:4
Informally 133:9 133:10
information 13:1
14:1 16:3
19:11 69:10
71:13,20 117:5
117:25 126:11
127:17 158:16
168:12 172:1
182:7,20
183:18,19
188:9
informative 165:13
informed 165:11 185:8
informing 5:11
inherent 172:10
initial 35:8 47:15 164:25
initially 64:5 178:22
Inniger 17:15
input 164:5 165:11 175:12 187:18
inputs 131:15,16 132:1,6 148:15 148:17,17 158:1 164:23
inquiry 100:12 132:19 174:14
insert $99: 14$
inside 128:14
$169: 14$
inside-Embara
98:13
inspect 126:18
$183: 4$
inspired 27:21
installation 68:19
instance 88:6 150:5
instances 154:23
instead 108:20 147:1 187:14
instruction 171:22
insufficient 172:20
Integrated 18:2
intended 147:6
intent 118:15 152:23 173:11
intention 129:10 129:14 147:4 173:3
interchangeably 74:8
interconnect 75:23
interconnection 1:4 31:9 32:9 35:8 72:15 $73: 2,5,6,8,17$ 75:14 93:13,25 94:12,20 95:4 103:21 104:4,6 105:2,5,13 106:9 124:10 124:18 136:12 136:15 148:13 148:24 149:4 163:20 164:9 164:13,15 187:16 188:11 188:13
interest 105:14
Interexchange 13:12 84:9
interface 134:19
interim 57:3
intermediate 168:7
interpret 55:20 99:21
interpretation 28:14 68:12 73:16
interpreted 147:18 151:22

151:25
intexpreting
73:10 143:6 Interrogatories 170:11,12
Interrogatory 170:15,19,25 171:5,13
interrupt 145:22
intertwined 44:23
interval 81:23 82:5 96:20,20 96:25 97:19
intricate 42:2
introduce 56:21 56:24
introducing 166:7
introduction 177:10 178:7 intuition 162:10 intuitive 103:8
invariant 161:22 investigation 40:24
inveatment 42:7
invisible 126:14 126:24 132:19 133:8 155:14 166:16
invoice 10:14
14:7,9,10,12
14:17,19 15:1
15:5 16:2
19:24 20:7,7
23:14,15 24:6
36:5,9,10 51:4
58:6,11,15,22
58:24 59:12,13
59:22 60:13
61:1 81:18 96:17 105:7
invoices 10:13 14:23,24 52:1 77:23,25 78:2 80:5,11 87:11 87:20 97:10
involve 178:25
involved 44 :21 50:16 82:19 91:4 134:23 154:12
in-house 16:18 17:5
IP 63:21
IRES 17:19 18:1
irrational
136:25 137:6.8

1ssue 24:20
34:11 45:21
56:4 65:10
66:12,13,16,18
70:12 73:20
75:5 76:18,23
77:14 83:23,24
84:14,20,22
85:13 87:18
90:2,12,24
98:24 99:9
100:3,7,8,10
100:15 112:8
129:2 166:16 178:25
issues 6:24 7:1
7:8 22:24 65:7
65:14,17,18
67:2 83:11,20
85:12 86:19,24
87:6,22 88:18
91:10,20 99:5
104:14,23,24
109:17 112:1,2
issuing 87:12
item 20:12 82:20
items 11:13
IXC 13: 4, 8, 11, 15 39:14,17 84:5
I-n-n-i-g-e-x 17:15
I-R-E-S 17:19
i.e121:3 145:17 161:11
$\frac{J}{\frac{J}{J 192: 8}}$

128:11
January 79:22,23
Jay 1:10 4:11 6:20
Jenny 11: 25
Jet 156:20
Jim 4:9
job 69:12
Jobs 107:10
Joe 9:17
Joint 128:23 138:19
jointly 139:7 158: 6
Joseph 2:6 5:1
judged 132:10
judges 120:1
Judy 109: 7, 8 112:3
June 8:19 53:12 62:14 66:1

82:18,18 83:5
87:16 90:2
113:5 115:19
117:3 192:11
just 5:16 11:10
13:5 21:11,17
23:19 27:11
39:6 43:18
48:4 54:9 55:4
61:3 63:13
65:7 70:15
72:22 74:15,24
75:4,12,23
76:18 77:7
79:22 80:7
81:9 93:10, 16
95:23 98:16,21
102:20 103:2
104:20 107:1
107:20 120:11
120:14 122:5
123:3,7 132:5
133:14,19,19
135:19 140:2
143:9 144:11
145:4,5 146:22
147:17,23
153:16 157:3
157:23 158:5
159:22 161:3
161:16,16
165:25 168:3
169:1,13
176:17 180:22
181:20 182:1
184:14

keep 5:6 6:15 81:10
kept 29:19 49:23 157:4
kind 29:20 40:16
60:19 64:19
74:8,12,13
76:2 81:24
84:1 87:18
92:23 102:1,25
103:14 110:2
138:23 172:6
176:4
kinds 77:12 84:8
89:17 102:7
knew 16:24 57:20
know 12:24 13:7
13:16 16:2,5
19:10 22:23
24:24 30:13

Page 14

34:3 36:16,18
38:6,7 43:13
46:17 47:7,10
47:14 55:5,25
56:25 60:20,24
61:16 64:16
66:21 68:2
69:4 70:4,7,9
70:9,23 71:10
71:21 72:23
78:14 81:1,5,8
83:19 85:25
86:3 87:2 88:9
90:8,9 92:10
92:15 93:16, 22
98:10,12,19
99:4 105:17,25
107:22 120:2
120:16 121:15
123:6 126:7
129:6,15,24
132:12 133:16
135:23 141:8,9
141:13,16,18
156:1,14,21,23
157:16, 25
158:12 159:8
166:24 167:11
168:3 169:11
169:21 171:22
174:2 175:10
176:14,23
177:11 184:20
185:2 188:9,13 189:3
knowing 41:5 45:14 148:15
knowledge 71:11
84:25 100:11
130:5 162:18
162:21
knowe 42 : 24
100:9 122:25
180:3

| 1 | 110:15,15 |
| :---: | :---: |
| labor 131:20 | 111:22 112:11 |
| 187:19 | 112:11 |
| lack 102:14 | lengthen 179:2 |
| language 70:23 | less 23:4 27:9 |
| 88:17 89:23 | 52:10،11 82:1 |
| 118:14 147:19 | 136:7 |
| 147:21 166:19 | 1essen 16:14 |
| large 42:17 | lesser 139:12 |
| 101:23 129:1 | 1et 17:24 29:11 |
| larger 127:6 | 49:5 54:13 |
| 128:18 | 55:3 66:8 |
| 1ast 8:10 14:3 | 70:13 119:7 |
| 14:21 15:25 | 120:14 123:20 |
|  | 129:18 136:25 |

21:19 25:17
32:14 47:25
50:21 60:4,19
60:20 61:22
66:7 78:6
79:21,24 80:16
81:13 82:24
84:20 91:11
100:5 114:12
124:8 173:25 177:2
late 17:19 52:23
53:2 60:20
84:7 89:5
105:15,19
190:14
lately $85: 25$
later 5:19 115:24 188:17
latest 92:17
latter 29:17
law 4:19
lawyer 153:10
layout 17:8,9
41:8,23 54:12
54:17,18,21
55:10
Lead 169:2
1earn 63:3
least 23:6 47:14
73:17 120:4 167:18 176:6 181:6,16
Leave 69:13 114:4 178:23
leaving 117:15
left 4:11 10:25
58:20 157:8, 12 157:13
legal 152:10 153:10
legitimate 123:15 136:23 137:7
length 69:17 111:22 112:11 112:11
lengthen 179:2
ess 23:4 27:9 52:10,11 82:1 136:7
1essen 16:14
lesser 139:12
17:24 29:11
49:5 54:13  120:14 123:20 129:18 136:25

152:16 157:3
letter 19:5 29:3
29:6 90:25
91:3,9,16
letters 27:5
141:14
let's 4:4 5:7,25
10:5 22:5
29:23 32:12
48:20 67:8
86:5 87:8
88:12 107:23
112:15 117:2
129:21 133:15
134:11,17
135:3 137:18
139:17 140:2,6
141:2 149:19
150:12, 24
160:19 176:5
178:11 184:13
level 21:18
88:19 90:10
137:23 169:17
leverage 27:2
lie126:17
1ies 73:14
126:25
11eu19:6
11fe176:15 178:9,13
1ight 164:20,22
like 9:24 14:11
14:22 23:9
24:24 38:6,9 42:10 46:9
60:19 64:17
76:2 78:4
83:20 84:5
85:24 89:3
93:17 94:14
96:14 102:20
115:25 118:18 127:25 129:12 131:19 141:11 145:14 146:22 149:16 155:16 156:20 169:3 177:6 178:17 178:18 179:11 182:5 186:21 188:12
Likewise 116:11
Lima 74:2 75:6 98:16,17,19,19 101:6,9 102:7 107:14, 18 108:11
Lima/Delphos 108: 4

1imit 32:1 99:17 136:6 167:7
limited5:24 131:21 137:9
Linda 31:16,20
line 19:12 60:9 67:9,13,14,19 67:22 68:7,9 68:23 69:17,19 69:22 70:3,7 71:1,8 75:13 77:11 78:19,20 78:23,25 85:15 86:5 88:13 106:8,10,14 110:15 118:4 125:3,5,6,9,11 126:14 134:23 135:1,5,10,12 135:14,19,23 135:24 136:3,5 141:4 152:8,8 155:9 157:11 157:11 174:6 174:18,19,22 175:4,9
lines 87:9,10 117:4 119:11 125:13 136:22 145:15 147:25 156:4 164:1 175:10,12 179:3
linked 169:5
list 65:7,14,17 55:19 67:2,20 85:12 88:18 136:10,12
listed 55:23 96:17 128:3 161:8 178:5
listening 77:19
litigate 143:7
little27:4 42:2 77:17 81:9 84:4 91:12 120:14 136:16 149:1 150:21
live 90:14,15 92:20
lives 175: 19, 25 176:3,9, 24 177:5,12,15,19 177:24 179:2
LLP 2:2
LMA 170:17
LMAII 170:18,18
load 68:4 108:19 111:22
loading 101: 2
local 13:10
15:24 16:1
25:13 39:11
57:16 59:8,14
63:9 67:12
77:11 80:22
96:14 141:19
142:11, 25
143:11 152:22 153:7
location 117:24
lockbox 18:9
$\log 128: 5$ 155:18 156:12
logic 24:19 81:1
81:8 126:24,25
181:22 182:15
Londerholm 5:12 31:18 75:20
Londerholm's 75:13 130:25 159:9 173:22 181:8 183:11 183:20 184:15
long 5:24 13:8,9
21:11,14 36:2
64:11,15 75:23 89:20 92:12 109:21 121:21 153:19 171:5,6
longer 52:4
123:1 177:24
100k 11: 9, 18
19:12 20:12,13
22:23 24:14
35:17 37:7
46:12 47:19,23
48:5 57:13
66:8,20,23
87:4 94:7
98:10,16
107:10 118:4
118:21 119:23
120:19 121:6
124:10 133:23
141:3 142:11
142:24 144:5
144:23 147:9
147:12 153:1
154:13 156:4
157:15 160:19
163:9,18
164:21 166:2
167:1,23
168:15, 22
169:14 171:4
175:8,8,15,18 179:3
looked 46:15
88:17 103:10
105:20 128:17
177:3 185:6
looking 25:15
48:1 57:15
65:16,21 66:4
74:10 91:7
92:8 163:12
174:10 188:22
looks 11:12,24 175:19
loop 71:12,19
73:21 98:17
101:10 103:4
121:11,13,21
122:2,3 123:1
133:24, 25
134:3,4,8,8,12
134:19 135:3,4
135:6,11,11,18
135:24,25
136:4,5,11
137:5,11
139:12,18,18
139:24 140:8
140:19 142:12
142:14,15,16
142:22 143:10
144:24 150:9
151:13 159:11
159:16 162:22
163:16 164:5,6
164:14,15
165:25,25
166:4,4 171:19
172:18 173:1،4
173:10,11,16
174:1,3,7,10
175:5 184:24
185:25 186:7
186:17,17,21
186:22،23
187:20
100ps 70:14,14 $72: 5,6,6,8,11$ 72:16,20 76:6 93:8,21 110:19 110:21 133:25 137:12 150:7 158:19,20,22 158:25 160:24 160:25 161:18 161:20,21,22 162:16 170:23 179:11
1ose 74:11 75:11 losing 37:20
lot 30:14 42:3 46:8 54:7

56:16 60:7
69:9 99:13
106:4 154:3 181:4
10w 120:23
121:21 143:17
162:17
lower 24:23
121:7 125:23
137:5 160:19
163:11,19
lowers 19:22
lowest 119:13
Lunch 113:15
Lynn 1:10 3:8 4:4,10,23 5:3 5:15 6:18 7:7 $7: 16,258: 4,6$ 9:5,7,11,25 10:3,8 20:19 20:22 21:1,4 21:25 23:21 34:21,24 35:11 35:20,23 37:10 37:21,24 38:11 38:15 53:23 63:8 65:1,23 66:3,7 71:25 74:4,6 76:10 78:22 85:5,7 93:1 95:10 97:24 99:25 112:25 113:8 113:11,16,23 113:25 115:9 116:1,3,20 117:11 122:19 122:22 123:20 124:24 150:12 150:15,18, 21 150:24 151:6 171:6 180:6,10 180:13, 17, 20 183:23 186:12 188:1,4 189:6 189:10,15,17 189:19 190:2,5 190:9,13 191:3

- M


## M1:10

made 19:23 26:5 26:8 85:16
86:11 90:7
105:5 106:17
107:7 113:5
155:5 165:16
174:4 187:5
mail 12:18,19,19

12:21 18:9
36:8,11
main 98:19
134:16 153:11
maintained 139:7
165:7 179:1 maintaining 178:20
major 96:15
make 10:18 15:7
18:4,7 23:9
27:14 37:16
38:3 42:6,7
45:20 60:5
65:21 71:1,8
74:9,12 101:23
102:20 103:9
113:19 115:14
115:15 120:14
126:13 129:16
131:24 132:19
135:2 145:14
147:24 149:23
162:7 164:22
167:16 172:23
174:14 179:16
179:25 182:1
187:7
makes 22:5,10
28:7 107:6
134:11 155:15
make-up 71 : 12 , 19
making 9:22
64:18 85:18
142:18 168:14
mall 98:16 102:7
102:22
$\operatorname{man} 12: 6$
management 127:6
manager 17: 12 109:7
manner 80:20 91:18
manufacturer
71:9,10
manufacturers
139:3,5
many 14:6 21:20
22:11 37:15,17
38:2 50:4,14
52:2,8 55:22
68:12 81:7
105:7 120:2,2
120:5 122:12
133:12 134:14
138:24 143:21
155:2 178:24
Maples 70:8
109:20,24
111:1 112:5

Maple's 5:13
March 87:15
mark 114:23 115:13,15,21
marked 9:21 113:5,6 115:18 115:25
market 129: 12
marketplace 142:17
markup 139:16 140:1
mass 55:4
material 40:8
materials 6:15
math 144:12 145:5
matrix 6:25
matter 1:3 4:7 6:8 15:5 27:2 84:25 89:1 90:7 127:24 192:4
matters 124 : 16 131:5
Matthew 2:3 4:20
may 10:1 37:9 65:13,17,23,24 65:25 66:2 87:16,16 99:14 99:24 100:16 115:14 116:20 117:8 124:16 134:17,17 139:16 143:5 144:11 146:23 153:21 154:15 154:22 157:9 161:4,22 166:18 167:11 171:10 177:10 177:12,20,21 179:15 180:5 186:19
maybe 24:25 25:17 38:5,9 38:12 55:25 61:21 106:2
McCracken 11:15
MCI 122:11
mean 11:2 15:18 19:15 20:9 32:11,13 50:2 56:23 75:9 84:5 107:9 111:4 126:15 126:16 127:21 134:8 136:2 145:22 153:17 156:8 162:4

167:6, 8 185:4 185:4,12
186:19
meaning 17: 20
173:9
meaningful 186:2
means 18:2 55:5
126:24 137:23
155:22 156:22
190:5,7
meant 88:4 148:3
measure 28:15
mechanism 18:17 102:19
mechanisms 18:13
mediation 43:3,6
43:11,11,14
44:5 53:6
57:19 58:9
82:15
mediations 17: 6
medium 18:7
59:24
meet 21:16
meeting 43:9
members 1:11
4:13 99:18
101:4
mentality 27:12
mentioned 11:23
21:18 33:19
100:22 101:6 107:12 128:11 181:25
mentioning 6:19
85:15 86:6
merely 55:16
95:18
merged 122:12
merita 107:1
measage 155: 21
155:22,23
156:10 157:14
157:17,19
messages 128: 6 155:19 156:2,6 156:25 157:7
157:24,24
158:2
methodology
131:1 144:4,11
145:5 185:25 186:7
Methodology. doc 171:19 172:19
metro 121: 22
metropolitan 101:23
M土chelle 1; 12 4:13

Page 16

Microsoft 127:2
127:5,11,13,15
127:22 156:20
172:11 181:20
181:23 182:14
middle 78:19, 25 147:12
might 19:9 26:21 33:12 63:4 69:8,8,9 94:24 96:8 102:16
107:10 109:15
125:11 126:5,5
140:17 151:1
157:10 164:17
165:3 177:15
178:22 184:25
miles 103:6
million 20:11
21:20 29:18
44:9 53:6,17
61:22 62:7,21
62:23
mind 18:19 86:17 94:21 102:8 112:2 136:23 159:14 176:6
minimum 24 : 10 88:19
minute 10: 6 150:13
minutes 37:9,11 100:5 180:5,17
mischaracterized 123:9
mialead 147:7
Miss 6:11 34:24 35:11 38:15 65:2 66:25 71:25 75:12,20 76:10 93:1 95:11 159:9 173:22 180:21 181:7 183:11 183:19 186:13 188:1
misspoke 110:13
mistake 90:7 106:17,21 107:6,7 155:6
misunderstood 104:10 167:24 mixed 146:25 mixing 146: 20 memontc 141:13 model 126:18, 24 126:25 127:25 127:25 128:2 128:17 129:1,8 130:17 131:8

131:14 132:1
132:13,14
133:6 137:20
137:22,25
138:4,11,11,12
140:1.9 142:16
145:2 146:5
148:11 151:13
151:19 154:9
154:20,21
155:15,17,17
155:21,23
156:1 157:1,4
157:17,20,25
159:8,13,19,20
159:24 160:1,6
160:9,15 161:2
$161: 5,5,7,12$
161:14,23
162:6,11,11
163:7,19
164:10 165:6,8
165:9 166:17
166:25 167:2,8 167:9,13,16,17
167:21 168:1,3
168:4,13,22,25
169:8,11,14
170:21,22
171:18 172:7,8
172:10,12,14
173:18 174:5
174:10 175:9
176:13 181:4
181:12,18,19
181:21,22
182:13,16,19
183:2,3,5,12
184:5,6, 7, 8, 11
184:13,14,15
184:23,24
185:2,7,9,13
185:14,18,19
185:20,21
186:3.6 187:3
187:5,7,8,9,11
187:12,14
modela 131: 6, 22
154:20,23
157:15,22
158:24
model'a $163: 10$
modify 73:23
75:7 187:13
module 171:19, 20
172:18,20
181:22 185:25
186:1, 7
moment 18:24
150:11 166:15

Monday 90:10
money 26:18
30:25 35:17
47:2,11,18
52:20 54:7
monopoly 179:21
month 10:20,20
11:4, 4 14:11
14:12,13,14,15
14:18,19,21,21
14:24,25 23:1
25:8,18,20
27:3 29:19
36:11 38:5,5,8
39:10 49:6,14
50:3,12,20,21
58:16,15,25
60:16,19,20
62:9,12,14
78:20 79:6,21
79:22,23,24,24
80:16 82:18,24
92:9,11,16,17
108:12,13,14
monthly 24:3
62:1,16,18
77:22 106:1 172:25
months 11:19
14:3 29:3,19
37:15,17 38:2
3B:8 41:25
50:4,14 60:4
64:16 78:7
87:12 120:2
122:12
month's 24: 6
39:2 57:12
more 21:2 22:21
24:5 42:2,5
44:9 47:4
48:21,22 49:6
49:13 50:2,4,7
50:12 52:7,12
57:24 60:5
62:11 72:23
73:25 74:16
75:12 80:24
83:23 101:21
119:17 120:14
120:23 128:9
129:9 136:4
137:1,9 138:1
138:2 149:1
164:5 167:4
180:11 181:9 189:6
morning 4:1 9:16
76:15,16,24
77:19 130:6

160:4 162:19
most 13:3 23:4 31:10 60:16 63:6 73:1 79:10 83:1,19
84:5 85:19
91:9 103:12
106:8 119:9
121:4 131:5
139:5 157:22 177:12
mostly 93:7
137:12
motion 21:25 35:20,23 113:2 189:21
motions 7:12
move 20:14 34:17 67:8 74:20 99:22 102:1,2 113:4,7 122:15 161:12 166:10 189:22
moved 49:8 79:25 80:9 95:3
movement $165: 10$ 177:9
moves 94:24
moving 5:19 60:8
63:6 78:14 79:20.20
much 23:2 24:21 25:20 30:4 41:14 45:17 53:8,8 56:15 57:19 68:2 81:2 91:3 101:21 103:12 111:11 125:17 129:9,12
130:13 133:5 136:4 159:21 162:4,22
168:12,21 179:9 187:17 187:21
multiple 27:7 36:10 60:3 68:24 77:25 78:2.5 80:5 96:8
multiplea 108:9
multiply $28: 11$
multiplying 28:4 28:5
must 28:3 81:3 152:12,18 167:24 168:15 174:5
myself 128:19
$\frac{\mathrm{N}}{\mathrm{name} 6.12 \mathrm{8.9.10}}$
9:16 11:14 15:14 17:13 43:23 101:7 107:13 114:12 114:12 124:8
namely 106:22 152:2
names 17:3 55:10
nature 91:16
121:17
near 101: 6
necessarily 88:2
102:3 118:16
152:18 153:23
160:11 161:24 176:3 178:1,8 185:2
necessary 5:23 35:15 55:16 108:25 110:18 123:13 174:4
need 6:5 35:1 40:7 54:14,16 57:18 71:1,8 86:6,20,21
95:10 108:22
109:15,18 110:1,5 113:1 118:2 119:18 124:20 142:24 152:8 168:22 172:14 174:13 176:14 180:2 189:20 190:14
needed 23:20 130:8,22
needs 109:4
179:24
negotiated 45:11 46:22 75:25 84:10
negotiating 76:3 89:12 139:4 negotiation 31:12 33:23 36:24 47:6,8 56:23 61:17 153:2
negotiations 27:20 46:3,4 48:16 56:19 61:18
neighborhood 62:7
neithex 133:1

142:2
network 59:18,19
135:11 137:25
138:19,23
152:24 154:25
159:20,21
161:15,19,19
178:14 179:10
182:12 186:20
networks 139:7
178:19,19
never 29:15
62:18 75:25
B4:19 100:25
101:1 133:2,19
133:20,21
157:2,3,4
166:25 167:15 185:23 187:6 187:13
nevertheless 130:21
new 10:16 33:7,7 33:9 73:4 89:12 98:18,18 130:19,20,22 132:13,23 148:2,4 151:13 151:19 155:16 155:17 160:15 163:7,10,19 165:18 175:9 177:13 178:21 184:5,8,11,13 184:23 185:6,9 185:13,21 186:2,6
newer 131:14 newly 163 : 13
next 79:5 92:8 113:18 145:1
nexus 43:18
nice 27:4
nine 14: 14 189:20
mobody 120:3
nods 61:13 93:9
Nolan 29:3
nomenclature 148:16
nominal 139:20 140:24
nondiaclosure 46:14 130:3
nome 117:17 181:22
nonresponsive 21:9
non-drop 174:3
non-recurring
150:9 163:17 173:20,24
normally 72:18 75:4 86:1
Notary 192:8
notes 192:5
nothing 7:8 9:4 20:17 101:3 127:14
notify 87 : 23
noting 119:13
notion 134:22 165:23 166:12
November 89:4
number 30:19
38:20 42:9 43:14 44:10 45:12,16 60:12 61:11 62:10 69:14,15 74:22 87:22,23 88:13 95:22,23 96:2 96:3,6,9 108:24 136:3 158:10 161:20 161:22 166:17 174:23 175:12 187:6
numbers 24:14 80:7,9, 12 120:20 188:13
numeric 120:20
nutshell 35:18
$\frac{0}{0 a t h 111: 4}$
object 91:17 153:17 156:7 156:21 190:4
objection 20:22 21:4 99:15 113:10 171:25 190:8
objections 113:9 190:3
obliged 35:17 48:11
observable 168:25
observed 148:2
obtain 19:9 36:14
obtaining 19:5
Obviously 140:25
169:22
occasion 17:18
occur 15:19
87:13 96:20

133:18 164:2
occurring 79:14 82:3
occurs 145:15
October 1:15 4:2 50:24 67:24 192:4
off 10:5, 7 17:24 17:25 18:24,25 29:10,16,21
37:10,12 59:16 61:8 65:22
66:10 68:5,6
69:2 70:8,24
71:2 73:21
78:9 87:3
109:8,9,13,18 110:20,24
111:7,7 112:3
112:8,9,11
113:1,13
117:13 120:20
123:19 124:13
124:14,23
125:12,13
126:10 134:15
136:1 145:20
150:12,14
162:14 170:9
175:16 180:8
183:2 189:9
190:12,24
191:2
offer 135:15
offered 15:10 37:15 38:3 46:11 129:16 154:14
offering 10:17
119:24 138:21
offers 135:4
offhand 188:23
office 134: 15 142:13
often $85: 21,22$ 107:5
oh 20:9,24 21:5 21:7 27:19
28:20 33:15
45:25 47:20
55:25 57:9
64:16 66:1
77:1 82:9
93:24 94:4
Ohiol:1, 6, 13,14 1:23 2:4,7 4:5 4:22,24 34:13 34:15 46:22 119:3,8,16 120:15,25

121:12,19
122:2 123:25
124:18 170:23 192:9
Oil143:24 144:2 144:20
okay 5:15 9:19
10:3 19:20
22:15 36:23
44:4,18 46:1
46:23 51:1,24
52:16 62:15
64:3 65:9,12
66:3,14,24
67:6,8,10 68:7
68:21 70:2,12
72:11,14,25
74:15 75:20
76:1,5 78:1,12
79:10 81:16
82:23 85:11,20
91:24 93:21,25
104:5,19 108:2
112:16,20
117:8 118:1,2
134:23 144:23
147:25 148:7
156:14,24
166:22 167:21
168:20 170:15
171:16 172:3
172:23 176:5
180:15 190:10
OREY 1:22
old 32:12,12,13
73:5 103:3
120:1 184:6,7
185:2,19
once 16:3,12
41:23 43:2
50:757:21
60:22 61:6
92:7 96:20
146:20
one 4:10,12 5:6
6:8,11 7:24
11:8,9 14:24
14:24 15:4,5
16:6,17 21:2
22:10 27:4
30:2 31:10,19
32:2,8,13,14
32:18, 23 33:2
33:18 34:5
36:24 39:2
47:5,11,12,13
47:25 48:1
49:6,13,23
50:2,4,7,12,17
53:4 57:12

58:20 61:17
65:17,20.21
68:13 69:25
77:24 80:5،17
82:18 84:10,10
84:11 87:22
92:3 93:1
102:5 103:12
104:21 105:16
107:13,22
108:8,9 112:21
112:21 115:13
115:18 119:21
123:3 124:4
128:9 129:19
129:19,21,24
135:19 137:4
138:13 142:24
143:8,9,10,11
143:12,13
144:25 147:14
148:9 150:5
153:15 154:20
154:22 155:5
155:21,22,25
156:6,20
157:12,20
161:4 165:15
167:4,17
168:15, 22
169:16, 21,22
171:1 172:4
176:8,8 184:3
186:2 188:7
ones 56:15 72:7
98:11 109:18
110:21 111:8
111:24 112:9
112:10 188:20
188:23
ongoing 83:10
only 17:7 27:23
30:20 54:11
59:24 64:6
67:25 71:16
81:25 85:24
86:17 87:5
89:14 100:10
110:8,12,22
115:16 132:2,4
161:20 172:13
174:7 188:6
189:1,2
onset 178:2
open 5:7 10:25
49:19 54:24
55:3,19, 20
127:18,22
166:23 167:4
169:16,25

Page 18

170:4,5,7 181:6,10,11,24 181:25
opened 170:2
opening 127:24 167:17
operated 87:24 88:3
operatea 121:19
operating 32:19 32:24 103:19 138:21
Operation 156:6
opinion 177:5
opportunity 5:21 15:11 46:12 190:22
opposed 54:9 66:15 69:18 155:22 161:9 171:1 175:5
opposition 101:17
options 1:4 2:5 4:7,16,195:7 8:14
order 5:8,17 27:15,16 40:7 40:23 41:1 42:4,6 45:7,23 53:16 54:14 55:16 71:15 93:22 107:24 130:3 152:22 168:12,20 173:15 185:25
ordered 71:12
ordinary 127: 6 127:13
organization 34:4
original 68:18 144:8 189:25 192:5
originally $45: 22$
other 7:8 12:4 12:10,12,19 16:9,19,19 18:13 34:4,20 42:3 56:1,7 61:3 62:25 73:15 74:1,24 75:10 80:25 81:4,9 84:3 86:20,20,22 88:20 91:8 99:5,5 101:25 104:8,14 111:5 121:2 129:3 132:17 133:15

134:2 146:12
146:13,20,24
151:21,24
154: 6, 20
157:12 163:4
164:13 178:16
184:13 186:12
others $96: 15$
177:20
otherwies 100:13
114:2
ought 27:24
74:25 81:25
92:17
out 19:18 23:20
46:18 48:25
60:23 62:19
65:7 66:16,17
67:18 69:3
70:13 72:16, 20
$73: 6,1178: 15$
80:10 84:8
89:8 90:15
92:11 93:8,13
100:14 103:15
111:7,17 124:2
128:24 129:5
131:6 133:16
135:10 138:10
142:12 152:2
153:15, 25
154:1 159:20
160:11 164:16
165:1,20
166:14 176:5
177:16 179:19
182:17 186:24
outcome 131:9
output 161: 14
168: 8, 16
169:10
outputs 128:17
outside 26:19
27:1,5 44:23
44:24 81:25
87:24 88:3
90:2,10,11,14
90:17 103:19 139:8
outatanding
22:12 23:6
over 4:14 10:17
15:7 21:19
30:21 45:4
50:1 57:18
60:3 61:21
62:23 63:4 68:17 69:18,24 70:1 74:20 77:24 91:10
$94: 16 \quad 101: 25$
$103: 14 \quad 126: 3$
$134: 16,19$
$135: 22,22$
$136: 19 \quad 145: 1,9$
$145: 16 \quad 147: 16$
$148: 18 \quad 151: 15$
$151: 20 \quad 152: 4$
$153: 5 \quad 156: 23$
$165: 10 \quad 173: 19$
$175: 22 \quad 176: 10$
$177: 2,5 \quad 178: 12$
$186: 21$
overall 11:10 99:1 165:12 173:11
overbilling 29:8
overbuilding 178:18
overlap 11:4 185:1
overlay 100:25
overnight 12:19
12:23,25 18:9 89:19
overpaid $90: 4,7$
overatated 149:4 149: 6
owe 56:17
owed 29:13 30:11
30:12,19,22,24
30:25 45:23 52:20 53:2 56:11
owing 26:18
own 74:13 138:22 154:7,10,21 173:15 176:22
o-g-e-1-m-e-i... 8:12

| P |
| :---: |

package 41:7,8 packet 67:3
page 3:3 9:18
19:4,12 27:14
75:13 78:16
79:1,2 85:14
86:4 87:8
88:12 103:17
117:4،9 118:4
118:21,22
125:3,6,25
126:9,13
129:15 133:23
136:10,21
141:2 144:24
147:9,25
149:19,21

151:12 152:5
156:4 160:14
160:15 161:8
163:9, 12, 18, 23
166:7 171:20
172:24 173:22
174:1,18,21
175: 8, 12,18
179:3 188:24
pages 73:22 96:8
pagination 174:20
paid12:4 22:14
23:4 24:11
25:1,5,6 26:2
31:2,5 47:23
51:21 52:3,12
53:3 56:1 83:7
83:21 85:25
89:14 91:17
130:11,13
paire 69:15
Pam 16:24 17:11
19:19 46:15 81:14
Panel 1:11 5:21
7:4 65:2 73:23 99:18 100:2 101:4 189:13
Panel's 5:22,25
paper 12:16,21
13:2,3,25
38:24 39:20
49:7,8 57:12
57:14,16 58:23 59:4,5,6,10,11 60:4,6,7,8,14 60:20
paperwork 86:2
paradigm 177:14
paragraph 174:1 174:19,22
parameters 84:17
Pardon 9:6 151:2
parentheses 136:13
parse 129:4
part 13:3 29:17
35:8 41:7
42:16 44:14,14
67:3 69:5 79:10 83:1,19 85:19,21,22 101:1,1 104:3 104:16,17,17 105:1,2 108:3 114:1 122:22 126:24 127:8 135:6,7,10,15 148:22 159:9

161:1 162:3,4
167:12 171:25
172:13 173:6
177:9 183:11
184:22 185:22
185:22 188:5
participate
118:12
participated
133:12
particular 7:3
23:5 32:2
98:25 101:11
102:13 108:8
122:10 153:21
157:16 167:4
176:15,16
178:4 184:16 186:4
particularly
157:7 166:5
176:7 178:3,12
182:6
parties 6:24 7:2
7:3,19 88:17
parts 81:9
113:19 114:3 121:19 127:11 133:7
party 5:23 16:19 95:11
party's 133 : 15
pass 121:9
paat $49: 4,5,7,8$
50:20 51:17
58:18,25 62:2
62:11 64:3
87:6,16 123:14 176:10
pay 19:16,17,20
19:22 26:22
27:3,10 30:21
41:10 45:4
47:13 48:8
51:7 52:4 53:9
56:12 58:5 82:25 83:1, 15 83:17 85:23 86:1 88:7 89:16,21 90:5 90:6 91:13
payable 11:11, 24 12:10,13
paying 18:14
26:15,16,24
30:18 48:22
56:7 69:18
83:9 85:21
36:20 87:20
112:16 142:13
payment 10:13
17:19 19:23,24
22:6,6 26:7
84:15 87:11
105:7
payments 10:14 10:18 18:4,8 21:7 22:11
26:4 36:3
48:20 53:2
84:24 85:17,18
pays 20:7 24:5 75:15 162:25
PDF 49:21, 24
50:9 63:25
64:4,21 95:25
96:3,9
people 11:8 17:3 29:4 34:4
43:10 57:21
74:24 81:14
86:2 89:17
91:19 92:14 94:24 103:13 107:9 133:11
people's 154:6
per 23:1 148:8 175:12
percent 12:11,12 69:25 72:21,22 76:21,22 105:16 129:11 139:17,17,19 144:2,20 145:7 145:19,19,24 145:25 145:1,4 146:5,11,13,14 146:15,16 147:13,15,16 148:2,4 151:15 151:20 152:2 160:13,16,17 160:18,18,20 163:10 174:24
percentage 45:14 72:19 82:11,12 82:24 139:15 139:21 140:1 143:22 144:1,5 144:13,14 145:6 160:12 160:21,23
percentages 151:21,24
percentagewise 140:23
perception 27:23
perfect 120:4
perfectly 146:7 147:21 174:12
perform 128:13
perhaps 104:10
117:17 119:8 120:15 131:15
period 10:17
25:1 30:16
45:5 47:6
49:22 50:1
53:13 58:8
80:21 83:4 97:7 100:21 106:10 130:21 167:14
periodically 90:17
periods 167:10
permission 132:24
person 11:8,12
11:12,14,24 12:10,12,13 35:5 42:21 43:8 98:13,14 99:4 100:8 149:24
perspective 101:19 186:16 pertain 11:3 173:25 174:2 pertained 130:15 184:6.7 pertains 13:15 pertinent 46:10 petition 1:3 55:24
phases 130:23
phemomenon 155:13 philosophical 83:23 84:1 phone 34 :5 133:14
phrase 134:7 144:15
phraseology 144:18 146:18
Physically 12:14
Ph.D 3:11,19,20 3:22,24 113:22 114: 24
pick 133:14
picking 159:24
piece 134:20
pieces 81: 9 190:20
pipe 63:19, 22
$64: 1,7,13,18$
64:21 96:22
97:3,5
place 4:6 64:1
64:15 107:9
129:1 165:9 177:13 178:24
182:13.19
places 143:21 155:14
placing 93: 22
plan 16:17
plant 162:2
Platform 59:19
played 177:16
playing 160:11
please 8:1,6 9:18 10:9 19:4 19:12 21:2
22:17 27:14
34:22 94:5
99:25 113:21
114:12 118:4
118:21 125:25
126:13 129:15
133:23 136:21
141:2 150:25
151:12 163:24
170:20,24
171:18 175:8
175:18 179:3
180:10, 21
plus 21:17 45:15
172:15
point 6:5 7:9
15:17 20:4
28:3 32:2 37:4
38:11 42:1
46:23 47:1,17
57:1 71:11
75:8 79:19
82:21 84:1
90:9 114:4
115:17 122:6
142:18 169:13
172:5,5,6,8,22
176:19 177:17
180:14 189:23
pointa 146:25 152: 6
poles 177:6
$178: 1,1,3,5,11$
policy 70:19
pop 158:2
portion 20:15
25:10 34:18
41:8 43:4 45:2
122:16 127:23
139:6 174:3
portions 127:12
portrayed 28:23
position 7:2
8:13 48:10,13

68:7,22 79:3 95:19 109:4,25 139:4
positions 7:3 103:13
possibility 24:15 133:2
possible 83 :12 139:10 147:24
possibly 6:11 118:6 179:16
Precedent 169:4
precise 175:14
precisely 178:20 178:25
predecessor 43:23 44:2
predetermined 49:1
predict 190:8
predominately 76:17
prefer 110:9 146:8
preference 7:18 115:21
prefiled 3:17,18 3:20,21, 23 5:18 8:18,22 77:18,2078:8 78:16 79:12 113:4 114:23 116:7
preliminary 158:13
premised 78:8
premisea 134:22
preparation 130:16
prepare 6:24
prepared 8:17 141: 6
prequal 71:15 111:25
prequalification 70:5 71:14
present 4:13 45:5 53:14 144:16 166:8 187:20
presented 130:19 132:2 169:9,12 169:24 170:3 172:9 187:14
president 8:16
presumably 100:9
presume 126: 11 136:7
pretty 23:2 30:22 45:17

56:15 57:19
71:11 81:2
90:15 103:12
111:11 162:17 171:5
prevailed 53:16
prevented 56:7
prevents 167:17
previous 147:20
148:8 169:5
previously 6:22
8:18 22:7
36:25 46:9
60:25 78:9,11
140:23 143:1
150:4 174:16
176:21
price 67:19
103:15 108:12
131:13 139:22
143:25 144:1,8
144:19 148:1,2
148:4,5 164:2
164:3,8
priced 143:16
prices $41: 1$
131:6 132:7
144:6 152:11
152:12,24
164:25 165:10
165:12 187:18
pricing 34:11, 13
34:15 35:17,18
46:13 68:18
74:13 94:18
142:19,21
primarily 18:6
131:14
primary 11:8
81:2 89:24
132:6,8 162:18 162:21
principals 6:12
principle 121:25
principles 153:14
print 80:10
printed 48:23
49:1 66:6
125:11
prior 5:9 6:25
26:4 29:4 31:3
33:22 61:5
67:24 93:22
97:4 122:11
183:12
probably 12 : 11
23:22,23 24:10
25:15 41:17
52:18 64:16

Page 20

65:8 92:8,11 99:1 102:5,18 139:15 159:19 163:9 170:25 178:15
problem 27:22 117:23 143:15 143:15 144:10 167:11,13
problems 26:14 82:21
proceed 9:20 76:12 116:21
proceeded 34 : 16
proceeding 28:25 29:1 30:8 45:2 45:22 56:9 85:1 104:25 105:3 113:17 118:7,12,20 128:15
proceedings 1:9 5:16 43:1 133:13 178:24 192:3
process 16:4 39:23 41:20,24
43:14 56:23 60:24 63:7 78:13 87:7 89:18
processes 61:12 63:1
produce 136:24 149:5,13 157:13 187:12
produced 125:8 138:15 142:15 143:18 150:8 170:22
product 28:11 75:24 127:5 128:23 176:16 179:4
products 179:16 Professional 192:8
proffered 46:2,5 47:5,16
profile 57:17 59:9 92:14
program 16:11 17:9 60:22 182:1
programmer 16:11 17:13 41:9,15 41:19
programing 41:20 126:14 166:16
programs 40:21 42:1
projected 92:5 prominent 164:5 Proof 28:24

29:24 30:8 56:10
proper 21:24 111:2 135:10 properly 29:6 30:11 31:3 112:15 179:14
proposal 146:15 151:13 172:23 187:14
propose 61:14
proposed 10:16
23:17 32:12 68:9 73:3,17
88:17 92:21 93:13 94:21 95:7 119:20, 24 145:25 148:11 153:6 163:14 164:22 165:10 172:25
propoaing 70:12
89:23 119:22
120:11
proposition
160:23
proprietary
122:8
protective 6:14 6:15
protocol 40:1,2 40:3,5,7,11 54:20 63:19,23 97:17
proved $86: 13$
proven 86:7
provide 44:7
55:8,9 69:3
70:10 98:5 111:8 134:14 143:3 176:11 188:10,17
provided 22:13
24:7,11 25:9
26:4 55:9 91:7
91:8 128:1
130:17 134:13
135:3,22
138:19
Providers 179:18
provides 135:5
providing 40:11 141:19 142:25 provision 134:3 186:25

## pr

rovisioning 132.8 186:18
pro-competitive 152:23
public1:1,12 3:20,24 4:5 27:6 115:12،17 115:21 116:5 189:24 190:15 190:19, 23 192:9
PUCO 29:2,8 30:15 34:13 43:4,10 44:22 45:19 46:16 53:7 56:9 91:10
pulled 188:19
purchase 72:4,11 72:16,21, 22 74:17,20 76:6 142:14 163:3
purchased 72:20 73:6 93:7
purchasea 93:21
purchasing 54:23 93:12 135:14 139:2,3 179:12
pure 121:23
purported 136:14
purpose 157:18
purposes 7:4 114:19 117:15 149:12 188:12
pursuant 1:6 4:8 153:16
pushed 48:24 96:21
put 15:4 45:13 49:20 60:2 69:24,25 71:15 74:22 B0:25 81:6 100:24 150:10 152:12
putting 98:25 140:15
p.m191:6
$\frac{Q}{2}$

QSI 36:20 37:15 38:3 114:17 128:14 129:19 129:21 130:4 130:10 131:1 133:6 154:11 154:22 170:12 173:14 174:14 188:19
qualify 122:4

132:8
qualifying 162:5 qualitatively 120:21
qualitiea 138:23
138:24 139:19
quality 140:25
quantitative 122:17
question 20:17
20:21 21:6,8 22:15,18 23:23 24:20 34:22,23 35:2,10,15 37:20,22 63:14 71:3 83:13 92:3 93:2,3,7 96:19 99:8,23 100:17 101:2 102:24 104:1 104:22,22 106:6 117:18 117:21,24 119:7 120:6 122:6,19,21,24 123:5,10,10,16 137:6 149:18 159:14 164:25 167:7 174:17 175:1 184:3,6 184:9,12,16,19 185:15,23 186:10 187:16 188:6
questioning 150:16 180:15 questions 5:21

5:22,24,25 6:6
8:21 9:5,9
38:21 39:22
42:9, $10 \quad 46: 1$
48:21 51:20
52:19 53:22, 22
53:24 63:12
64:25 65:1,2,7
67:2,9 71:24
75:12 76:9,12
76:17 77:4
85:8 91:23
95:11,15, 22
99:16 100:2,18
100:24 101:1 103:17 114:6 115:2 116:11 150:25 155:11 161:3 180:11 180:23 183:24 186:12,13
188:2,5 189:6 189:12,13,17
quickly $42: 5$
57:24
quite 87:25
101:7 145:10
152:14 173:6
quo 77:15
quote 100:24
171:17,18
quotes 75:21
quate-unquote
166:14

| R |
| :---: |
| R1:11 2:6 5:1 |

raise 8:2 83:12 113:21
ralsed 187:4
$\operatorname{ran} 60: 22$ 157:1
range 24:25 41:2
41:18 55:13
68:3 74:25
138:18
ranged 17:4
ranges 160:19
ranging 160:16
rate 28:1,11,12
45:13 70:4
72:16 75:15,17
75:20,21,22,25
76:5 94:2,10
94:19 96:12,14
98:4,5,25 99:9
99:11 100:4,14
100:19 101:9
101:10,12,17
103:8 107:16
108:9 119:3.4
119:4,8,9,13
119:14,15,16
120:15,16,25
121:1,2,12,13
121:18,19
122:2, 3 123:1
123:2 131:24
141:3,5,17
145:24, 25
146:5,6 147:14
147:16 149:6
151:15,19,20
152:19 153:13
153:14 163:10
163:11 165:19
173:10
ratea 1:4 31:9
31:22 32:9
33:10, 20 35:7
$46: 16,18,20,21$
46:25 57:3
68:9 70:2 $76: 3$

108:2 118:22 119:12,19,23 119:25 120:1 123:25 124:17 125:9 136:11 136:14 145:4 145:10,16,17 146:10,13,14 146:14,15.16 147:13 148:10 148:13,24
149:3,10,13 152:18 153:5 153:17,20
158:17 162:25
163:4,5,6,13
163:14,15
165:5 166:2,7
166:8,8,9,10
166:13 172:24 173:2,7,20
175:23 176:13 176:14,20 177:1 187:15 187:17,22
rather 45:13
83:24 99:18
102:15 145:3
169:8 181:11
183:12
ratio 136:10
rational 136:25 187:12
rationale 74:23
rationally 102:20
reached 44:15 45:3
read 20:16,19, 21
21:1,3 22:16
22:18 27:15,18
27:21 34:21,23
40:21,24 41:2
49:17,23 50:6
50:8, 10,17
$54: 10,14,16,25$
55:16 68:14
69:21 77:20
92:13 99:13
106:24 109:20
109:21,21,22
122:20.21
138:5 143:4
146:9 156:13 170:15 171:8 171:13 172:8
readily 159:12 168:25
reading 77:17 86:9
ready 9:9 42:1
76:11 92:9 114:5 116:19 124:24
real 43:10 56:11
84:20 89:2,13
89:18 91:14
98:20 139:16
really $21: 23$
44:1 47:12
50:2 63:19
87:13 91:4
94:16 129:23
131:17 145:10
149:1 157:3
161:18,23 163:2 164:24 165:19 167:12 167:20,25
176:2 187:7,11 187:12
reason 29:22
33:8 37:7 57:6
62:10 78:7
80:25 86:17
133:20 153:11
153:15 161:23
166:12 167:22
reasonable $24: 9$
89:1 119:21
120:6 133:19
reasons 132:17
137:7 149:21
150:1 187:6
rebut 160:22
recall 15:14
29:23 30:4
33:13,13,16 34:6,10,19 35:9 36:19 37:14 100:21 108:3, 22 109:24 133:13 158:14,18
185:15
recalled 35:4
receipt 20:18
36:6 58:13
81:19
receive $12: 14,19$ 14:7,18 15:11 15:18 16:3,12 20:1 24:17 57:16 58:23 59:3.21 60:14 78:1,2 83:11 97:2,4 130:3 150:3
received 15:8,22 19:24 20:11

23:11 29:3
38:21 41:24
50:1,22 51:1
51:15,16 52:1
52:13 59:24
60:1 61:2,22
69:10 97:12
132:23,24
156:11 158:16
169:19 181:7
184:14,14
receives 10:13
10:21 16:10 77:21
receiving 58:4 82:13
recent 31:10 106:8
recently 50:20
recess 38:14
113:15 150:23
180:19
reciprocal 89:25 104:3,15
reclassificat... 131:24
recollection 101:5
recommend 160:13
recommendations 187:8
reconcile 79:11 86:12,16 reconstruction 182:11, 12
record 4:4 5:5 5:19 6:4 7:2,5 8:10 10:6,7,8 13:6 17:8,9,24 17:25 18:1,24
18:25 37:10,12
41:23 43:17
54:12,20 55:10
59:16 61:8
65:22 66:10
67:1 71:2
107:21 113:1,7
113:13.16
114:1,12
115:16 117:13
123:19 124:13
124:14,15,23
124:25 145:20
150:12,14,25
153:1 162:14
170:9 175:16
180:8,20 181:3
189:9 190:12
190:23,25
191:2
records 54:19 55:4 recourse 27:6 90:13
recover 67:12 95:18
recovered 95:19
recross 5:20
Recross-Exami. . . 3:6,10,13 54:2 98:1 184:1
recurring 170:23 173:1
REC'D 3:16
redacted 151:14 151:14,16,18 151:19,20 160:16,16,20 160:20 173:19 174:24 175:1,5 175:6, 10, 13
redid 49:20
redirect 3:5,6 3:10,13 5:20 22:1 38:16,18 58:10 63:15 95:13 181:1
red-face 119:19 121:9
reangaging 131:11
Reexamination 3:9.9 92:1 93:4
refer 59:13 117:20 118:15 148:1 156:3,5 160:17 171:19 173:22 175:11
reference 9:22 27:14 86:11 105:5 125:13 126:14 152:8 175:15 186:2
referenced 188:23
referred 88:15 90:16 172:11 172:18 183:10 186:7
reterring 8:15 23:13 88:14 103:20 118:16 161:7 169:1 185:24
refers 23:9 155:24
reflect 147:15 147:21
regard 68:23 109:22 131:4 131:22 147:1 186:18
regarding 5:8
17:20 31:8
33:19 35:5
54:4 58:10
61:12 103:18 158:9,16 170:17
regardless 133:5
regards 73:20
131:3,4 187:1
Registered 1.92:8
regular 12:19,21
regularly 87:25 153:25
regulators 177:11
regulatory 87:6
relate 102:3
related 1:5 132:1 179:10 181:18
relates 91:6
relating 131:19 131:20
relationshig 79:13 164:12 164:14 165:1,6 165:24 166:3,5 166:9.13
relative 14 : 9 20:1 24:17,21 25:1 29:21
Relatively 19:10
released 190:22
relevant 172:1
remain 22:12
remainder 152:3
remaina 93:15
Remand 107:24
remediation 82:14,16,17
remember $25: 16$
30:13 33:5,6 36:21 46:7 58:20
removal 108:22
remove $70: 16,17$
70:20 108:25 109:4 110:9,12 110:14,17 149:8
removed 70:15,21
71:1,8 110:1,5
111:24 112:16 173:19,21,24 178:22
removing 70:18 109:15
rendered 22:7 25:4
rendering 7:5
renders 78:20 79:6 80:2
repeat $20: 16$ 37:21
replaced 47:21
reply 6:2
report 71:15
reporter 63:10 192:8
represent $39: 12$ 172:9
represented 96:7
representing 4:24 57:12 represents 39:9
reproduced 117:6 request 179:22
requested 15:25 19:16 64:21 81:13
requesting 67:14
require 88:21 90:18
required 69:11
71:14 82:14,15 89:6,7,9 118:19 179:25
requirement 152:11 153:10
requirements 186:18
requiring 88:22 89:24 118:11
resale 59:14 80:23 81:3,6,6 83:14
research 34 :12 93:19
residential 76:22,25 77:1 141:3,5,19 142:21
resolution 157:4 resolve 86:23 91:20
resolved 85:2 resources 169:22 respect 6:21 11:17 26:1 33:18 76:19 77:3,14 84:14 84:24 105:11 119:5 128:14 128:16,20 150:6 157:16

158:19 161:6 184:10 185:19 188:11
respond 100:16 responded 97:1 response 18:2 100:2 171:12 171:14
responses 183:9 183:10 reaponsibilitiea 86:14
responsibility 46:24 86:8
responsive 123:7
rest 41:9 111:9 123: 6
result 30:17
136:24 137:6,7
137:14,15
138:15 152:18
157:8 159:16
175:24 177:23
resulted 29:12 131:13
resulting 142:2 152:11
results 128:18 131:7 187:13
resume 189: 20
retail 141:3,5 142:21 143:17
retained 36:20 37:15,18 38:3 return 48:20 166:15
returning 44:13
reveal 173:18 revenue 74:11 75:11
revenues 141:23 142:2.7 143:2
review 12:1,2,5 16:21 21:12,14 21:17,18 36:20 37:1 38:4 57:13,23 63:1 89:20 107:23 120:5 123:10 123:13 128:4,8 130:22 133:17 136:13 140:9 176:13
reviewed 102:15 102:19 103:7 129:20, 22 130:4 131:2 133:6 155:3
reviewing 102:25 122:13 130:9

148:11 158:13 reviews 11:6,13 revolves 165: 23 rid 60:6
riding 186:21
right 8:2 12:8 15:3 19:14 21:6 22:9 23:25 25:23
26:6 30:25
41:12 42:8
43:25 44:3,11
44:13 45:17
47:1,23,24
48:3,7,9,17,19
50:11 51:5,9
51:11,19,23
52:15,20,24
55:1 58:2,14
59:2 60:2
61:19.24 62:22
62:24 63:21,22
63:24 64:9
66:21 68:3
71:9 74:18
75:9 76:8
81:13,20 82:6
87:4,8 88:11
88:13,23 90:1
90:23 91:1,19
95:5,8,21,21
96:5,10 97:9
97:13,21, 24
98:15 105:14
106:11,15,20
106:23 107:4
107:15,17
108:11 109:17
110:19 112:25
113:3,11,21
118:10 136:19
142:9 143:14
144:13 146:17
149:12 151:5
151:16 156:16
165:19 167:19
168:18 172:1
173:8 174:6
175:6 182:2
190:2,6
ring 98:18
risk 19:13,15,22
25:5,9 26:8,21
26:23 89:13
Robbin 1:11 4:14
rolling $131: 6$
room 1:13 114:4
rough 72:22
roughly 15:1
19:25 22:11
$23: 1,6 \quad 24: 3,8$
30:4 36:21, 23
37:14 38:2
53:10 80:14
83:6 105:25
155:2 160:20
163:10 168:18
round 180:14
route 107:14
rule 27:24 28:13
30:10,11
106:25 142:19
142:20,23
143:5
ruled 7:13 28:2
run 5:17 128:3
155:18,21
156:1 157:2,3
157:5,20
166:25 167:8,9
167:16,17,22
168:4 170:19
170:22 171:18
185:18,20
187:7
running 134:15
134:16 156:25
157:4
runs 155:23
171:20 172:21 186:1
rural 119:9,14 120:21,22 121:19,20, 20 121:23 125:23
Russel1 1:11 3:7 4:14 65:2,5,15 65:18 66:11,25 67:5,7 71:5 188:1,3
— $\quad 3$
S1:10
sake 146:22
Salley 4:20
Sally 2:2
same 8:23 10:24 10:24,25 13:1
15:1 18:19
23:16 60:15,21
60:21 65:21
66:4,9 80:6,8 80:11 84:16,17
88:21 91:6
103:12 105:18 107:9 108:14 115:2,3 116:13 117:1 122:5 125:10,17

131:9 139:1,7 139:9 140:22
140:24 147:18
149:9,22 150:4
157:9 158:5
160:2 166:10
174:16 178:3
184:19
aanity 142:15
saw 129:25
156:14
saying 13:25
14:18,23 25:19
31:2 33:12
54:23 55:15
59:3 70:15
86:24 88:8,18
92:11 101:8
108:17,24
110:4,6 111:5
127:14 138:13
141:14 162:6
166:20 167:15
167:19 169:16
172:17 177:4
179:8 184:5
185:10
says 8:5 27:24
28:15 40:4
66:1,7 70:6
79:12 90:6
95:17 109:8
113:24 125:9
144:19 145:15
147:14 170:16
SBC 120:1 122:10
122:12 160:17
161:10.10
176:12 179:6
scale 125:20,22
127:6 137:9,15
138:16,25
scaning $18: 21$
scenario 87:1
acenarios 168:4
183:1
schedule 6:22
93:18,18
acheduled 5:4
scope 5:25
Scott 29:3
seat 8:6 85:10
second 17:24
20:23 49:18
124:13 129:24
162:13 165:22
171:10
secondly 172:3
187:7
section1:7 4:8
66:16,17,18,22
118:8
sections 68:14 68:15 105:21
security 36:14 85:13 86:6 88:19,25 89:3 89:6,7,9,23 90:19 91:15 105:23
see 5:7,25 9:17 11:10,19 12:24 28:16 37:6 46:9 47:1 66:9 70:13 86:5 87:4,8,18 88:12 93:19 112:1 117:22 118:7 119:19 124:20 126:19 126:21,22 132:21 139:9 139:23 142:15 142:17 146:24 149:15 157:6 157:25 159:23 160:11 163:11 164:6 166:2 172:14,14 182:5,13,24 183:7 190:22
seeing 28:4 131:12 133:10 182:16
seaking 88:15,25
seem 84:22 90:12 102:1,7 166:5 166:11
seemed 174:3 184:22
seems 87:25 168:20
seen 16: 6
sell 17:2,4, 7,8 55:12 135:11
selling 138:3
send 14:4 27:4 49:6,21,24 58:3 63:25 64:4,7 80:10 82:17 86:1 89:15,15,19 90:3,4 91:14
sending 18:22 49:12,22,23 81:15 92:15
Senior 114:17
sense 28:7 74:9 74:12 82:11,23

101:24 102:20
103:9 131:8 139:21 158:7 164:22
sent 29:6 46:14 47:10,13 49:11 49:13,15 50:2 50:5 54:20,21 59:7,8 170:12
sentence 20:16 20:23 79:5 123:2,3
sentences 172:5
separate 14:24 78:2,3 96:8,9 96:11,17,18 103:21 104:6 128:24 173:10
September 50:24
50:25 51:1 58:11,12,13,22 59:1,12,22,25 60:1
sequence 50:18
serve 120:6
125:22
served 33:20
server 63:19,20
servers $40: 6$
service 26:1,3
89:5 91:8 98:5 111:8 135:15 139:24,24 141:20 142:12 142:21, 25 143:11,14,17 182:8
services 22:7,12 24:7,10 25:4,5 25:11,13,22 31:3 60:12 77:8 96:12 137:16 138:17 139:12.14 140:21 143:2 154:14,25 158:21 163:1 179:13
Session 4:1
set 126:17 152:25 153:17
gets $168: 2$
setting 57:3
settled 53:2,2
settlement 29:17 30:23 44:5,7 44:15,20 45:11 53:6 85:3 104:15,16
settlements 53:1 setup 170:18
seven 79:10 81:4 96:15
several 21:19 32:5 41:25 43:7,9 53:1 149:20 152:6 156:5
shakes 34:8
share 128:18
139:25 159:2,4
shared 139:23 140:3,3,7,12 140:13,17,20 158:20,21,25 159:5,10,17,25 160:23
sharing 139:16 159:24
shed 164;19
sheet 15:7 25:16 65:24 81:2 169:1
Sherlock 131:11
short 182:16
shorten 81:18 177:12,16,19
shortened 176:10
shorter 175:25 176:3,22 177:7 shot 60:23
show 123:25 140:13 170:16 175:24
showed 89:11
shown 126:8
shows $81: 2$ 151:13
aide 13:4,9 39:15 56:5 74:1,3 75:3 84:1,5,9 96:14 108:13.14 111:5
sidea 75:9
aign 6:14 130:3
signed 6:10,17 24:22 32:14 114:2
significant 130:21 131:4 131:23
significantly 131:9 143:14 aimilar 6:25 130:25
similarity 10:21 11:2
similarly 10:23 149:14 151:18 151:22,25 175:4
aimple 89:18 91:14 144:12
simply 131: 19 182:19 187:15 188:10
since 53:1 62:14 66:17 104:21 131:17 140:25 144:7 156:1 185:23
single 39:10
sitting 39:4 91:10
situation 58:11 109:5 121:5 133:13 137:11 140:19 144:2 174:24
situations 107:17 108:25 137:2 161:6
six 29:3
sixteen 50:1
sixty-seven 25:17
sixty-some 160:13
alightly 10:17 125:13 150:2
Sloas 192:8
slot 147:12
small 118: 6, 18
smallex 81:4 106:4 144:6
software 15:22 16:9,25 17:3,4 17:10 33:7,7 40:21 41:1,9 54:8,16,24 55:9,11,12,15 55:18 57:22 92:8,10
solution 157:2
solve 157: 3
mome 5:5,23 12:16, 16 15:22
16:19 17:3,3 24:22 25:5 28:18 34:4 38:742:17 46:1 51:14 58:17,17,18 61:3 65:7 75:10,18 77:1 79:3 80:25 81:6 82:11,23

83:21 84:23
85:8,18 86:10
86:24 90:10, 20
90:24 94:23
96:12 98:11
100:20 101:17
103:17 104:21
109:22 112:10
118:18 119:19
122:6 124:16
124:17 131:3,3
131:8 132:13
132:13 134:2
142:15 154:23
159:3 160:9
161:3 162:20
163:15 165:6
170:14, 20
177:14,20
178:15 179:15
181:6,6,14,15
182:3 183:8
184:25
somebody $37: 7$
56:11. 82:20
somehow $56: 6$
79:11,13
165:23
aomeone 17:20
144:17,19
something 12:20
14:22 24:19
25:9 37:8 38:6
38:9 41:17
47:2 54:9
60:18 62:19
64:17 87:25
88:9 89:11
100:9,10,11
106:22 117:18
121:9,15
143:19 153:8
155:23,24
157:18 166:2
185:1
somatime 17:6
27:19 48:24
sometimes $154: 1$
157:20 159:5
momewhere 24:25
28:6 41:18
84:7 85:10
126:12 178:5
sorry 9:7 21:1
23:24 30:7
36:17 37:19
75:16 109:11
111:20 113:1
118:5 124:8
126:9 148:3

Page 24

190:17
sort 12:18 42:11 85:18
sought 105:22
sound 61: 19
sounding 129:3
sounds 167:16 169:15
source 123:24
sources 143:16
south 1:22 2:3 4:21 41:17
spacing 125:13
spare 137:24 138:2 159:21 159:23 161:16
aparse 121:3
apeak 5:12
142:20 154:18 168:25
speaking 130:10 149:15 154:23 184:4
special 40:16,20 55:18 179:15
specialization 176:23
mpecific 19:11 45:12 68:15,17 69:22,24 88:6 105:21 118:14 120:15 137:1 154:14,24 155:20 159:14 176:7 185:1
specifically
15:9 33:13 44:22 188:24
specifies 155:11 162:7
speculate 185:5 185:10,11,13
speculation 123:7
spel18:10 114:12
spelled 114:13
spend 35:17
epending $47: 1$ 129:11,12
spent 47:11, 18 120:2 122:12 129:7
3pring 61:19
Sprint $42: 16,21$ 42:22 43:3, 8 43:19,23 44:1 44:8,24 45:13 75:2 165:7

Sprint/Embarq 44:8 45:4,23
stack 57:12 142:16
staff 4:12 11:12 11:14 34:14 43:9 46:17,19 122:11
staggering 88:16
stand 8:1 114:8 123:16, 20 130:6 162:10 176:17
etandard 40:18 120: 6, 22
stands 13:11 19:1 107:21 141:12
start 7:21 8:14 81:8 92:14 117:2 125:9 129:21 146:20 148:12 169:7,8
started 16:22 17:10 40:25 41:24 61:16 67:24 73:11 84:6 89:4 96:16 106:13 106:18
starting 47:9 105:6 125:9 136:18 171:20
starts 134:15 174:22
atate 8:9 29:11 33:8 114:11 152:17 164:4 170:20 175:9 192:9
stated 27:4 60:25 81:24 87:10 93:7 101:17 122:5 129:23 150:4 155:19
statement 86:13 146:17 148:8 148:20
statements $162: 8$ 162:9
states 75:13
114:23 118:23
171:13,16
stating 103:19
statistics 187:19
status 77:15
Btay 42:25
140:24
steady 85:16 stenographic 192:5
Stephen 3:4 8:3 8:11
steps 168:7,16
Steve 3:17 6:12
Stewart 2:6 3:5
3:6,10,12,13
5:1,1,3,14
7:14 9:12,13
9:15,17,20
10:10,11 13:19
13:22,24 18:1
18:3 19:1,3
20:14,24 21:6
22:3,4,16,20
$23: 10,13,18,22$
23:25 24:1
32: 8, 14, 22, 25
33:3,11 34:17
35:3,22,25
36:1,13 37:9
37:13,22,23
38:1 53:24,25
54:3 59:20
61:9 63:8,11
77:4 79:5
84:23 97:24,25 98:2 99:15,24
100:1,23 101:5 102:10,11
105:4 107:23
108:1 113:8,10 115:8,11
116:20,22,24 117:15,17
118:1,3 120:13
122:15,22,24
123:9,17,22,23
124:13,15,22
124:25 125:1,2
145:21 150:17
150:20, 25
151:3,8 152:1
162:15 170:10
171:7,9 175:17
180:4,9,11
183:8,23 184:2
189:12,15,16 190:2,4,7,21
etick 146:22
still 13:4 32:8 35:2 48:10
52:6 69:11
73:7 78:13
$80: 6,6,8,10,13$
93:12,14,15
97:10,14,15
139:6,18 146:3

149:9 165:4,10
165:12 174:5
178:2,17
stipulate 124:16
stock 129: 12
stop 156:25
straightened 23:20
strange 60:19
street 1:13,22
2:3,7 4:21 5:2 133:21
strictly 76:20
atrike 20:15
22:1 34:17
35:21,24 70:12
99:22 122:15
122:23
struck 149:17
structure 101:18
structured 94:3
struggle 68:11
87:21 89:2,13
91:12 98:20
102: 4
studies $32: 6$
46:2,6 48:6
120:3 121:8
122:8,11,13,14
130:9.9 131:18
131:19,20
154:4,11,13
158:9,14
study 31:8,22
32:3, 6 33:20
35:7 36:20
37:1,16 38:3
46:12,25 47:5
47:16,19, 22
48:11,15 56:21
56:25 57:7
102:25 126:7
127:8,11,15,19
128:8,16,21
129:16,19
130:4,19,24
131:1 132:23
136:14 140:14
143:18 149:20
150:3,7,8
152:11 154:10
154:16,17,24
156:25 158:17
164:18,21
165:16 173:15
173:18 176:15
176:22,24
182:8 187:3
stuff 34:20
149:25
subject 17:21
88:19 120:4 175:20
submit 57:7 147:11
submitted 6:24 8:19
subscriber 141:4
aubsequant 78:10
substantial
28:21 29:11,13
30:19 42:7
85:16
substantially
130:18
substitute
179:20
subtract 144:6
succeed 152:12
succesaful 82:8
sudden $89: 12$ 102:8
auffice 6:16
sufficient 182:7 182:21
suggest 118:5
145:18 146:2
146:24 152:17
suggested 64:23
111:1 146:22 185:14
suggesting 27:9
28:2 132:5 142:23
auggeation 115:14
suggesta 102:12 152:18 185:24
Suite 1:22 2:7
sumarize 174:23
superviaion
124:2 141:7
supplemental
3:21,23 115:10 115:24 116:7
116:12 117:6
117:12,20
128:1,4 130:22
132:24 133:4
150:19 151:2,4
151:10 152:5 172:25 183:16 190:1
supply 54:11
support 103:8 176:20 182:21
supported 7:3 156:7
कuppose 143:7
144:25
supposed 15:21 51:7 58:9 88:7 99:17,20 112:4 121:20,22,23
aure 5:15 16:16 26:9 30:9 33:16 35:2 37:6,23 48:13 57:5 64:18 65:14,15,21 66:21,22 77:1 78:15 82:9 90:20 93:14 94:4 96:16 99:7 111:3 112:19 115:13 121:15 128:23 129:4 141:6 155:7 167:25 180:6 188:7,18 188:20 191:1
surely 167:9
surprised 129:11
suspension 17:21
sustain 152:13 152:19 153:15 sustainability 152:6 153:7
swear 113:18
switch 135:1,5 135:13 142:6 switched 142:5 switching 141:20 142:3 143:1
sworn 8:4 113:23
symbol 39:8
Synthesis 176:13
syatem 13:23 16:17,20 17:14 18:2 75:17 94:2,19,24
systems $16: 10$
$\frac{T}{T}$
table 39:4 117:5
117:6,8 118:22
123:25 126:9
136:10 141:4
144:23 145:15
147:9,17,21
151:12,22,25
163:9,18
172:24 175:18
188:23 189:1,2
tailor 154:24
take 6:8 21:18 24:20 30:17 38:12 41:16 45:21 65:1

68:6 69:2 70:7 85:10 90:1 92:11 100:8 109: 8, 9, 13 110:20 111:7.7 111:10 119:15 128:25 130:10 141:16 142:18 143:8 149:21 150:15,21 154:3 158:13 167:18 170:24 172:17 174:9 176:5 177:11 180:14
taken 38:14
41:25 52:4
70:24 98:24
99:9 100:23
110:24 112:3,8
112:9,11
113:15 138:10
150:23 165:9
180:19 192:3
takes 16:15
21:14,17 100:7
100:9 109:3
182:12 187:15
taking 66:15,17
100:3 109:18 109:24 111:5 152:2 182:1.8
talk 31:15,17 34:2 58:9 87:3 133:10,14 140:2 174:7 179:4
talked 19:10
31:14 34:1,3 61:6 81:14 86:25 97:21 104:8 107:14 108:21 145:5 158:11 165:16
talking 14:10 23:10 24:24 32:6,7 33:6 44:1 53:14 61:16 63:17 65:10 71:18 73:11 77:4 96:25 97:8,20 99:4 115:16 129:13 135:12 135:20 140:16 142:6 146:1 152:22 166:13
tap 110:15
111:12 112:12
taps 68:5,6 69:2 69:14 70:15,17 70:18,20،21،25 71:8 108:21 109:1,5,13,15 110:1,5,10,12 110:14,18,20 111:22 112:13 112:15
tariff 108:19,20 143:14
tariffs 124:3
taught 11:18
tech 178:12
technical 82:8 166:18
technicians 139:8
technology 69:1 69:1,6,13 70:6 70:22 112:5,6 112:7
Telcordia 17:1,2 17:2,7 40:25 41:7,23 54:5,7 54:11,19,24 55:6,8
Telcore 40:18
telecomunica... 67:14 126:2
telecommunica... 1:7 4:9 152:23 153:3 176:7 177:23
telephone $1: 6$ 4:24 75:2 84:6 89:5 154:15 177:6 178:4
tell 56:11 94:5 106:16 110:20 110:22 167:12 169:4
telling 103:2 121:6
tells 121:8 157:17
TELRIC 33:7 34:11 35:16,18 46:8,13,25 48:11,15 56:21 56:24 57:7 118: 6, 12,19 130:9 138:9,12 140:14 152:25 153:1,14,20 160:6 161:4 164:20
TELRIC』 119:18 119:24

TELRIC-approved
34:13,15 46:16 46:20,21
tempted 149:19
ten 17:23 20:12
56:13 61:22 78:21 79:7 80:13,19 86:8 86:14 89:13 91:8 103:6 163:10 180:17
tendered 6:9 163:5
tende 177:19 ten-minute 38:12
term 74:8 125:14
terms 1:5 10:13
26:19 27:5
53:15 63:3
87:24 88:3
90:2,11,14,22
125:18 131:24
139:15,16
142:21 152:13
test 15:21, 22 16:1 42:1 81:13,15 111:16,17,21 121:10
tested 15:24
testified $41: 6$ 46:9 50:20 51:13 52:22 54:4 61:10,25 99:6,17 100:2 183:15
testifiea 8:5 113:24
testifying 103:13 111:4 testimonies 117:21
testimony 3:17
3:18,20,21,23
5:13,18 8:18
8:22 9:1,18
10:4 21:12
42:19 51:2 55:19 57:21 64:20 70:8 73:21 75:13,21 76:6 77:13,18 77:20 78:8,17 79:12 80:2 82:4 83:25 85:14,15 86:5 86:9,10 87:9 88:13 90:24 100:12,13 107:5 108:3

109:3,20 110:3
113:4,20
114:22,24,25
115:6,24 116:7
116:9 117:3,6
117:9 121:11
125:12 126:12
$128: 2,5$ 130:16
130:25 132:23
132:24 133:4
138:6 143:21
145:12 146:19
146:25 148:12
152:5 159:9
163:4 165:17
166:6 169:13
181:8 182:23
183:6,11,16,20
184:15 187:4
188:24 189:25
190:1, 20
teating 64:18
81:12 82:8
92:4 112:14
tests 119:19 148:9
thank 4:23 5:3
6:18 7:7 9:11
9:13 10:10
22:1,3 23:19
23:21 33:4
35:24,25 36:19
37:24 38:11,13
53:23,25 63:11
64:25 71:24
76:10 85:5
86:4 87:8,18
88:11 91:22
92:25 97:25
112:23,25
113:12,25
116:22 123:21
123:22 141:2
147:8 151:6
180:17 187:25
189:5,19
Thanks 149:19
170:8
their 7:22 27:11
27:12 57:25
61:12 62:25
74:12,13 83:9
84:1 90:21,21
92:16 93:8,13
94:18 105:13
108:18,22
109:12 119:9
125:18 130:11
138:22 139:5
178:19
themselves 54:22
181:10
theoretical 160:8
theoretically 64:10
theorize 164:1
they'd 15:25 81:15
thing 17:7 25:2 30:20 36:8 54:11 64:7 66:4,9 76:18 83:18 84:16 85:24 85:2 88:21 89:14 103:1 110:22 133:19 160:2 161:20 168:5
things 5:17
24:18 64:19
77:12 78:14
85:9 86:16
101:21 119:22
132:18 177: 6
189:11 190:10
think 6:4 11:23
13:19 14:20
21:23 22:25
23:19 24:2
25:18 26:23
20:14 30:22
31:19 32:5
33:1 35:4,13
38:6,12 39:14
42:24 43:16
44:10 52:6,8
58:18,20 60:22
61:10,21,25
62:8,11,13
66:3,5 68:3
69:4 70:22
71:6 73:13,24
74:25 75:15 77:3 79:21, 24
81:6,21 82:10
83:22 84:11
87:16 93:15
99:19,19،21
100: 6, 17, 22 101:2,2 102:18 105:9 106:6 107:14 113:6 118:15 119:11 120:5,8 122:13 123:3,9,9,14 124:15 125:17 129:10,14 130:7 132:10 132:25 133:4,7

133:20 134:6 136:9 137:7
138:4 140:22
143:18 145:13
150:5,8 152:14
152:21 153:4,7
153:9.11،21
159:12 163:14
164:19,24
165:4,5,9,12
165:20,22
166:1,3 167:6
173:21 175:15
176:1,2,18,19
177:8,9,16
178:15,16
179:13,15,22
180:4 185:9
thinking 25:23
90:16,18 92:16
98:8 134:5
163:15
third 2:3 4:21 144:25 174:19 178:6
though 70:22
78:3 88:18
99:1.8 165:8
167:16 185:10
thought 15:25 57:20 89:10 104:1,11 108:8 133:2 142:8 167:22
thoughts $34: 25$ 35:12
thousand 25:21 140:18
three 14:3,11
21:17 24:25
25:16,17 29:19
37:9 41:22
46:5 50:16
73:12 78:7
80:22 84:10
96:15 145:15
three-band 93:18 94:24
through 5:16
11:9 20:9
36:10 46:5
53:1 64:4,7,17
64:21 71:18
82:20 89:8
96:21 97:3,4
97:16 109:22
118:2,5 119:11
120:2 129:2,4 133:9 134:18 136:22 138:25

139:7 156:5
157:25 161:12
163:4 164:1
169:6 170:18
172:7 176:8
178:3 179:4
Throughout
145:12
time $4: 5,6,15$
6:23 7:9 16:14
21:2,14,19
23:5,11 24:6,9
25:2 29:2
30:16 36:8
37:7 38:8
42:16 43:9
44:15 46:5
47:15 49:22
51:16,24,25
52:11,13 53:7
53:7 57:1 58:8
60:21,25 61:3
64:17 71:11
73:10 79:20
80:20 81:17,18
83:4 84:21
86:11 89:16,20
91:13,20 92:16
92:20 97:4
106:10 109:21
114:4 126:3
129:6,8,25
130:21 133:3
140:6 148:18
150:16 153:5
165:10 167:10
167:14 169:22
169:23 175:22
177:5 180:12
183:16 187:10
188:17 190:9
timely 53:3
91:18
times 17:23 27:8
52:2,7,12 69:8
69:8,9 71:23
101:25 102:9
120:5
timetable 92:5
timing 21:7
22:24
timingwise $42: 11$
titled 170:17
171:19172:18
185:25
today 5:9 8:22
13:18 14:5
22:6,11 38:25
49:21 57:15
59:2,8 61:4

66:21 68:13
72:10 74:13
79:14 80:1,16
86:9 95:24
103:22 104:12
111:14 115:3
116:12 143:24
191:4
together 66:13
94:15 129:2
token 149:10
told 16:5,7
31:21,24 32:2
33:12,14,15
34:6,10 35:4,6
35:15 40:10
46:19 55:9,17
58:8,21 64:6
67:16 70:19
74:23 82:20
98:7 130:2
156:11
Tom 19:20
tomorrow 143:25
189:20 190:11
ton 84:4
top 39: 8 66:2,3 118:22 120:20 126:10 136:1 144:24 156:4
total 130:23 163:19
totality 181:12
totally 50:16 62:3 69:7 93:19 99:22
tough 56:11 73:10 78:14 107:8,8
towards 27:12
trace 140:9 157:25 169:3,6 172:15 182:17
track 81:10
transaction 18:22
transcript 192:3
transfer 16:23 18:15,20 40:1 40:2,3,5 63:19 97:16
transition 73:24 79:17
translate 139:20
tranaport 73:21 74:1,2 107:16 107:19 108:9 108:11 141:21 142:3 143:1
treat 56:8
triek 134:11
148:22
tried 42:20
43:12 100:24
157:1 170:4
187:13
Triennial 107:23
trouble 146:21
troubling 155:25
TRRO 107:18, 21
true 26:10 37:1
105:18 149:9
152:14 156:17
165:21 176:1
178:15 181:13
192:3
truly 139:22
try 42:25 60:9
81:10 91:19
107:23 120:14
133:8 149:24
174:15
trying 32:20
56:25 60:5
79:11 86:12
106:5 134:10
142:9 143:8
147:23 148:22 186:5
Tuesday 1:14 4:1 192:4
tungel 63:21
turn 9:18 19:4
27:14 78:16
125:25 126:13
129:15 133:3
136:21 141:2
149:19 151:12
163:23 179:3
turned 153:15
Twelve 174: 22
twice 136:4,6,8
two 4:12 5:4
7:19 10:17
11:8 13:9 14:3
14:23 15:3
24:25 25:16
38:8 47:10,14
48:5 49:15
58:3 64:16
80:3,15 86:16
87:22,23 89:8
103:5 107:17
108:2 109:17
112:1,2,15
119:7 120:9
130:14, 23
133:25 137:1
137:16 138:17

138:20 139:14
140:17,19,21
143:16 144:5
145:3 157:10
158:21,25
161:5,5 172:4
172:15,16
176:11,18
190:20
two-day 12:25
two-way 133:21
two-week 187:10
two-wire 69:16
133:25 134:3
134:12 135:18
135:24 136:5
136:11 142:14
142:22 144:24
147:14 158:19
159:6,11,15
160:25
type 11:22 12:4
25:2,13 36:8
83:9 84:13
87:13 128:25
131:11 155:20 156:7,18
types 42:3 60:11 101:21 156:4 161:18
typically 20:6 24:5 85:17
128:25 134:15
154:13,22
157:15
TYs 74:4
T1 69:7 74:7 109:10,12
T18 68:25 74:3,5 74:6 108:7

U
uh-huh 18:12 39:21 77:16
84:18 96:23
111:19 137:3
ultimate 131:9
ultimately 43:6
45:2 53:16
89:14 131:5
164:19 168:8 169:21
unable 55:20 93:11
unbundled 59:18 59:18 135:3,4 135:11 152:24 179:10
uncovered 21:21
under 8:17 10:16 32:19,24 68:16 69:19,23 74:19 98:17,18 106:8 111:4 124:1 138:21 141:7 145:4 163:19 163:20 179:25 underlaid 132:20 underlay 132:20 158:17 underlying 131:18 139:19 140:25 164:23 165: 6, 11 172:15 182:10 183:7
understand 20:10
42:19 54:10
55:7 56:25
57:2 77:13
91:2،4 98:21
98:23 99:8 101:7,8,14 102:6 103:4 107:13 121:25 130:7 166:19 171:20 172:20 179:5 183:5 186:1
understanding 43:22 45:1,10 56:18 63:18 82:1 98:3 102:14 104:21 117:23 132:22 163:2 168:6,11 173:14 185:8 185:21 186:8 understated 149:10,14
underatood 54:6 82:3 84:21 104:13
undertake 128:7 undertaking 130:8
undisputed 31:6 88:7 90:6
UNE 59:15,17 72:6.8 80:24 81:3 110:19 124:2 179:11 unexamined 187:8 UNE-P 29:5,8,20 59:15,17,18 72:6 80:23 81:3 135:14
unfortunate 153:16, 22
unfortumately 133:22
unique 154:21
unit 175:10,13
United 1:6 4:24
75:2 84:6 89:5 umits 138:2

140:18,19
unless 21:21
unnamed 35:5
unnecessarily 147:23
unravel 169:12
unreasonable 88:25
unsecured 28:21
29:13
unsuccessful
56:19
until 26:7 84:20 87:4
updated 66:7
upper 136:6
urban 120:24
urged 36:25
usage 13:15
15:23 25:13
59:6,7,10,11
usage-based 77:10
use 13:6 16:17 18:7,10 28:15
40:10 44:1
74:7 75:24
76:4 87:5
125:3,14
126:20 129:2
134:10 137:23
146:25 154:9
154:17,19,21
160:10 169:1
174:8 178:10 178:14
used 14:11 41:14
49:24 62:10
63:23 78:4
133:3 134:3,7
137:21 138:1
145:13 146:19
147:19 154:22
174:9 175:25
178:2 185:20
187:21 188:12
useful 178:13
uses 160:15
171:21 172:21
178:3 186:1
uaing 69:6,15
71:10 82:7
138:7 145:5

146:2 147:10
165:18 168:14
168:22 169:4
186:19
Utilities 1:1, 12
4:5 27:7
utilization
137:22,23
161:21
utilize 16:9
75:17
utilizes 138:13
utilizing 28:17
83:8
U-N-E 59:17
$\bar{V}$
V8:11
Valerie 20:20
34:21 1.92:8
valid 153:20 165:13
validate 24:14
69:12 70:5
109:19 111:3.6
111:12,25
validating 70:11
validity 148:10
value 100:24
variations 156:2
various 98:5
118:23,24
136:11 142:24
148:14 167:18
168:3 181:6
182:21 187:20
vary 126:3
venue 92:23
verbally 114:2
verify $16: 10,15$
182:7,19
187:11
Verizon 75:15,17
76:7 84:4,10
105:6,6,8,11
105:22 106:2
163:1,3 178:18
178:22
versa $40: 8$
version $3: 19,20$
3:22,24 115:12
115:17,18
116:5 117:3
125:8 151:4
versions 64:4
170:21 189:24
190:19
vergus 11:21
28:877:5,8

85:22 137:12
very 68:16 75:6
123:2,14
125:17 128:11
130:25 131:7
165:2 166:2
vice 40:8
Vice-Preaident
114:18
vice-presidenta 82:18
Victor 8:12
view 28:10 35:9
42:15 84:2
135:9 138:14
140:7 160:22
187:17
vintage 126:7
violated 142:24
violates 142:19
violation 104:24
visibility
132:15 168:21
vieible 127:1 133:8
VJs-517 192:12
Vogelmeier 3:4 3:17 5:10 6:11 7:22,23,25 8:3 8:9,11 9:9,16 10:12 21:11 22:5 35:3
37:14 38:20
43:22 54:4
63:17 65:6,24
72:4 76:15
85:8 92:4
95:16 98:3
99:16, 20 100:1 101:6,16 158:9 158:15 162:20
Vogelmeier's
10:4 113:4
$\frac{W}{W 2: 2,3 \quad 4: 20}$
want 15:9 27:11
32:1 60:10
65:21 70:15
71:17 76:18
89:15, 18, 25
95:23 102:2
107:10 110:17
110:23 119:6
142:11 147:20
147:23 152:15
153:9 162:7
166:15 176:16
179:19 187:7

190:5
wanted 56:4
90:20 122:23 189:2
wants 14:4
warm 45:20
warning 157:21 157:24 158:2
Warnock 2:3 4:21
warranted 131:10
wasn't 7:16 30:24 35:14 43:10,10,11 44:21 47:12 50:16 71:22 86:21 115:13 123:13 174:9
waste $37: 7$
way 15:23 29:11
49:21 59:8 65:7 68:13 69:12,21 70:11 75:4,10 92:15 101:16 103:1 108:19 109:18 110:7 111:2,12 112:3,6 121:2 121:17 127:25 128:25 133:19 143:7,19 144:13 146:3,6 147:2,11,18 152:16 158:1 159:3 165:2 169:7 172:14 184:19 187:10
ways $26: 13$ 134:14
Webber 128: 12, 13 week 15:22,25 16:1 81:13,15 92:7 111:14
weekly 18:6
19:16,17,20,22 19:23 22:6,11 24:21 85:16,18
weeks 10:17
21:17 41:22
Weighted 147:13
welcome 113:17
well 7:2 10:23
11:2 14:9
16:22 18:18 19:16 20:1,6 24:16,19,21 25:7 26:12 28:23 29:11,23 30:22 32:1 36:21 38:7 44:16,21 46:15

47:7 48:2 49:5
49:7 51:3 52:9
56:22 57:25
58:7 59:10
62:10 63:6
68:11,24 69:21
70:4 72:6
73:24 74:22
76:25 79:17
80:4,16,22
82:17 83:25
85:24 86:17,25
87:2,21 88:6
90:1,4,5,15,19
90:20 93:15
94:6,22 98:7
99:7,24 101:5
101:19, 22
102:23 103:3
104:10 106:5
106:18,25
111:4,10 112:7
112:1.7, 23
115:11 117:17
119:7 120:10
121:17 122:6
122:24 123:5
129:21 131:17
132:4 133:1
134:6,7,17,20
140:3,15 142:5
144:11 145:4
145:18 147:20
152:16 155:25
156:3 157:1
160:12 162:5
163:18 164:19
164:24 165:3
166:8 167:6,25
168:6,17 170:2
171:24 172:6
175:19 176:5,8
177:16 178:10
178:11 179:8
179:20 181:17
182:24 184:18
185:8,12,15,24
186:19
went 5:5 17:1
29:2,7 41:6,6
42:20 56:19
83:7 89:3,7
103:15 163:7
163:16 187:18
were 5:25 26:11
32:2 33:14
38:20 39:22
42:9 46:1,2,2
46:11 48:21
49:11,22 51:14

51:20 52:12,19 52:23 55:23
56:15,19,23,24
57:9,20 58:10
64:23 77:4
78:7 80:1 86:5
86:20 88:8,14
8B:15,18,20,20
88:21 90:2,11
95:3,22 96:2,3
96:3,7,19
97:19 100:18
103:17,19,20
104:23 107:16
108:2,24 112:4
114:19 124:1
127:10,11,12
127:13,18,21
127:22 128:5,8
129:13 130:2
131:12,14,15
132:4,18 133:7
133:7 136:15
138:20 139:17
140:21 142:14
148:11 149:4
149:10,13
155:18 158:13
162:20 163:5
165:1,15 166:1
166:22 169:16
169:25 172:9
174:11 181:24
181:25 182:24
183:17 184:12
185:10 187:6
weren't 30:24
56:16 127:16 130:9 182:1
West 2:7 5:1
we'115:6,18,19 7:21 21:25 38:12 65:1
74:16 85:9
111:21 113:1 113:12,17,25 146:24 147:3 149:11 180:13 189:20
we're 9:22 14:10 15:21 48:1
53:14 57:18
59:9,10 60:4,6
60:8 65:21
66:4 68:3,4
71:14,17 78:13
80:10,17,17
89:11 92:8,11
96:25 97:7
99:19 103:22

104:12 110:19
110:21, 22
115:16 142:9
144:7 154:16
172:11 183:4
189:10
we've 6:1,3
11:18 15:23
19:10 52:17
57:17 63:17
68:12,24 70:20
75:23,24 76:23
78:11 79:17,20
83:19 84:18,19
90:4 91:10
92:22 120:2
158:10 170:2
whack 164:16
165:1 166:14
while 64:20
120:3 131:7
white 39:7
whole 34:11 58:1 87:1 89:2 100:14
wholesale 179:7 179:9,14
widely 180:1
wire 18: 14, 19
94:6,7,8,13,14
95:2 98:10
99:11 100:4
101: 6, 8, 11
102:13 137:10
152:7
wires 134:8
withheld 87:11
witness 7:10,22
8:1 13:8,12,14 13:18,21 22:19
33:5 34:8 36:7
59:17 61:13
65:3 66:1 67:1
71:3 74:5,7
78:23 79:6
86:10 93:9
101:3,19 105:1
107:22 112:24
113:18 130:6,7
151:24 171:8 176:17 188:8 189:18
witnesses 3:3 5:8
woman 12 : 6
wonder 103 : 14 114:11
wondering 26:12
word 70:13,16
100:22 125:3

144:12 146:2
172:11 174:8
181:15,20,23
182:14
words 12:19
88:20 146:12
146:13 164:13
174:23 184:13
Word-based 182: 6
work 87:6 90:21
91:19 109:19
129:2 133:16
153:18,18
165:19 182:1
workbook 167:4
182:4,6,14،18
182:18
workbooks 127:18
127:22 166:17
166:23.25
167:5,18,23
168:1,7,15,23
169:10,17
170:1,17,21
171:17,21
172:9,21 181:5
181:14,18
182:6,9 183:3
185:16 186:1
worked 45 : 19
62:19 64:18
84:22 158:6
working 17:10
67:18 129:3.7
works 90:15 92:8 92:19
worksheets 183:3 185:16
world 74:13
worry 71:22
worth 21:20 24:7 24:10 39:19
53:17 61:22
worthwhile 190:8
woulda't $17: 8$
19:8 41:10
52:8,8 55:8
64:22 69:2
86:18 87:19
125:22 129:10
135:6 136:8
139:22 140:13
140:19 141:16
165:19 169:17
170:5
wrap 5:6 85:9
wrapping 189:11
writing 29:10,16
written 29:2i
44:5,7 79:14

79:18
wrong 83:15,16 101:12 121:9 165:2
W-a-r-n-O-C-k 4:21
W-e-b-b-e-r 128:12

| $\frac{X}{X 108: 9}$ |
| :---: |

yeah 17:12 20:2
23:2 26:23
28:20 31:14
37:6 38:7
44:21 47:20
50:5 51:19
52:6 55:17,21
58:1 61:20
52:2 64:5,5,14
80:14 84:18
92:22 96:18
98:7 110:2 144:15 178:7
year 42:13 58:11
61:19 62:21
87:16
yearly $62: 6,17$
years 17:23
20:12 21:19
28:18 30:21
40:19 52:18
54:22 61:11,22
62:15,23 68:12
84:19 86:8،14
89:8،13 91:8
91:11 102:1
103:10,14,15
122:9 176:10
177:2 178:13
yesterday 109:22
$\frac{\mathbf{Z}}{\frac{Z}{2}}$

Zeigler 16:24
17:11 19:19
81:14
—
\$1,00071:23
\$1.129:18 53:5 \$10143:25
$\$ 10,00088: 20$
\$10071:23
143:24 144:20
\$110143:25
144:21
\$118,00029:19
\$132 74:2 108:12
\$150.00017:5
41:3,10 55:13
\$16145:4
\$16075:15
\$160.3175:16
\$177,00083:14 83:16
\$185,000 24:23
\$2 20:11 21:20
53:17 61:22
\$2,600108:14
$\$ 20,00041: 17$
\$25,00068:4
$\$ 300,00083: 6$
\$35 56:12
\$35.69145:1
\$4,00083:16
$\$ 400,00023: 1,6$
24:3,8,10 62:1
$\$ 448,00030: 6$
\$5 62:20
\$5,20074:3
108:13
\$50 62:23
\$50,000 83:14, 15
\$500 98:17
101:10
\$51.45145:2
\$600110:23
$\$ 68,00045: 8,11$ 45:14
\$680,00045:15 45:23
\$75,00062:14 \$750,00062:17
\$97103:3

| $\frac{0}{0}$ |
| :---: |
| $0319: 18$ |
| $0653: 1262: 14$ |
| $82: 18 \quad 83: 5$ |
| $0767: 24$ |
| $0859: 1,12,25$ |
| $08-45-T P-A R B 1: 5$ |
| $08-45-T P-A R P 4: 7$ |

08-45-TP-ARP 4:7
$\frac{1}{\overline{13: 17 \quad 9: 21 \quad 10: 2}}$
27:15 66:12,18
73:13 113:2,6
117:5,6,8
119:12,16
120:16,23
121:1,13 122:3
123:2 156:4
170:18 172:24
$1,102,00044: 12$
1.10244:10

1/262:8
1027:23 28:5
62:23 72:21
73:20 74:16, 16
77:21 78:2,3
85:15 108:7
144:2,20,23
176:10 177:2
188:23
1002:3 4:21
145:25 146:14
146:14 152:2
1011:22
1127:25 28:6,11
29:7 42:23
43:2 70:12
74:25 75:3
108:7 147:9
163:23 175:4
11-G1:13
113 3:17 147:14
114 3:12,18
1153:20
1163:12,21,23
12 39:18 170:15
174:18
12/7163:20
126 12:6 21:13
13 60:15 74:25
75:3.13 118:5
126:9 147:16
152:8
13th 60:17
1439:19 77:23
125:25 156:4
160:15 175:8,9
140145:19
144145:19, 24
$146: 1,5,11,13$
146:16 148:2,3
148148:4,4
$1536: 12$ 60:16
122:9 160:14
161:8 176:10
15th 14:20 60:17
60:17,18 89:4
15.00041: 17

15-day 82:4
1651:16 118:4,5 126:14 175:18
16th 14:22 15:6
16,000 130:20
17174: 6
17th 6:2 14:22 15: 6
1860:1 86:5 126:13 179:3
18th 14:20 51:15 58:13 60:18

18,00068:16,17
69:18،20,23,24
70:1
1801:13
1813:13
184 3:13
1851:22
1863:14
1986:5,5 87:9 87:10
19th 14:21 50:22 50:24 51:15
1973:18,20,21 3:23
199089:4
19961:7 4:9 152:24 153:4 153:12 177:13
199889:7
2

23:18 12:12 36:11 72:18,20
72:21,24 73:1
$73: 6,7,13,14$
73:17 76:18
93: 8, 14, 15
98:19 101:9
114:23 115:13
115:18 117:2
117:16 151:12
152:8 163:18
172:5 189:23
2A 3:20 115:22 115:23 151:1 189:23 190:13
2/5 136:13,15
2028:1 72:21 74:3,4,9,20 87:9,11 139:17 139:17,19 177:2
20th 115:25
116: 8
200,00022:19
2000 19:17 42:13 42:14 53:1,14
200129:18
$200532: 17 \quad 33: 2$ 33:3,9,21 35:7 67:17
2007 87:17
20081:15 4:2 53:1 59:22 116:8 192:4
2011192:11
21137:10 173:22 174:1,6
2268:3

223-94811:23
224-57241:24
224-94811:23
23 171:20
23rd42:14 66:1
24129:15
24th 8:19 113:5
115:19 117:3
24,000130:15
252 (b) 1:7 4:9
260,00053:12
27133:23 136:10
281:15 4:2
39:19 65:25
136:21 170:17
170:18 192:4
28th 65:17,17,18 66:2
2919:12
$\begin{array}{r}3 \\ \hline 3 \text { 3:21. } 9.18\end{array}$
33:21 9:18
36:11 58:12,22
59:1,12,22,25
72:18,20,22,24
73:7,7 78:16
79:1,2 93:16
116:1,2,4
119:8,11,16
120:16 121:1,3
121:12,19
122:2 123:1,25
125:11 136:22
151:4,9 163:9
164:1 172:5,24
174:22 189:23
3A 3:23 116:2,5
151:2 189:23
190:13
3rd 6:2 14:10,12
14:15,18,24
51:13,14 58:16
58:20 60:17
75:22,23
3*93:17
3010:14 17:4
20:7 21:16
23:5, 9, 10, 11
23:13 24:5
25:23 26:2,3
36:9 41:3,10
48:22 51:10,21
51:25 52:4,7
52:12, 12 55:13
58:6 105:9.11
105:18 141:2
30th 65:23,25
30-day 51:17
32144:24 188:25



[^0]:    1

