Docket No. SA-534

Exhibit No. 2-BT

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

INTERVIEW OF GEORGE KARKAZIS, PG&E
(JAN-3-2011)

(53 Pages)

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*	
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PACIFIC GAS & ELECTRIC COMPANY	*	
SEPTEMBER 29, 2010 ACCIDENT	*	
SAN BRUNO, CALIFORNIA	*	Docket No.: DCA-10-MP-008
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Interview of: GEORGE KARKAZIS

Marriott Hotel
San Francisco Airport
1800 Bayshore Highway
Burlingame, California 94010

Monday,
January 3, 2011

The above-captioned matter convened, pursuant to notice.

BEFORE: RAVINDRA CHHATRE
Investigator-in-Charge

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I N D E X

I N T E R V I E W

MR. CHHATRE: On the record.

Good afternoon, everyone. Today is Monday, January 3, 2011. We are currently in Burlingame, California in the San Francisco Airport Marriott. We are meeting in regards to the investigation of the Pipeline Rupture in San Bruno, California that occurred on September 9, 2010. The NTSB Accident Number for this investigation is DCA-10-MP-008.

My name is Ravi Chhatre, I'm with National Transportation Safety Board in Washington, D.C. and I'm lead investigator in charge of this accident.

I would like to start by notifying everyone present in this room that this interview is being recorded for transcription at a later date. All parties will have a chance to review the transcript when they are completed.

Also, I would like to inform Mr. Karkazis that --

MR. KARKAZIS: Karkazis.

MR. CHHATRE: Karkazis, that you are permitted to have one person present with you during your interview. That person of your choice (sic); it can be a supervisor, a friend, a family member, or if you choose, no one at all.

So please state for the record your full name, spelling of your name, contact information like e-mail, phone number and also mailing address and whom you have chosen to be with you during your interview.

MR. KARKAZIS: Okay, I've chosen counsel, Dane, here to be with me. My name is George Karkazis, G-E-O-R-G-E, Karkazis, K-A-R-K-A-Z-I-S. My e-mail address is _____

MR. CHHATRE: Thank you.

Now I would like to go around the room and have each person introduce themselves. Please state your name, spelling, title and organization that you represent, a business e-mail and phone number.

MR. CALDWELL: Geoff Caldwell, City of San Bruno. All my information's on that business card that you have.

MR. DAUBIN: Brian Daubin, PG&E. Also, too submitted a business card.

MR. FASSETT: Bob Fassett, PG&E, PG&E's representative for the NTSB investigation. All the rest of my information's on the business card I submitted.

MS. FABRY: Klara Fabry, San Bruno. You have all of the information on the card.

MR. SHORI: Sunil Shori, California Public Utilities Commission. All of my information is on the card.

MR. KATCHMAR: Peter Katchmar, U.S. DOT Pipeline Hazardous Material Safety Administration (PHMSA), and I'm on record.

MR. GUNTHER: Karl Gunther, Operations Group Chairman. karl.gunther@ntsb.gov. Phone (202) 314-6478.

MS. MAZZANTI: Debbie Mazzanti, M-A-Z-Z-A-N-T-I, from the International Brotherhood of Electrical Workers, Local 1245.

MR. NICHOLSON: Matthew Nicholson, NTSB. M-A-T-T-H-E-W N-I-C-H-O-L-S-O-N. matthew.nicholson@ntsb.gov.

MR. CHHATRE: Ravindra Chhatre, I'm with National Transportation Safety Board. The spelling is R-A-V-I-N-D-R-A, last name Chhatre, C-H-H-A-T-R-E. E-mail is ravindra.chhatre@ntsb.gov. Phone (202) 314-6644.

MR. NARVELL: Rick Narvell, N-A-R-V-E-L-L, Human Performance Group Chair, NTSB, Washington, D.C. e-mail is narvelr@ntsb.gov. Phone is (202) 314-6422.

MR. JAQUES: Dane Jaques on behalf of the witness and all of my information's on the card that's already been provided.

MR. SPERRY: Joshua Sperry with Engineers and Scientists of California, Local 20, IFPTE, my information's on the card.

MR. CHHATRE: Okay. I have repeated it many times but I'll repeat it one more time. The interview is being recorded, there's no court reporter so any time you speak please identify yourself first. Any acronyms please spell it for the transcriber. And any word that you think it is difficult to understand spell it, please.

Karl, you ready?

INTERVIEW OF GEORGE KARKAZIS

MR. GUNTHER: Yeah, Karl Gunther, Operations Group Chair.

BY MR. GUNTHER:

Q. I would first like to ask your job title and affiliation.

A. My job title is supervising gas engineer with Pacific Gas and Electric Company in the pipeline engineering group.

Q. Okay. And how about your professional credentials?

A. I’m --

Q. Training?

A. -- a professional engineer registered in the State of California in mechanical engineering.

Q. Okay. And let’s see begin with, you were the supervisor of the visual examination in the camera Line 132; is that correct?

A. That's correct.

Q. What were your duties and what did you find? Just describe what, you know, what you did?

A. Well, my duties were to put together a team, work together with an internal PG&E team and an outside contractor to provide a camera so that we can insert into the pipeline and view what was inside the pipeline.

Q. Did you assist in preparing a report?

A. I did.

Q. Okay.

A. I -- excuse me, are you referring to the report that was submitted the PUC and the NTSB?

Q. Yes.

A. Yes.

Q. Let’s see, based on what you’ve done and what you found out, are you looking at any additional testing?

A. I personally am not unless I’m directed to.

Q. Okay. Well, again, I guess are you all contemplating hydrostatic testing of Line 132?

A. I don’t know that.

Q. Okay.

MR. GUNTHER: All right, I’ll go to move -- pass it on to City of San Bruno.

MR. CALDWELL: Geoff Caldwell, no questions at this time.

MR. DAUBIN: Brian Daubin, PG&E, no questions at this time.

MR. FASSETT: Bob Fassett, PG&E, no questions at this time.

MS. FABRY: Klara Fabry, San Bruno, no question at this time.

MR. SHORI: Sunil Shori, California PUC.

BY MR. SHORI:

Q. During -- based on what you’ve seen on Line 132 have you identified any other locations of concern that you’re aware of on Line 132 that are being contemplated for camera examination for visual examination?

A. So as you know, we evaluated the 132 between the

mainline valves and we saw the majority of the pipeline, albeit approximately just short of 800 feet, and so there's -- everything has been recorded and so there's no further plan to do any further camera work in that section of pipeline at 132.

Q. On the locations where liquids were found on 132 on the camera visuals --

A. Um-hmm.

Q. -- were those liquids removed?

A We attempted to remove them based on the work plan that we had for that day and the constraints that we were working under. We were not that successful in removing them.

Q. How many locations did you identify liquids at?

A. The majority of the liquids was contained in the section between Catalpa and Healy Station. Majority of it being at -- in Rolling Wood; the crossing of Rolling Wood Street.

MR. SHORI: I think I'll pass for now. Thank you.

MR. KATCHMAR: George, Peter Katchmar with Pipeline Hazardous Material Safety Administration, U.S. DOT.

BY MR. KATCHMAR:

Q. We understand that you saw some short spools in your -- while you were looking in your camera, you know, running your camera here; is that correct?

A. Well, yeah, we saw some short spools prior to -- mainly but to tie-in pieces, you know, as is typical.

Q. Say again?

A. Mainly prior to tie-in pieces or fittings. Typically the practice, common practice is to spool an elbow or a reducer with a spool of pipe, so we did see some there.

Q. Okay. Are you familiar with the pipe that included what they cut out and sent back to the NTSB how there were five little sections of three-foot six or three-foot nine inch long pups, like five or six of them in a row?

A. I didn’t see it but I’ve heard about it, yeah.

Q. Okay. Did you see anything like that? I understand at a tie-in you have to cut the pipe to whatever you have to cut the pipe to.

A Yeah.

Q. But this was actually, you know, little pups, just one after the other.

A. Did not see anything like that.

Q. Oh, all right, good. I’m sorry, I thought that’s what I had heard. We saw in the report that there was some black spots near girth welds; do you remember seeing those?

A. Yeah, I do remember seeing some.

Q. Do you have an opinion as to what those are?

A. I don’t know what they were. We focused in on them, they’re on the DVD for viewing. I couldn’t tell you what it is.

Q. Okay. Do you have an opinion on what method the girth welding process was?

A. From the inside I couldn't tell you.

Q. Okay. Do you have a opinion on the quality of the long seams from what you saw on the inside?

A. From what I saw of the long seams it looked like what I would expect of typical DSAW pipe.

Q. Okay.

A. It was very evident that the majority of the long seams in the pipe that we viewed was your typical well-defined crown a DSAW weld.

Q. Okay. And how about an opinion on the quality of the girth welds from the inside?

A. DSAW is double submerged arc weld.

MR. CHHATRE: Off the record, please.

(Off the record.)

MR. CHHATRE: Back on the record.

THE WITNESS: Your question was do I have an opinion --

BY MR. KATCHMAR:

Q. The quality --

A. On the quality of the girth welds?

Q. Yeah, from the inside.

A. No, I haven’t viewed a lot of internal girth welds.

Q. Okay.

A. So I couldn’t tell you if it’s --

Q. Do you recollect seeing any stenciling on the inside of the pipe?

A. Yes, I do.

Q. And could you -- do you remember what it said?
A. It said a lot of things. I mean --
Q. Was it, you know, like a manufacturing type or --
A. No, it was typically a series of numbers. It ranged from a three to four digit number with a -12 -30 was the majority of them. And then underneath that was a four digit number with a -- to decimal places, so 31.21 or -- I saw a lot of that. And then some other variations of that. Some other design --
Q. Do you know what that might have been?
A. Well, when we looked at it I didn't know what it would have been other than -- but we did find some records that indicated that that is a shipping designation. The first number being a unique serial number, the second number being -12 was, I believe, stood for 12/32, which is a 375 wall, and -30 meaning the OD. And then the bottom number was the footage of that joint; joint being girth weld to girth weld. Wherever we saw those we wrote them down and -- so we do have records of that.
Q. I saw them on this --
A. And at the time --
Q. -- report.
A. -- we didn't know the significance of them but we wanted, since we were there we wanted to write down whatever we saw.
Q. Sure.
A. You know, we weren't sure where we were going with this

so. And the camera focused long enough so that one can go back and see what we saw.

Q. Okay. And in your recollection, all the anomalous situations that you saw were logged on this report?

A. Yes.

Q. Okay.

MR. KATCHMAR: All right, thank you, sir.

BY MR. GUNTHER:

Q. When saw pups, did you see any together? And why I say "pup," I say a length of pipe say less than six feet; did you see more than one together?

A. I would have to go back and look at the -- we did log the pipe segments and the girth welds and footages between the girth welds so it’s easy to go back to the report and look. So I don’t want to quote from memory, I would really have to go back and really look at that to --

Q. Okay.

A. -- to answer that.

Q. Like I said, I was just curious 'cause the one piece we have there’s six of them all together.

A. Yeah. And I -- that would have been something that would have stood out to us and I --

Q. Yeah.

A. It’s pretty much safe to say that that wasn’t the case.

Q. Okay.

MR. GUNTHER: That's all I have.
MS. MAZZANTI: No questions.
MR. SPERRY: No questions.
MR. NICHOLSON: No questions.
MR. CHHATRE: Ravi Chhatre, NTSB.
BY MR. CHHATRE:
Q. On this inspection how familiar are you on the --
A. I wasn't familiar with it at all till it showed up. Until what I read in the specifications.
Q. So what is the contractor supposed to do for you?
A. He's supposed to provide the equipment, operate it, insert it into the pipe and operate it, steer it, take direction on us of what to look at, what to focus in on and to produce the DVDs that we can have afterwards. That was their responsibility.
Q. Now, who did the interpretation of what you are seeing the DVDs did? Did you review the inspection?
A. Right. Well, we put together a team of David Gear, who you just spoke with. We also had another welding engineer from our ATS organization.
Q. Can you tell us what "ATS" is?
A. Applied Technological Services. I got that right? And it's a PG&E group and they do a lot of our research group and research work, so we had a welding engineer from there. We also had a technician that was there that helped. We -- as we were doing this we thought it was a good idea to make backup DVDs in

case something went wrong with the contractor's DVDs, we would have a backup set, so we had a dual feed -- a split feed in from the controller of the ROV or the remote operated vehicle, which was the contractor's DVD, to our trailer and so we had a split feed so we were also making copies of the DVDs, as well; the same thing that they were seeing. And so we had a technician that was concentrating and focusing on that. And we also had communication between the two vehicles so if one saw something that they other didn't see we would communicate back and forth, "Hey, stop here, let's look at this. Let's zoom in on that. Hey, I saw that. What do you think of this?" And that's how it went.

Q. I'm sorry, what do you mean by two vehicles? Are you talking about the locations where you were sitting? Are there two probes going into the pipe?

A. No, there's one probe going into the pipe, that's the camera. It's a four-track unit, it articulates in the middle, has a camera on the front that looks forward, has a camera on the back so that when you're pulling it out you can see that you're not running over the tether. It's a tethered unit. It's operated from a trailer that the contractor provides and that's one of the units. He's got a computer that operates it. We had a feed -- split feed from that vehicle to a PG&E bread truck, that we call, that has its own screen. We had our PG&E guys, aside from David Gear who sat next to the ROV operator, and then we had a PG&E and ATS in a separate vehicle.

Q. You're talking about -- offices --

A. Yeah, a little redundancy there to help for -- we wanted to -- we had one shot at this, we didn't want to -- wanted to make sure it was most productive.

Q. Who was the welding engineer for you to contact?

A. It was Alex Gutierrez was a welding engineer. He wasn't there the entire time but he was there for a few of the assessments.

Q. Can you spell the name?

A. Alex, A-L-E-X.

Q. Last name.

A. Gutierrez, G-U, either one "T" or two "T's," E-I-R-R-E-Z. I might have that wrong, but --

Q. That's okay, gives something to start with.

A. Yeah.

Q. Now, you said he wasn't there all the time; what are his purpose?

A. Same thing. Well, as I say, another set of eyes.

Q. Okay.

A. Another set of eyes.

Q. And was Mr. Gear there all the time?

A. Yes, he was.

Q. Now, I just need some clarification here and I understand people are talking approximate numbers. Did you mention about 800 feet of pipe you inspected? So I'm just kind of

trying to get --

A. He said what?

Q. (Inaudible) roughly. I'm just trying to have -- get a number --

A. Okay.

Q. -- which is -- which is more correct.

A. Okay. Well, the -- we'll start big but the at the mile points of southern station is 38.49.

Q. Okay.

A. And the mile point of the northern station is 40.05. In one section we viewed from the southern station and then from the next assessment point we traveled towards each other and missed about 139 feet of pipe, 1961 pipe. So that's 139 feet that we didn't see out of that 1½, 1.56 miles.

Q. Right.

A. Then there was another -- same type of situation where we head off from Glenview and Earl, we headed North with the ROV and then we came from the other direction at Catalpa coming down and we missed approximately 594 feet of 1994 pipe. So we didn't pursue seeing the 1994 pipe; we pretty much knew what we were going to see.

Q. Okay.

A. And we were able to poke the camera in to both ends of that 1994 pipe.

Q. There's more than 1½ miles, I guess.

A. Yeah.
Q. It's almost like three miles?
A. Right. All but about 800, whatever --
Q. Right.
A. 594, 139.
Q. Would that be on either side of the rupture, like -- two miles?
A. We got, from the rupture site we saw all of segment 180 to the South and to the North.
Q. Okay. And this was -- besides that additional mileage will be for the other pipe, is also 30-inch?
A. Um-hmm.
Q. Okay. Same vintage?
A. I take that back. When we started as San Andres stations it's 24 inch. It was installed in, oh man, I'm not going to guess but it was later vintage. It was, I think it was in the '80s.
Q. Okay.
A. Yeah.
Q. Much newer pipe later --
A. Yeah.
Q. -- later than 1948?
A. Right.
Q. Okay. I see.
A. Exactly.

Q. Now, the camera, does it have -- does the camera have any limitations about the pipe diameter below which you cannot pass it?

A. Yeah, well the camera -- the camera's one thing. The camera's a small piece and the ROV with the tracks is the major thing and that can fit into anything 12" and above.

Q. Okay. Now for this -- for this inspection who were the requestor of the work by you?

A. The work was requested by Bob.

Q. And what did the request ask you to do?

A. We were asked to put a team together to see if we can get -- take a look inside the pipe to look for the existence of a weld on the inside of the pipe.

Q. Okay. And were you asked -- I guess, identify the weld or that was done on your own?

A. To the extent that we could we -- if we found a weld, which we did, we tried to identify it.

Q. And how did you do that?

A. Well, this is all visual. It's a high def camera so what we did was we stopped at each weld we found where the long seam or we felt the long seam was, we zoomed in on it and if you look at the videos you'll see a pretty high definition shot of the -- what appears to be a DSAW internal weld. And it was pretty evident to us.

Q. You could see the crown on the inside of the joint or

was there any area that you did not see the crown?

A. We saw the crown on the joint. It was -- the only areas that we didn't see the crown was sometimes at the very ends where it looked like it was ground down or --

Q. Okay.

A. -- not there.

Q. And do you know who might have done the grinding or was it standard for all the pipe inspections you did?

A. I have no idea who had done the grinding. It could have been done in the factory or done in the field. I have no idea.

Q. Is that something you would expect in the DSAW pipe joint?

A. I'm not an expert on that but I -- I think so that you would see that.

Q. And can you elaborate further as to why you would expect that?

A. I would rather not, I just would be speculating.

Q. Okay. So not all the, I guess, the pipe joint, I'm not talking the pups, I'm not talking about the small pipe sections, but all the pipe joints, standard -- what the pipe lengths may be, you say some of them were ground or some of them were not ground?

A. We're talking at the very last end before the girth weld, some of them.

Q. So some of the joints were not ground?

A. Correct.

Q. But majority were ground?

A. Correct.

Q. Do you recall approximate distance from the edge -- ground?

A. Approximately four -- four to seven inches. Yeah.

Q. Did you encounter any difficulties doing this process of inspection?

A. Well, encountered difficulties with traveling as far as we wanted to travel with the camera. The camera itself has specifications that it can do -- the tethered length itself is 6500 feet. And so we anticipated that we were going to able (sic) view this entire mile and a half by going from the southern station, the rupture site is approximately in the middle of these two mainline valves, so we envisioned that, at first naively so that we could view all the way, all 4,000 feet from one side, come from the north side and go south to 4,000 feet and see it all. We quickly learned that that wasn't going to happen because the amount of -- each time you go through an angle you increase the friction on the tether and it -- that -- and plus the whatever residual moisture or liquid is on the pipe you lose traction on the ROV and it stopped.

So we have various lengths of travel as you see in the report and it basically caused us to go find another hole to dig and go through the process of -- with the City to try and get another permit to dig another hole in another location. So that's

what -- that was probably our major issue.

Q. And so at these locations how did you insert the camera in that location that you dug up?

A. We removed the piece of pipe. We dug and exposed the pipe. We cut out a piece of pipe and the smallest was about four feet to be able to get the right pulley in there and to get the alignment so that the tethers will get smoothly inserted into the pipeline and the way we went; we usually went both -- we picked a spot where we can go both directions to maximize the use of that hole.

Q. Do you recall how many of those may be, number wise how many holes you dug up? How many piece of pipe you pulled?

A. Yes. So the -- you start at the southern section, we removed a piece of pipe there where we removed a pipe at the San Andres station. We then put a -- the rupture was automatically a place where we removed the caps and used those two access point. Catalpa Way, the basketball court area as it might be formerly known, is -- was another location. And then Rolling Wood Drive was the other location. So --

Q. Four.

A. Four, including the rupture site, yeah.

Q. Now --

A. Oh, I’m sorry, and then there’s Healy station, that was the northern station where we inserted, tried to go up. That was too steep, we only got 110 feet at that location.

Q. Is that information in the report? I haven't read it.
A. That information's in the report.
Q. Now, what did the team do when you cut the pipe out? Did -- any additional inspection was done of the section of pipe?
A. Our primary purpose was to get the camera in and do a -- and to do our inspections. That was -- we were under the gun with time, daylight, customer impacts, working with the City. Each day we had police there wanting videos before we left, they wanted to have that in their hands. So we were very focused and felt a lot of pressure to get the work done. And then to put the pipeline back in service, so to speak, and not operational but back in service for --

We removed the pipe. We hauled the pipe to the San Carlos facility where it's locked up, so the pieces of pipe are there. We performed what we would do -- call a Standard Form A or maintenance form, and so, you know, wall thickness, measurements, classic stuff on the Form A.

Q. Okay. And what other form were review besides wall thickness?
A. A lot of data, physical data, the conditioning of the coating, the depth of the pipe, again wall thickness would be UT.
Q. Is that information in the report?
A. That's not in the report. It was -- it was -- no, it's not in the report.
Q. Okay. And you said the pipe is stored at which

location?

A. It's in -- we brought it to the San Carlos yard in one of the cargo containers.

Q. And I know it has been couple of months since the inspection was done.

A. Yeah.

Q. Has any additional work been done on those small sections that you removed; five of those?

A. I can't think of any.

Q. The reason I ask is because the mission was to look for the weld seams and kind of quantify.

A. Um-hmm.

Q. We have your pieces here outside, you can visually -- look without camera at both sides --

A. Um-hmm.

Q. -- and I was wondering whether there were any effort made to match what you saw with what you're seeing in the camera?

A. Well, when we cut it out, cut the piece out it was very evident by looking at it that you saw what appears to be a DSAW seam. We didn't do any other work other than that. Yeah. We didn't feel any was -- any was necessary.

Q. All right.

A. But that's why we save the pipe, so --

Q. Okay. Pipe has been saved.

MR. CHHATRE: Can I ask PG&E just to save that, hold

onto that even if you're not planning anything and -- I mean you have no plans right now but depending upon what MetLife finds out with that one piece you have sent us?

MR. FASSETT: Yeah, my understanding is it's in a claims locker, so it's secure.

MR. CHHATRE: And I just want to make sure because I was not aware of that and if you guys are (indiscernible) you're using some other place or just rid of it, so I just want to make sure just don't get rid of it. I don't want it right now.

MR. FASSETT: Do you have Brian -- why don't you clarify what you were saying. This is Brian Daubin.

MR. DAUBIN: Brian Daubin with PG&E. We sent the information in a data request to NTSB and CPUC on what the camera operations would be and we specified in there that that -- those sections of pipe were being removed through permits with the City and that we would be retaining that pipe until further notice from the NTSB.

MR. CHHATRE: Oh, I by no means I mean to imply that you didn't tell us.

MR. DAUBIN: No, no.

MR. CHHATRE: I just said I was not aware of it.

MR. DAUBIN: My point being is that we had planned all along to hold that pipe until such time as we're notified as --

MR. CHHATRE: Great.

MR. DAUBIN: -- we're given the okay to do what we want.

MR. CHHATRE: Thank you. Just hold on to it until we tell you to.

MR. DAUBIN: Yeah.

MR. CHHATRE: I have no plans right now. It all depends upon what Don finds out.

MR. DAUBIN: I agree.

BY MR. CHHATRE:

Q. Are you planning any further inspection using this similar camera technology at the locations?

A. If I'm directed to do that then I would. But if --

Q. But you're not aware of any pending request?

A. No.

Q. Have you done any inspections like this, not necessarily with this camera, but that -- other gas pipes, transmission lines?

A. Me personally? No.

Q. Do you know anybody else that might have done that?

A. I don't have specific information of that.

Q. Okay.

A. But I believe in the past we have done some work at PG&E years ago with a different type of unit.

MR. SHORI: Point of clarification?

MR. CHHATRE: Sure.

MR. SHORI: Sunil Shori. Are you asking if the camera's been used in -- on other locations, other pipe?

MR. CHHATRE: No, I'm asking --

MR. SHORI: This particular camera?

MR. CHHATRE: -- other inspections using some different technique.

BY MR. CHHATRE:

Q. Now, you probably answered this, if you answered it bear with me and please answer again, what is your job description? What are you responsible for?

A Right know I'm a supervising gas engineer. I supervise three other pipeline engineers.

Q. Okay.

A. As pipeline engineers we're responsible for a geographic area of transmission pipeline. And we are basically the maintenance engineers. We design, engineer (indiscernible) project management through construction gas transmission pipelines.

Q. So responsibility -- so you guys are involved in repairs, maintenance or new construction or all of the above?

A. All the above.

Q. Now, when you do any repair of -- replacement or new construction -- new construction is out of the question right now for this question but for repair and replacement, do you -- the drawings prepared by PG&E, I forget the term for it, the computer aided drawings? How do you know where to dig and what --

A. Can you --

Q. If you don't understand -- repeat it?

A. Yeah, please repeat --
Q. Yeah.
A. -- and ask in a little more detail.
Q. What I'm trying to find out is, and maybe Bob you can help me on this one, there's a department, design and drafting (indiscernible)?
A. Um-hmm.
Q. That has all the class of drawings of different locations of pipelines, telling what the pipe diameter (indiscernible) welds, weld locations. In your responsibilities do you have to use those in repair of --
A. Oh, yeah, we use a number of different --
Q. Have you seen any discrepancies in what the drawing shows and what they actually find in the --
A. You know, I -- I can't think of any off the top of my head, you know, other than the discrepancies we found through this research.
Q. Now, if you find discrepancies since you don't recall whether you have or have not -
A. Right.
Q. -- what is your next step?
A. Next step would be to document what I found and to send it off to our mapping department to get it changed and then make sure it gets changed in the system so that it's updated.
Q. And how do you make sure it got changed?

A. Well, typically we -- you know, we communicate with an e-mail documenting, you know, what the change is, what we found, what it should be and send that off to our mapping department and we communication back and forth until the change is made. And usually they call me back for clarification, you know.

Q. And that's that?

A. That's that.

Q. Have you done any work, and I don't know how long -- how many years you have been with PG&E, but during your tenure PG&E have you done any repair requested work on Line 132?

A. No.

Q. Have you seen in any of the transmissions line in PG&E a discrepancy like this where it's a seamless pipe versus a welded pipe?

A. I haven't run across anything like that that I can remember.

Q. Have you seen any discrepancy in the seam identification in the transmission lines, again, in the PG&E system?

A. I think -- I think I have found a discrepancy, yes.

Q. And what that location would be?

A. On Line 123.

Q. What kind of discrepancy?

A. It was more about the grade of the pipe. It was about the grade of the pipe that was -- a value in there that wasn't correct.

Q. Okay. You mean like 8/52, 8/42 (ph) or --
A. Yes.
Q. Okay.
A. Yes.
Q. And do you remember the size of that line?
A. It’s 12 inch.
Q. And was it pre-1970 or was it --
A. It was pre-1970.
Q. Pre-1970. And how did you correct the record in your drafting? In that work?
A. The same thing.
Q. Same thing.
A. Yeah, just communicated it with an e-mail to --
Q. And you got confirmation that the record had --
A. Um-hmm.
Q. Any anomalies with the valves and fittings that -- location wise? I mean, the drawings show there’s a fitting and a line there but the drawing doesn’t show a fitting in this one?
A. You know, I can’t say for sure.
Q. Okay.
A. I mean, I --
Q. That’s fine.
A. There’s a good possibility that that might happen but I just can’t put my finger on it right now.
Q. Right. Okay.

A. I've been doing this for -- this job for 15 plus years.
Q. Okay. So you're not saying it's not there, you're not saying it may be there (indiscernible); is that correct? (Inaudible)?
A. Something like that.
Q. Okay. Now, the drafting department keeps, I guess, the drawings up to date; who keep the record of the pipelines? When they're ordered, who the manufacturer was, what the heat analysis is? Is that your department, your responsibility?
A. The first part of your question was --
Q. The draft --
A. I missed the first part.
Q. From what I understand the drafting department, you see an error, they correct it, these drawings?
A. Right.
Q. My question is for the older pipelines and new lines, who is the record keeper for the pipeline's information like heat analysis, the supplier, the manufacturer, the process?
A. I don't -- some -- I mean the newer process, it's in our vendor quality control reports. Our inspection reports. They keep that information. Any other information we get when the job goes into the job folder it gets filed in our records department.
Q. That goes in the records department?
A. Yes.
Q. And how's that -- okay, it's not your jurisdiction then?

A. No.
Q. What was your job description --
UNIDENTIFIED SPEAKER: No? Was -- I'm sorry, was that a "No"?
THE WITNESS: That was a no, sorry.
BY MR. CHHATRE:
Q. What was your job description at the time of the accident? I think you said your job right now is such and such; I'm just trying to find out have you changed your job since the accident?
A. Yeah. Yes. A little confusing. I was -- just ending a rotation as a gas M&C superintendant.
Q. What does M&C stand for?
A. Maintenance and construction.
Q. Okay.
A. And I was officially still on that rotation from my base job as the supervising gas engineer. And I was kind of in transition to ending the rotation and maybe continuing it to the end of the year. When the incident happened I was to come off of that rotation and came into Walnut Creek to help them any way I could.
Q. So bear with me.
A. Um-hmm.
Q. You were on the rotation gas M&C; which location was that?

A. I was in Auburn. It was for Sierra and North Valley --
Q. Okay. And before that rotation what was your position? Or you were already supervisor?
A. Supervising gas engineer, pipeline engineering group.
Q. And would that include Line 132?
A. No. It's located in (indiscernible); mostly Sierra division, North Valley division, Sacramento division.
Q. And now you're current responsibilities; would that involve 132?
A. No.
Q. So right now you're just helping on this project?
A. Correct.
MR. CHHATRE: That's all for me. Thanks.
UNIDENTIFIED SPEAKER: No questions for --
MR. CHHATRE: Any follow-up questions?
MR. CALDWELL: None.
MR. DAUBIN: No --
MR. FASSETT: Bob Fassett, PG&E.
BY MR. FASSETT:
Q. A little clarification on the video. I think you mentioned that it's a high resolution camera. It's a digital camera; is that correct?
A. I think so.
Q. Okay. My understanding was with the video that was provided you can, kind of, post process if you -- the software has

the ability to zoom in again on the weld if that's what you wanted to do or look at the pipe or is it just fixed at whatever it saw?

A. I think it's fixed at whatever we saw and we can zoom in on the screen to the extent but we're not actually altering the image.

Q. All right. But because it's high resolution when you zoom in you still things; it doesn't all go grainy on you?

A. Oh, correct.

Q. Okay.

A. Correct.

Q. Thank you.

MS. FABRY: No questions.

MR. CHHATRE: Any questions?

MR. SHORI: No questions.

MR. KATCHMAR: I've got a couple of questions.

BY MR. KATCHMAR:

Q. That one thing you were talking about on Line 132, that discrepancy for -- on the SMYS --

A. Uh-huh.

Q. -- how did you -- what was that? How would you find that?

A. We went looking for purchase orders of the pipe and found out that it was purchased on bulk, it was a bulk order that was purchased for a couple other pipelines, as well as this pipeline. And the assumptions that were in our GIS record were

very conservative and so we went and did further investigation and looking and found the purchase order that had the actual description of the pipe itself with the grade. And so I believe at the time it was 33,000 yield strength and we found out that it was X42 or 42,000.

Q. Why would you not have -- why would you even have thought it was wrong, I guess is my question; you know what I'm saying? What made you think that there was a problem it this SMYS that you would -- that would force you to go look --

A. Well, there was a lot of development in the area, we wanted to make sure it was operating within the proper class location and it had the proper limitations on strength, on SMYS, and so 33,000 was pretty conservative and I can't remember if it was over a class 3 or not, but we definitely wanted to find out if this was commensurate with the class locations so it warranted further investigation.

Q. Okay. Is this something that you -- or you did, I guess, routinely on areas where there's a class location?

A. Um-hmm.

Q. Okay. On page 339 of your report here there's a -- there's a -- it says "Tie-in sleeve at girth weld number 50, split seam in sleeve entering GIS segment 183. Dent at 1189, 10:00 position." Do you know -- does that ring a bell to you or you want to see it?

A. I would have to see it and look at my report and look at

my notes, as well, to -- I mean, we wrote a lot of things like that and saw a lot of pipe.

Q. Okay.

A. But what's your question about it?

Q. I guess my question is, is this dent sleeved? I mean, you can see it, I don't understand it because --

A. Is there a picture associated with it?

Q. There is.

MR. KATCHMAR: Send that over there.

MR. FASSETT: Please.

MR. KATCHMAR: Looks like a fairly significant dent.

(Pause.)

MR. CHHATRE: Please identify yourself.

MR. DAUBIN: Brian Daubin.

(Pause.)

BY MR. KATCHMAR:

Q. So I guess my question is you mention the sleeve there; how are you going to see a sleeve from the inside of the pipe that covers a dent, I guess, if that's in fact what you're saying there?

A. That's not what I -- what I'm saying is the -- the sleeve itself that you can see is at 1183.5 tether distance. And you can see it's a -- it's typical of a wedding band type sleeve where you can see the heat tint on the inside of the pipe for the weld -- exterior weld, the fill-it weld on the outside of the

sleeve. And then back then they didn't bother to make clean butt welds, they -- there was a gap in the pipe and then they sleeved it on both sides. So you can typically on these sleeves if you zoomed out and if we looked at the video itself, you want to look at the actual disc, you would probably see --

You can see on the first picture, you can see this heat tint here and then you can see the heat tint of the long sleeve weld on the sleeve. And then over here you would see another heat temp on the other side of the gap where it -- which mean -- they call them wedding band sleeves.

This dent is at 1188.7, it's further away. It's just in the vicinity of the sleeve is what we were trying to say. That dent itself I didn't -- I don't indicate that it had been sleeved. This would be something that we would want to dig up if we were to put the pipeline back in service.

We didn't do any further work on it because it's in the -- it's out of service, it's in the right of way. I believe we found this on the Catalpa run, Catalpa going down or on property, steep hill. We would have to remove a lot of trees, impact more customers and the sensitive time, but it's noted as a -- if we were going to go back in service we're going to want to go look at this thing.

Q. Okay, thank you. And then I guess we found on page segment 54 there was a -- 54, 55, 56, and 57 there was a four-foot pup, a one-foot pup, a four-foot pup and a three-foot pup?

A. What -- what assessment run are you talking about?
Q. I don’t know.
A. Okay. So the best thing to do is each run we did is specific to -- you got to start with the assessment run and where we started from and then it might help me --
Q. Okay. And I’m not trying -- trying to --
A. No, I understand.
Q. -- trap you or anything. But you’ve kind of indicated that you didn’t remember seeing any bunch of little pups together, you know, four or five little pups together. It appears that there was a four-foot, a one-foot, a four-foot and three-foot and I guess, you know, I’ll be able to find it.
A. Was there any bends -- is there any bends in the vicinity of any of those?
Q. You know, there could have been.
A. Or reducing?
Q. There were also a couple of areas where you had actually added a scan of a piece of loose leaf paper that you had drawn on, drawn all the segments on?
A. Yeah, I didn’t draw that but --
Q. So whoever.
A. Right.
Q. It was in your report?
A. Um-hmm.
Q. And it will take me just a couple seconds here to find

it. Here they are, right here as a matter of fact. One is Catalpa Way to Earl Avenue, 28 to 50 -- 228 to 250, spool assembly drawing number 1. And then -- and then here's another one, spool assembly drawing number 2, 228 to 250. And it seems like there's a whole lot of -- lot of bends and --

A. Chunks of pipe.

Q. Is that -- is that not significant?

A. What are you referring to?

Q. I guess the large number of small pups put together. Would you have gone back and looked as the as-build drawings to see if that matched up to the as-build drawings?

A. No, we did not.

Yeah, this is -- this is at a tie-in, again. So what I think I said before was that around tie-ins and around reduced -- bends that we saw short pup sections leading up to it because there was either fittings or bends and this is a tie-in piece. And you can tell that by the evidence of the sleeves. Again, we talked about these wedding band sleeves; these indications are sleeves.

Q. Oh, okay.

A. So this was the actual tie-in piece from here to here was made up of a tie-in piece that was dropped in place.

Q. Are these girth welds?

A. Those vertical lines are girth welds, yeah.

And then any time you see this that was an indication of

the wedding band sleeve. You can see -- well, these are the actual notes, so -- but yeah, that's what that is.

Q. Okay.

A. And these are Dave's notes.

Q. Okay. But again, nobody went back yet and looked at the as-builds to see if they were -- if they matched this?

A. No.

Q. Okay.

A. Not to my knowledge.

Q. But even so, you know, I guess everything's marked DSAW so you -- you obviously saw --

A. Yeah, we spent a lot of time in trying to --

Q. -- seams.

A. -- make sure that each spool had -- that we can see evidence of an internal weld or not. That was our purpose.

Q. One second, I'll find this other one.

(Pause.)

All right, here. It starts, it says, "Tie-in sleeve at girth weld 54," and that's your four-foot pup. And then you've got a one-foot, 1302, 13-3. And then you've got another four-foot. And then a three-foot and it says, "Tie-in sleeve." Angle point left, double DSAW line segment in --

Then on this particular one, girth weld 55 at 1302 to 1303, the one-foot, you have a long seam position at two and a half and 830, like 230 and 830 both; what would that indicate?

A I can't see that from here.
Q. So is that like two long seams on the one-foot pup?
UNIDENTIFIED SPEAKER: Is there way to reference a page number you're looking at so when we go back --
MR. KATCHMAR: Yes, there is as a matter of fact. It's page number 189.
BY MR. KATCHMAR:
Q. That's the four-foot piece, tie-in sleeve at girth weld 54, so it's 189, 190, that's your one-foot piece with two long sleeves?
A. Um-hmm.
Q. And then 191 and 192, it's actually a three-foot piece?
A. Um-hmm.
Q. So can you explain that? What did we say, it's a three-foot, a one-foot -- a four-foot, a one-foot, a four-foot and a three-foot?
A. Um-hmm.
MR. JAQUES: What are you asking him to explain? It's documented there.
MR. KATCHMAR: Those short pups.
MR. JAQUES: But what's the question?
MR. KATCHMAR: Those -- explain those short pups, I guess.
MR. JAQUES: Okay.
MR. FASSETT: This is Bob Fassett. Other than what's

already written there?

BY MR. KATCHMAR:

Q. I don't understand why there's four -- a four-foot, a one-foot, a four-foot and a three-foot; if you could - try to explain that, I don't know.

A. I would be speculating why it's there but there's an angle point there, it's a tie-in piece, there's evidence of a saving valve which could have used for gas control during the tie-in. I would be speculating on why it's there. You know, I wasn't there during the construction so I -- I don't want to be vague but I --

Q. No, that's fine. I mean, we just asked you early on where, you know, and like I said, I'm not trying to catch you on anything but you know, we did ask are there any, that you identified as, you know, four or five pups together.

A. Yeah. And I can --

Q. And can you explain the two long seams at 230 and 830?

A. Other than there's two long seams at those orientations I can't explain it. It is on a angle point left, double DSAW, long seam and spool, so it could be a clamshell fitting. It's put together like a clamshell. A clamshell fitting was a -- I know that was a style of fitting that was produced.

Q. Oh, okay.

MR. GUNTHER: Weld over sleeves.

MR. FASSETT: I believe he's referring to the clamshell

segments, they weren't weld over sleeves, they were actually --

MR. GUNTHER: No, I say I've seen weld over sleeves make it that way.

MR. FASSETT: -- halves that were welded together.

BY MR. KATCHMAR:

Q. To make a pup or to make a pipe?

A. To make an angle.

MR. FASSETT: To make an angle.

MR. KATCHMAR: To make an angle, okay.

MR. GUNTHER: Generally manufactured that way.

THE WITNESS: So this is, I think this is what this is referring to, angle point left, double DSAW, long seam and spool.

MR. KATCHMAR: Okay.

THE WITNESS: We didn't, to our knowledge did not see a double DSAW in any straight pieces or pipe; it was always on a angle if we saw it like that or a reducer.

MR. KATCHMAR: Okay.

THE WITNESS: Yeah, reducers.

MR. KATCHMAR: I just had never seen it before, I figured I would ask.

THE WITNESS: Yeah.

MR. KATCHMAR: Thank you.

MR. CHHATRE: Any more questions?

UNIDENTIFIED SPEAKER: Just one follow-up.

BY UNIDENTIFIED SPEAKER:

Q. You're also involved with in terms of terms of looking at additional lines at this stage for -- in terms of what the Company has ordered, as far as any follow-up -- and so you said the one discrepancy you've seen in the grade of pipe was Line 123?

A. This -- finish your question, I guess.

Q. Yeah. So have you seen any other discrepancies besides Line 123 based on what you've done so far?

A. What I mentioned before, I believe the question was in the past, in my other job have I ever seen anything like that and that occurred maybe 10 years ago, I'm guessing, 7, 8 years ago. So are you asking me about since I've been involved in the --

Q. Yes.

A. -- investigation since the incident?

Q. Yes.

A. And the question again is?

Q. What discrepancies have you seen in terms of the visual observation? And again, you've run cameras on other lines at this stage.

A. I've run camera in one other section of pipeline in Line 101 down in Paolo Alto.

Q. And you saw a discrepancy there?

A. I did not see a discrepancy in what we expected to see as far as the seam in the pipe. What I saw was a discrepancy in the record that missed a segment of pipe that was done because of a hydro test where we put some go back pipe in after a hydro test,

that wasn't in our records but we saw the pipe with the camera and we saw that it was wire welded and we were able to go back and sure enough find the records of that pipe. So the records are -- our records are being adjusted to reflect that.

Q. So to confirm, to confirm some information then as far as that camera --

MR. DAUBIN: Brian Daubin, PG&E.

MR. JAQUES: Let him answer first.

MR. DAUBIN: I'm sorry. Thank you.

THE WITNESS: I missed the last part of that.

BY UNIDENTIFIED SPEAKER:

Q. Is to confirm some information or missing information, as far as the camera run?

A. The camera run produced something that we saw that caused us to go investigate further. We saw a piece of pipe that appeared to be back welded. When we looked at it we said, shoot, back welding really -- not back welding, wire welded, GMAW, and that process really wasn't used back when that pipe was manufactured, when that pipe was put in place. So it caused us to do some further investigation. And through that investigation we found the job that, I can't remember the year, it was in '80s, where there was a hydro test done on that section of pipeline and that was a go back piece of pipe.

So the pipe that we investigated with the camera was hydro tested. And it's just they missed putting that 18-foot

piece of pipe into our GIS records. Okay, that's what we found.

MR. DAUBIN: So Brian Daubin with PG&E.

BY MR. DAUBIN:

Q. So when you say there was a discrepancy you're referring to GIS?

A. GIS discrepancy.

Q. And so the document of record, which is the project folder, had the correct information in it?

A. That's correct.

Q. And you had to investigate that to find out the actual information of what was in the ground?

A. That's correct.

Q. Okay.

UNIDENTIFIED SPEAKER: Three questions.

BY MR. KATCHMAR:

Q. Could you define "GMAW"?

A. Yeah, gas metal arc weld.

Q. And define go back pipe?

A. That was my term. Go back pipe is -- we cut a piece of pipe out to do something to get a camera in, put a test head on, we put pre-tested piece of pipe back in place. It's not the same piece of pipe that we took out and it's pre-tested. It goes back in place. I call it go back pipe.

Q. We're doing this for the --

A. Okay, sorry.

Q. -- for the lady that's transcribing it.
A. Okay.
Q. Why did you run a camera in that section of Line 101?
A. Same reason, we were doing our records research and did not find confirmation of records indicating the long seam type, so we were going in to look for the presence of an internal weld.
Q. Okay. And this gas metal arc weld, is that on a long seam or girth weld?
A. Girth weld.
Q. Okay. I asked prior -- I'm sorry, this is Peter Katchmar with PHMSA. I asked prior if you could determine the type of girth weld and was told pretty much no.
A. I thought you told -- I thought the question and maybe I misunderstood the question, I thought the question was can I determine the quality of the weld? And I couldn't determine the quality of the weld but I could tell in this instance the type of weld.
Q. Okay. Maybe I did ask that question, so I apologize. What I was getting at was the type of girth weld process, not the quality actually but I mean that would have been the next question. But what I was looking for, and with the previous gentleman, as well, was the type of girth weld.
A. Type of process used?
Q. Type of processed used to create that girth weld. And I even mentioned, I think, acetylene or stick welded and I was told

that you can’t really tell the process.

A. Well, let me -- I mean, let me offer this that --

Q. Okay.

A. -- we didn’t stop at every girth weld and do a 360 around and spend a lot of time on the girth weld. So that’s one thing. We -- you know, where there was something of interest we did but --

Q. Okay.

A. -- we didn’t spend a lot of time at each one to really say, "Ah, is this," you know. Typically back then it would have been stick welded and we pretty much went on that. At the Line 101 investigation that we did or the assessment it was pretty evident that we saw wire whiskers sticking up on the inside of the pipe. It looked like a weld that we hadn’t seen before and we did some investigation of that and looking at it and you --

Anyways, it was evident that it was not SMAW or submerged arc welding.

Q. Okay. Did we do -- do we have the Line 101 videos, as well, as Line 132?

A. I don't know.

MR. FASSETT: I don’t believe so.

MR. KATCHMAR: Okay.

BY MR. KATCHMAR:

Q. Alrighty, 'cause the ones that I did see, I mean, you know, it’s like watching paint dry to watch these things but the

ones I did see you -- you actually ran the camera up to a girth weld and then just spun around in girth weld.

A. Well --

Q. Then went on.

A. Yeah. And the reason we did that was to find the orientation of the long seam. Was to find the long seam, look at it, identify that it was definitely a DSAW that -- or that we thought was DSAW and to document the orientation.

The one thing the camera doesn't do, when you spin the camera around it doesn't give you a good orientation of -- doesn't give you an orientation of where you're looking, at what clock position. You have to center it, make it go home looking straight and then look up, you know you're there, and then do your own --

So sometimes you have to backup to get the orientation of the clock position. That's why.

Q. All right, thank you.

A That's what we were focusing on when we were doing that. Not necessarily looking at the quality of the girth weld.

MR. KATCHMAR: Okay, thank you. That clarifies it.

MR. DAUBIN: Done.

MR. FASSETT: Done.

UNIDENTIFIED SPEAKER: Done.

UNIDENTIFIED SPEAKER: No questions.

MR. CHHATRE: One question on that.

BY MR. CHHATRE:

Q. Where -- the 101 at pipe joint, you said it was -- you -- the one with the wire welding.

A. Yes, it was the go back piece after a hydro test. It was done on the segment of pipeline.

Q. Okay. There is not -- there is not a piece that ruptured in the pipeline?

A. Oh, no.

Q. Okay.

A. No, no. This was a pipeline that was taken out of service for the purpose of hydro testing it.

MR. CHHATRE: That’s all I have, thank you so much for your time.

THE WITNESS: Okay.

MR. CHHATRE: Thank you for your help.

THE WITNESS: Thank you.

MR. CHHATRE: Off the record.

(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	PACIFIC GAS & ELECTRIC COMPANY SEPTEMBER 29, 2010 ACCIDENT SAN BRUNO, CALIFORNIA Interview of: George Karkazis
DOCKET NUMBER:	DCA-10-MP-008
PLACE:	Burlingame, California
DATE:	January 3, 2011

was held according to the record, and that this is the original, complete, true and accurate transcript which has been compared to the recording accomplished at the hearing.

_____

Elaine LaRosee
Transcriber