

Appendix N

Ken Huff, Olympic – Interview Transcript

Pipeline Rupture and Fire
Bellingham, Washington
June 10, 1999
DCA-99-MP-008

NATIONAL TRANSPORTATION SAFETY BOARD

In the Matter of: *
*
NATIONAL TRANSPORTATION *
SAFETY BOARD INVESTIGATION *
of the PIPELINE ACCIDENT *
OCCURRING IN BELLINGHAM, *
WASHINGTON, ON JUNE 10, 1999 *

Thursday,
October 5, 2000

INTERVIEW OF

KENNETH HUFF

The above-entitled matter came on for
hearing, pursuant to notice.

BEFORE: ALLEN BESHORE,
NTSB

ALSO PRESENT FOR NTSB:

CLIFF ZIMMERMAN
ERIC SAGER
JAMES CASH

ALSO PRESENT:

PATTI IMHOF
ALAN ZARKY
RICHARD HANSEN
DIONE MAZZOLINI
ANTHONY BARBER
LINDA PILKEY-JARVIS
MICHAEL MARTIN
JON R. ZULAUF
GEOFFREY M. SMYTH
ROBERT MAHLER

I N D E X

WITNESS:

Kenneth Huff

E X H I B I T S

NUMBER	IDENTIFIED	RECEIVED
Huff 1	25	
Huff 2	25	

P R O C E E D I N G S

(4:42 p.m.)

MR. BESHORE: On the record.

Mr. Huff, my name is Allen Beshore, and I am the lead investigator with NTSB, National Transportation Safety Board, into our investigation in the pipeline rupture and fire that occurred in Bellingham, Washington on June 10, 1999. So, I want to thank you for coming in today and answering our questions today we have for you.

And I am going to start off and ask you a few questions and then when I run out of questions, or when I need a minute to go through my notes and collect my thoughts, then I am going to go around the room and all these folks will have some questions probably for you as a follow up.

So I would like for them to introduce themselves to you, so you know who they are and they are with.

MR. SCHALL: I am Jerry Schall, B.P. Pipeline.

MR. PARRISH: Johnny Parrish with Daniel, formerly Fischer -- Petroleum.

MS. IMHOF: I am Patti Imhof, IMCO General Construction.

1 MR. KATCHMARZ: I am Peter Katchmarz with
2 Office of Pipeline Safety, U.S. D.O.T.

3 MR. SMYTH: Geoffrey Smyth, City of
4 Bellingham.

5 MS. PILKEY-JARVIS: I am Linda Pilkey-Jarvis,
6 with the Department of Ecology.

7 MR. BARBER: Tony Barber, with U.S. EPA.

8 MR. SAGER: Eric Sager, NTSB.

9 MR. BESHORE: Mr. Huff, you have a
10 representative here with you also today.

11 MR. MARTIN: Michael Martin, appearing here
12 with Mr. Huff.

13 EXAMINATION OF KENNETH HUFF

14 BY MR. BESHORE:

15 Q And if you could state your full name,
16 please?

17 A My name is Kenneth Huff.

18 Q And do you go by Ken?

19 A Yes.

20 Q Ken, could you just briefly describe your
21 educational background, if you would, please?

22 A Well, I am a high school graduate with some
23 college. I got most of my technical training in the ~~AV~~ ^{Navy}
24 and on the job training.

25 Q Okay. And if you could explain to us your

1 history and your roles with Olympic Pipeline?

2 A Well, I hired onto Olympic Pipeline as an
3 electrical tech, maintenance, pretty much, if it had a
4 wire attached to it, I was suppose to work on. When I
5 first hired on, you know, must everything was analog
6 and you know, just straight mechanical and then as we
7 upgraded and went to mor^e digital and more electronic, I
8 kind of tended to gravitate in that direction, so I got
9 a little more proficient. About that time I was the
10 automation specialist, which I meant I did primarily
11 all the PLC implementations and operator interface
12 programming.

13 Q When did you start with Olympic Pipeline?

14 A September of '79.

15 Q And then when did you become automation
16 specialist?

17 A Well, I started doing all the PLC work before
18 I actually got the title. I probably got the title in,
19 let's see I am trying to remember, '97, '96, something
20 like that.

21 Q But, you say you were doing that type of work
22 before. Were they pursuing some additional automation
23 activities that were new or was this kind of something
24 in place that you were maintaining?

25 A We started installing PLCs at Olympic

1 Pipeline in the late '80s. The first place we put a
2 PLC was over at ~~Beetech~~ ^{SEATAC} Airport, I was involved with
3 that. And I think the next place we put in a PLC was
4 Renton Station.

5 Q And then just progressing on from those?

6 A Yeah, yeah.

7 Q Do you have PLCs in all your stations at this
8 point in time?

9 A Almost all of them, yes.

10 Q With what exceptions, do you recall?

11 A Well, let me think here.

12 (Pause.)

13 THE WITNESS: We have got a couple of block
14 valve sites, that is about it.

15 BY MR. BESHORE:

16 Q Oh, okay. So, you are like, like your
17 deliver facilities, your take points, all of that stuff
18 has all got on site PLCs and automated facilities.

19 A That is right. Olympic ² delivery is not on PLC
20 yet.

21 Q Okay. All right. Now, the Wonderware you
22 mentioned, just explain to us what that is as a
23 product, if you would?

24 A It is an operator interface. You set up
25 graphical displays and an operator can sit and, it is

1 built on a regular PC. And an operator can sit at this
2 PC and view operational information, pressures,
3 temperatures, flows, that kind of stuff. They can use
4 that to issue commands, you know, open valves, close
5 valves, shut down a station, reset the station, that
6 kind of stuff.

7 Q Now, is that separate and apart software
8 package from ~~skater~~ ^{SCADA} data programming?

9 A Yes.

10 Q Okay. And that is, is that a programming
11 utility basically for the PLCs, is that an analogous to
12 RTU, are those interchangeable?

13 A No. RTU would take status inputs and analogy
14 inputs and then the ~~skater~~ ^{SCADA} system could query that and
15 it could also issue commands which would change an
16 analog set point, say for pressure set point, and it
17 could operate a relay to open, close, whatever. But,
18 that is as far as it would do. It wouldn't do any
19 logic. It wouldn't do any sequencing, anything like
20 that. When we put in the PLCs, the PLC would take over
21 the RTU function plus it would have the ability to do
22 sequencing and, well, it basically it would replace all
23 the relays that were in the cabinet to do sequencing.
24 So, say a certain pressure or something should happen,
25 the PLC would take care of that.

1 The Wonderware package is really an interface
2 so that a human being can get a picture as to what the
3 PLC is doing.

4 Q Okay. And PLC stands for?

5 A Program Logic Controller is best as I know.

6 Q Okay. All right. And I am layman, and I
7 don't, I am not an electrical person, so bear with me
8 if I don't understand some of the things.

9 A Yes.

10 Q Okay. So, the PLC handles a lot of
11 information right at the system. Can you explain to
12 us, maybe what information that the PLC is handling
13 then, gets transmitted back to the ~~skater~~ **SCADA** system,
14 itself?

15 A Basically, you set up an agreement between,
16 you know, like me and whoever is doing the ~~skater~~ **SCADA**
17 programming, and we just kind of agree on what points
18 they want to see a status of, or what commands they
19 want to be able to issue. And then we agree on what
20 order in the scan, when the ~~skater~~ **SCADA** ~~pulls~~ **PULLS** for
21 information, that is a scan, and what order, what
22 position in that scan are these bits going to be for
23 whatever item. You know, like what, you know, this
24 valve is open, closed, whatever, or what this pressure
25 is. So, you define where in the scan these things are

1 going to be, so it is, it is kind of loose. I am not
2 sure I have answered your question.

3 Q No, no, you are answering my question.

4 But, the PLC, itself, will retain much more
5 information probably locally to that facility that is
6 not necessarily transmitted back to the ~~skater~~ ^{SCADA}.

7 A Primarily, as far as like trending historical
8 logs and stuff, that is taken care by the Wonderware.
9 In the Wonderware application, you can trend to analog
10 data, so that you can, you know, what is this pressure
11 from this time to this time, and actually see a picture
12 of it. You can set up alarm points so that you can
13 record what time certain things happen.

14 Q Okay. Now, the Wonderware data, though,
15 that is something that you are local at the PLC using.
16 That is not something the controller in the Control
17 Center is accessing to do trending, right?

18 A Right, they are separate.

19 Q Okay. So, they are trending in the Control
20 Center is relaying upon what data points are selected
21 to send back to Renton.

22 A Yes.

23 Q Right?

24 A The Wonderware is actually kind of like, like
25 a mini ~~skater~~ ^{SCADA} system, that is just happens to be on the

1 premise, you know, and it is pulling the PLC for data
2 and the ~~skater~~ **SCADA** system is pulling the PLC for data.

3 Q And you have to set up, somebody has to
4 decide what is being recorded and controlled within the
5 PLC.

6 A Right, correct.

7 Q Local.

8 A Right.

9 Q Would that be, would that person, okay, never
10 mind.

11 Let's just talk about Bayview. Now, what
12 involved, did you have any involvement in the design of
13 the Bayview station?

14 A I didn't have any involvement in any of the
15 hardware, you know, like the piping or the valves or
16 whatever. Where I got involved was after the fact and
17 doing the ~~letter~~ **LADDER** logic in the PLC to control the
18 station.

19 Q Okay. So, when did you become involved in
20 the project?

21 A Oh, the Summer of '98. Yeah.

22 Q Okay. Did the contractor who was designing
23 Bayview for Olympic do any preliminary work in that
24 type of field or did you come in and that was entirely
25 up to you and Olympic personnel to do that work?

1 A I believe all the IO was already defined. IO
2 is, you know, the input/outputs, so all the valves were
3 assigned to where they going to be hooked up to the
4 inputs, so the PLC were assigned, and then I just took
5 those and used them.

6 Q Okay. All right. So, the hardware had been
7 selected, and designed and most of the inputs and
8 outputs, in other words, what information was going to
9 be recorded and what information was going to be with
10 the PLCs, had basically been designed and set up.

11 A Well, not recorded, but what information was
12 going to be available to the PLC to be able to control
13 the station.

14 Q Okay. All right. Good. And then based on
15 input, let me back up.

16 Were you the only Olympic person, they said
17 Ken here, this is your project now, did you work with
18 another group of people?

19 A Well, I worked with Jeff ~~Barry~~^{BERRY} quite a bit.
20 I worked with, this was Texaco then, engineer as far
21 as, I asked him to come in and give me a hand with the
22 Wonderware application. And I had him do a little bit
23 of the PLC logic for me.

24 Q Did you end up having to pull all the wire
25 and stuff like that or was that --

1 A No, that was all done. That was Jeff and I
2 think probably Jim were involved in that.

3 Q So, you were primarily the computer --

4 A Yeah, I was the software guy.

5 Q The software guy, okay.

6 A Yeah.

7 Q Good. And then you got input from the
8 control room and from others, I am assuming on what
9 points they need to see back in the, in Renton, or was
10 that already established also?

11 A I think what I did is I took the information
12 that I got as far as what valves were going to be
13 there, and what pressure switches and transmitters and
14 all of that. And I kind of put it altogether in Excel
15 spreadsheet and presented it as a, okay, here, what of
16 this do you want, what don't you want. So, I kind of
17 started the ball and then we worked together and
18 figured out what they wanted.

19 Q Okay. Let's, were you the one like if a
20 pressure switch needed to be set, would that be
21 something you would do?

22 A No.

23 Q Okay.

24 A I wasn't involved in what the pressure
25 ~~studies~~ **SETTINGS** were going to be, just when it tripped, what it

1 would do.

2 Q Okay. All right, so once the signal came in
3 electronically, then you decided how to route, or maybe
4 not you decided, but it was up to you then to route
5 that signal, elicit the proper response?

6 A Right.

7 Q Okay.

8 A We did have quite a few meetings, I set up
9 kind of a proposal on how I thought the station should
10 operate and put together kind of a rough draft of the
11 operations manual on, you know like when this pressure
12 switch triggered, you know, this valve goes closed,
13 this valve goes open, you know, whatever that was
14 suppose to be. And then we had several people come in
15 and kind of chew that up and no, we want to do this,
16 yeah, we think this is good, no, we want to do
17 something else, you know, so it was a lot of
18 discussions on how we wanted the place to operate.

19 Q Okay. And do you remember some of the
20 people, were these people internal to Olympic?

21 A Yes.

22 Q And who all was involved in that, do you
23 recall?

24 A Let's see I had, Dave Justice was involved
25 quite a bit. Jeff ~~Barry~~^{BERRY} was involved heavily. I am

1 not sure whether Ron Brenson[†] attended many of those
2 meetings, but I on the side talked to him quite a bit
3 about what we had decided and what he thought of it.
4 Let's see who else? Lloyd, I think Lloyd Teecom^{TIEKEN} was in
5 some of those meetings, I think, you know, to get a
6 controller's perspective.

7 Q ^{CRAIG}~~GREG~~ Hammett?

8 A I don't think he was in the meetings,
9 although we talked, you know, on the side of what was
10 being decided.

11 Q Okay. Who was the ultimate decision maker,
12 I guess, in this, in terms of, of being the one that
13 said, "Make it so, Ken."

14 A Let's see, well, you know, we put together
15 this document and then it would go up through, you
16 know, ^{CRAIG}~~GREG~~ and Frank and Ron Brenson[†] and they all had
17 to kind of approve it.

18 Q Okay. And that was the overall plan. What
19 about, did the same process occur if there was like
20 changes that occurred that were more like tweaking?

21 A Tweaking? I am not quite sure what --

22 Q That is not a technical term.

23 A Well, no, it is actually pretty technical,
24 but I am not quite sure how you are using it. You
25 know, I would put together the logic and sometimes the

1 logic didn't quite work the way I expected it to, so I
2 would tweak to, you know, make it fit how we wanted,
3 how the manuals said we wanted it to work. I don't
4 think we changed the manual much after it was pretty
5 much approved.

6 Q Okay. How did the project go, I mean, did
7 the project go well?

8 A My side of it I thought went pretty well. As
9 far as the, you know, pulling the wires and doing the
10 piping, I really wasn't involved with it. I didn't
11 hear a lot of people complaining about it though.

12 Q Well, did you sit in on like construction
13 meetings with the rest of the team that were building
14 the facility or were you involved in that early on?

15 A I wasn't really that involved. I think I did
16 sit in on one or two as just kind of an observer, but.

17 Q So, you didn't hear what a lot of the
18 interaction would have been in other areas besides
19 yours?

20 A Not really, no.

21 Q Okay.

22 A You know, general just BSing. But, there
23 wasn't anything I was really involved in.

24 Q Okay. We will talk about that, too.

25 Let's talk a little bit in terms of after the

1 facility then was brought online, information, in terms
2 of trouble shooting, how that, were there, in your view
3 point, a lot of concerns with how the facility was
4 operating?

5 A On my part or --

6 Q Well, not necessarily that were attributable,
7 but your, you know, your work, but just in terms of the
8 operations of the facility, were there concerns
9 expressed to you that came up, that arose, that you
10 were working on trying to resolve?

11 A Yes, they had some problems. One of the
12 early things was ~~bad~~ **BACK** pressure on the incoming meters.
13 The dispatchers were having a problem, sometimes coming
14 out of ~~Amacortes~~, they couldn't exactly make, they
15 couldn't make rate, and had that, okay, let me back up
16 a little bit.

17 **BACK**
18 Like I said ~~bad~~ pressure on the incoming
19 meters. We had a control valve just downstream of the
20 incoming meters to try and maintain a minimum pressure,
21 and it has something to do with cavitation and make it
22 your measurement more precise, because if you get the
23 pressure too low, the servers don't track quite right.
24 So, I had set that initially at, try to remember what I
25 set that at.

(Pause.)

1 THE WITNESS: I probably set at 30 pounds,
2 because that is what most of the DFs are set at. And
3 they were having a real problem because that was
4 starving them on suction at Allen Station. And so,
5 after a lot of discussions, I lowered that down to 10
6 pounds, I think. I don't think I went below 10 pounds.

7 BY MR. BESHORE:

8 Q There was an e-mail and I will just ask you
9 if you recall it, I can --

10 A Yeah, I think I know the e-mail you are
11 talking about.

12 Q But, it basically referred to turning, I
13 guess, hooking that point into the Control Center so
14 that could be controlled from the Control Center.

15 A Yes, I remember that e-mail.

16 Q And that I guess, would that change have
17 given the controller the opportunity to adjust the set
18 point?

19 A That is what they were asking for, yeah.

20 Q Was that resolution that occurred?

21 A No.

22 Q So, the set point was a fixed set point.

23 A Yes.

24 Q It was set at --

25 A I am sure it was 10 pounds.

1 Q Okay. So, that was the outcome of that.

2 A Yeah.

3 Q Did that resolve that specific concern, do
4 you recall?

5 A As I recall that helped, I mean, it didn't
6 really resolve all the problems with that place, you
7 know, being so close to Allen Station, but I think it
8 did help some.

9 Q Did, what about relief valves, did anybody
10 have any concern about relief valves or how those might
11 have been working or maybe approaching you on whether,
12 you know, they were getting the information they
13 needed, do you recall?

14 A I don't recall.

15 Q And at the time, I guess, each relief valve,
16 there was no specific switches on each one, is that
17 correct?

18 A Right.

19 Q Okay.

20 A Yeah, that is right, that was, that was one
21 of the things that they were concerned about, because
22 with the one switch they couldn't tell what was going
23 on for sure. And I remember that switch was a problem,
24 because it was real slow acting. It took a few seconds
25 for it to transfer on, and then it took like 10 seconds

1 for it to transfer back off. So, yeah, I remember
2 those problems.

3 Q Did that problem get resolved prior to the
4 accident on June 10th, do you recall?

5 A I don't remember. I think they went in and
6 tried to tune it, to make it a little more responsive,
7 but, no, I don't remember.

8 Q Okay. Let me ask you about the inlet
9 receiver valves into Bayview on either the Ferndale or
10 the ~~Anzacortes~~ line, were they set up the same?

11 A Yes.

12 Q On either line? And I guess my understanding
13 is that there was two valves, whichever one was open,
14 was set to close if the pressure reached 700 pounds, is
15 that accurate, do you recall?

16 A You are probably talking about the receiver
17 inlet or receiver bypass.

18 Q Right.

19 A Okay. Yeah, I remember those.

20 Q So, I guess if the, if it was, the if bypass
21 was open, and that is how the product was flowing, then
22 the other, then that was the valve that would close
23 because the other one was, the other side was already
24 closed off.

25 A Right.

1 Q And then vice versus.

2 A Right. Basically, just a signal to both of
3 them.

4 Q Okay. So, the pressure at 700 pounds, they
5 both closed.

6 A Yes.

7 Q Which one was already closed, it didn't do
8 anything.

9 A Right.

10 Q So, the other one would close.

11 A Right.

12 Q Okay. All right, and that was set up on the
13 Anyacortes side, also.

14 A Yes.

15 Q Did that become a concern or was that
16 something that you were called out or were looking into
17 or was that an issue?

18 A I was never called out on it, because those,
19 well -- Now, those valves going close, really were
20 never brought up as an issue. The reason those valves
21 were closing was the issue.

22 Q And what do you recall in terms of
23 discussions on that topic, do you recall any specific
24 discussions or actions on that in general?

25 A Well, I had one of the dispatchers kind of

1 explain to me what was happening. I go in and say,
2 what is the heck is going on here, how come we have so
3 many problems? And the way he was telling me was that
4 because Allen Station was so close, and those switches
5 were set so low, that if they did just about anything
6 at Allen Station, you would get a pressure ~~way~~ ^{WAVE} back,
7 and that would be enough to make Bayview react and then
8 that pressure, and this was only when they were tight
9 lining, which they did a lot of, and then that pressure
10 would come back. It would give you a high pressure on
11 that switch and then that would cause Bayview to shut
12 down, and then the valves would go close. And, and the
13 real problem with that is once those valves are in
14 travel, then the whole line shuts down and then you
15 have got to start everything back up again.

16 Q So, from your perspective and your role, was
17 there anything that could be done about this to help
18 them out in that role?

19 A I couldn't think of anything electrically. I
20 guess one thing I could have done, in hindsight, I
21 could have been put a timer on that switch, but I just
22 didn't think that was a good idea, you know, a delay
23 timer.

24 Q Oh, to delay the closure of the valve.

25 A Yeah, well, basically to mask that switch

1 closure. But, that is never really is a good idea.

2 Q Let me ask you --

3 A Well, so that you would have that 700 pounds
4 switch closure. I had a one second timer on there, and
5 if I would increase that, you know, like to 10 seconds,
6 then, you know, that might not have caused the
7 problems, but that is not a good situation, because if
8 you have got a high pressure switch, you really don't
9 want to mask it.

10 Q Okay. So, that would have basically delayed
11 any response by the valve for 10 seconds.

12 A Yeah, yeah.

13 Q And if the pressure didn't stay up above that
14 level, pass that time frame, then the valve would have
15 never responded, is that --

16 A Yeah, that is what would have happened. But,
17 that wasn't something I really strongly suggested. In
18 fact, I don't know that I suggested it.

19 (Tape change.)

20 BY MR. BESHORE:

21 Q Well, because --

22 A It is not a good idea.

23 Q The situation was rapidly changing, the
24 pressure after 10 seconds could have --

25 A Yeah.

1 Q You know --

2 A Exactly.

3 Q Okay. Do you recall how many pressure, all
4 right, let's just talk specifically about the one run
5 on the Bayview side.

6 How many pressures on that run were set back,
7 do you recall?

8 A I suspect they were all set back, but I don't
9 remember for sure.

10 Q Okay. So, you don't, yeah, so there was,
11 but you are not sure what was set back in the PLC, but,
12 you think all of them probably were.

13 A I think they were, yeah. They didn't really
14 exclude very much.

15 Q Who were you reporting to in this process?
16 Who did you report at the time of the accident?

17 A At the time of the accident was Craig
18 Hammett.

19 Q And who would you report to throughout the
20 process of the Bayview construction?

21 A Craig Hammett.

22 Q Were you pretty much, I mean, were you pretty
23 much full time involved in the Bayview Facility
24 throughout that process of its construction and
25 commissioning or what not, or were you still doing

1 other things?

2 A I was still doing other things. I, as much
3 as I could, I was exclusively working on that, you
4 know, while I was putting that logic together, but
5 then, you know, as I got to points where I could break
6 and then had other stuff to do, I would be working on
7 that, too.

8 Q Okay. Let me ask --

9 (Pause.)

10 MR. BESHORE: Bear with me just a second here.
11 I should have had this ready, but I didn't.

12 (Pause.)

13 MR. BESHORE: Would you like to take a break?

14 MR. KATCHMARZ: It was just a suggestion.

15 MR. BESHORE: Well, my picture was already
16 used, oh, no, that was yesterday.

17 All right, let's take a break.

18 (Whereupon, a short break was taken.)

19 MR. BESHORE: On the record.

20 All right, I found what I was looking for
21 here, so, let's go ahead. This is page 312 that was
22 originally provided to us by Olympic Pipeline Company.
23 And I will mark it Exhibit Huff 2. And just Exhibit
24 Huff 1 is the Compulsion Order from the National
25 Transportation Safety Board prompting Mr. Huff's

1 testimony here today.

2 (The documents referred to
3 were marked for identification
4 as Huff Exhibit 1 and 2.)

5 BY MR. BESHORE:

6 Q And if you could, just take a look at that
7 for me, Ken, page 312, and do you recognize what that
8 is?

9 A Oh, yeah, I think I am the one who printed
10 this out.

11 Q And that is off of the PLC at Bayview, that
12 is how it is labeled, is that correct?

13 A Well, it is off the Wonderware, but, yeah.

14 Q Okay. It is from the Wonderware system with
15 the data captured in the PLC.

16 A Right.

17 Q Local to Bayview.

18 A Right.

19 Q And could you just kind of, I guess, my main
20 question is what the pressures are that on this
21 different lines, on that, on that draft?

22 A Oh, let's see, these codes are terrible.
23 Okay.

24 (Pause.)

25 THE WITNESS: The dark blue one, that comes up

1 here and then is the peak.

2 BY MR. BESHORE:

3 Q Okay.

4 A Okay. That is the pressure transmitter that
5 is outside of the receiver.

6 Q Okay.

7 A So, it is monitoring the line pressure coming
8 into the station.

9 Q Okay.

10 A Even with the valves closed.

11 The red line, I believe, I think the red line
12 is just downstream of the first control valve. So, it
13 goes from the receiver and then it went to a control
14 valve.

15 Q Okay.

16 A And I believe that the red line was the
17 pressure transmitter on just right there after the
18 control valve.

19 Q Okay.

20 A The yellow line was unit one suction
21 pressure. That is after it went, you know, through the
22 station, through the manifold, and then the pumps that
23 were pumping the product back out of the station, this
24 is a suction pressure on that unit.

25 Q All right.

1 A And the light blue one is the Ferndale
2 discharge pressure. So, that would have been the
3 pressure after it went through the pumps, that it was
4 sending out of the station to go to Allen Station.

5 Q Okay. And you think all four of those were
6 sent, all four of those pressures are sent back to
7 Renton?

8 A The only one I wouldn't be sure of is the
9 upstream pressure. I know the rest of it were.

10 Q Okay. All right. Getting back to --
11 Let me just ask you a couple of questions
12 about Mr. Hammett. Was he a good boss to work for?

13 A He was probably an okay boss. I don't think
14 him and I hit it off very well.

15 Q Personality conflicts, technical conflicts?

16 A I think the biggest thing is, the impression
17 I got, is he thought most of the work I was doing
18 should have been more an operational position. He
19 wasn't sure why I was attached to Engineering, wasn't
20 that interested in most of the stuff I did.

21 Q Okay. So, did he not pay much attention to
22 what you were up to?

23 A Not too much.

24 Q Okay. Did you feel like you needed, maybe
25 not more supervision, but did you feel like he should

1 have been more involved in what was going on there?

2 A In Bayview or --

3 Q In general, let's start with that, just in
4 general in your activities.

5 A He probably could have been more, more
6 involved, but he was probably right, most of what I was
7 going was more operational and so I was getting my
8 guidance, you know, from other people.

9 Q Well, I guess that was kind of my next
10 question. Would people just come to you direct from
11 the operations side or whatever and you know, Ken, can
12 you check into this or did it have to funnel through
13 Craig and then to you?

14 A No, mostly people would just come to me
15 directly.

16 MR. BESHORE: Okay. I am going to go ahead
17 and see if, Jerry, do you have any questions?

18 MR. SCHALL: Sure. Ken, I am just trying to
19 understand your role in Bayview. If I understood your
20 correctly, you built all the logic, which means you did
21 all the sequencing, set all the software trips,
22 everything, no one else participated in that logic
23 construction? I shouldn't say participated, actually
24 did it.

25 THE WITNESS: Right. With the exception of

1 that one Texaco engineer, I got his help on a couple of
2 things, but mostly it was, I did probably 95 percent of
3 it.

4 MR. SCHALL: Do you recall his name? Was it
5 Carl?

6 THE WITNESS: No. I don't know.

7 MR. SCHALL: Thanks

8 THE WITNESS: Dave Abrams.

9 MR. SCHALL: Dave --

10 THE WITNESS: Abrams.

11 MR. SCHALL: You also said that the IO was
12 done before you took on this project?

13 THE WITNESS: Yes.

14 MR. SCHALL: I mean, they told you these all
15 the pressure switches. Somebody made the decision that
16 we are putting these pressure switches in and etc. and
17 so on.

18 THE WITNESS: Right.

19 MR. SCHALL: They said, okay, here is the all
20 IO, that (inaudible)

21 THE WITNESS: Yeah, basically.

22 MR. SCHALL: That is basically what happened.

23 Are there software trips in there as well?
24 You watch and, well, an example, you mentioned
25 specifically that the incoming and outgoing valves

1 close on point of pressure switch, is that one pressure
2 switch that controls both of them, or was there two --

3 THE WITNESS: It was the receiver incoming, or
4 inlet and bypass valve. Yeah, they were on just one
5 switch.

6 MR. SCHALL: One single pressure device.

7 THE WITNESS: And what it really was, was the
8 pressure device would give you a shutdown and then the
9 shutdown is what caused the valves to go closed.

10 MR. SCHALL: The pressure device would give
11 you the shut down. I don't understand that. Was this
12 a software trip that was inside the PLC?

13 THE WITNESS: Yes.

14 MR. SCHALL: So, you were watching a pressure
15 trend -- PLC watching a pressure trend transducer.

16 THE WITNESS: Switch. It was watching a
17 transducer also. I think your question is was I
18 monitoring the analog values --

19 MR. SCHALL: Right.

20 THE WITNESS: To come up with this, where the
21 trip point, no, I wasn't.

22 MR. SCHALL: It is all on a switch.

23 THE WITNESS: Yes.

24 MR. SCHALL: Oh, okay. Like a snap switch.

25 THE WITNESS: Yes.

1 MR. SCHALL: So, a snap switch, where is that
2 snap switch at? You shut down both inlet and outlet at
3 the same time, right?

4 THE WITNESS: Inlet and bypass. I think we
5 are --

6 MR. SCHALL: I am sorry, maybe I misunderstood
7 that part.

8 THE WITNESS: Okay. Basically, the way
9 Bayview was set up is, is I looked at it as two
10 delivery facilities and two pump stations.

11 MR. SCHALL: Okay.

12 THE WITNESS: Okay. So, what I did was I
13 took, our basic model for how you sequence a delivery
14 facility and I had one of those for Ferndale, and one
15 of those for An~~v~~acortes, and then I had for like a
16 regular pump station, I did that sequencing for both
17 An~~v~~acortes and the Ferndale outgoing. So, basically
18 you had four separate stations and you could shut down
19 any one of them, actually, you could shut down any
20 combination of them. There were only a few things that
21 I declared a terminal shutdown, that would shut the
22 whole facility down.

23 MR. SCHALL: -- (inaudible)

24 THE WITNESS: Right, like if we had a high,
25 high sump, something like that, that was, you know,

1 more general, then I would just shut the whole place
2 down.

3 MR. SCHALL: I have got you.

4 THE WITNESS: But, where I could just shut
5 down, you know, one receiving point without disturbing
6 the rest of it, I did.

7 MR. SCHALL: So that you could operate one
8 independent of the other.

9 THE WITNESS: Right.

10 MR. SCHALL: One other question. You were
11 describing the colors on that chart, you said the light
12 blue line was, you said Ferndale discharge pressure.

13 THE WITNESS: It is hard to read. What does
14 it say?

15 MR. SCHALL: It says FER.

16 THE WITNESS: That is Ferndale.

17 MR. SCHALL: Discharge pressure, D-I-S --

18 THE WITNESS: Right. Okay. What we had is
19 basically we had a Ferndale incoming and a Ferndale
20 outgoing, and an ~~Anycortes~~ incoming and an ~~Anycortes~~
21 outgoing.

22 MR. SCHALL: Okay.

23 THE WITNESS: And so that discharge was on the
24 Ferndale discharge site. So, when we were tight
25 lining, it came in the Ferndale receiver, went through

1 the manifold, went through the Ferndale, the ones that
2 were dedicated to Ferndale pumps and then went out the
3 Ferndale outlet.

4 MR. SCHALL: Okay. Okay. I am with you.

5 THE WITNESS: Okay.

6 MR. SCHALL: Thanks. That is all I have.

7 MR. BESHORE: So, it was a pressure vent that
8 was at Bayview Facility --

9 THE WITNESS: Yes.

10 MR. BESHORE: But, labeled onto Ferndale.

11 THE WITNESS: Yes.

12 MR. BESHORE: Okay. Johnnie, do you have any
13 questions?

14 MR. PARRISH: No.

15 MR. BESHORE: Patti, do you?

16 MS. IMHOF: No.

17 MR. BESHORE: Peter?

18 MR. KATCHMARZ: Hi, Ken.

19 THE WITNESS: Hi.

20 MR. KATCHMARZ: I have got two questions. Had
21 you ever done this type of work before, this PLC --

22 THE WITNESS: Before Bayview?

23 MR. KATCHMARZ: Yes.

24 THE WITNESS: Yes.

25 MR. KATCHMARZ: For Olympic?

1 THE WITNESS: Yes.

2 MR. KATCHMARZ: Okay. Were there any
3 engineering calculations done to determine what the set
4 points of each of these devices should be throughout
5 the station?

6 THE WITNESS: I am sure they were, but I
7 wasn't involved in them.

8 MR. KATCHMARZ: The reason I ask is because
9 you said before that you had set the meter control
10 valve at 30 pounds, originally.

11 THE WITNESS: For the back pressure.

12 MR. KATCHMARZ: The back pressure valve.

13 THE WITNESS: Yes.

14 MR. KATCHMARZ: And you had said that you did
15 that because that is what the other delivery facilities
16 had been set at.

17 THE WITNESS: Right. The other delivery
18 facilities, there is a back pressure valve. The one at
19 Bayview was an electric hydraulic one, so it was a
20 little bit different. The other back pressure valves
21 are, are a Brody pressure, back pressure valve. They
22 just maintains, and they are set at about 30 pounds,
23 because that is what the measurement guy wanted. So,
24 that was my initial setting.

25 MR. KATCHMARZ: Okay. But, I guess my

1 question is --

2 THE WITNESS: Now that 30 pounds is a minimum
3 pressure, what I am trying to do is, okay.

4 MR. KATCHMARZ: I understand that. I am just
5 questioning, I guess my question is did you find it
6 unusual that some engineer did not tell you what to set
7 that back pressure valve at, instead of you just
8 saying, I will do it 30 pounds because that is what it
9 is over here?

10 THE WITNESS: I didn't really think about it
11 one way or the other. I mean, that is just how the
12 other facilities were set up and I was using the
13 regular DF facility as my model, so, that is what I set
14 it at.

15 MR. KATCHMARZ: Okay. I guess that is it for
16 me.

17 MR. BESHORE: Geoff?

18 MR. SMYTH: I have just got one, Ken.

19 You talked about the Bayview operation and
20 you had like little committee with David Justice, Jeff
21 ~~Barry~~ **BERRY** and you believe that Ron and Lloyd had been
22 involved on a partial basis. Did you guys ever talk
23 about or did anyone ever ask you to talk about
24 contacting the designer, Jacobs Engineering for any
25 insight or any follow on or any help that might be out

1 there?

2 THE WITNESS: No.

3 MR. SMYTH: Did that ever come to anyone's
4 mind, did you discuss it and decide not to do it or ask
5 someone if you wanted to do it and they said no, or --

6 THE WITNESS: It was, I don't remember ever
7 discussing that, no.

8 MR. SMYTH: And is it your experience then the
9 pipeline from the late '70s, when you get a new
10 facility, is it just handed over to you and then it
11 becomes your responsibility, like Olympic
12 responsibility and there is no tie back to the
13 designer?

14 THE WITNESS: Actually this was the first, you
15 know, the first facility that I have been involved with
16 that an independent contractor had designed. I was
17 involved with one other one in the early, early '80s,
18 that was designed internally from Mobil. And that was
19 all relay logic. It wasn't any PLCs at all.

20 MR. SMYTH: Okay. So, no one else mentioned
21 talking to the designer at any time from Olympic
22 personnel, do you remember?

23 THE WITNESS: I don't remember.

24 MR. SMYTH: That is all I have.

25 MR. BESHORE: Linda?

1 MS. PILKEY-JARVIS: What was your
2 understanding of the purpose of adding the Bayview
3 facility to the pipeline?

4 THE WITNESS: The purpose of it? I think the
5 way, as I understood, the original intent of it was we
6 were having some problems, I mean, there were several
7 things, but one of the things that I focused on, I
8 thought would really help, maybe I was wrong, some of
9 the refineries were having a hard time delivery the
10 product at the rates we were trying to flow at. And
11 the way we were going to be floating into these tanks,
12 you know, in and out, would give us an ~~ability~~ ability to run
13 the pipeline at a more consistent flow rate and then
14 vary the flow rate from the refineries. That is not
15 much of a reason, but that is the one that I thought
16 was a pretty good reason. I think it had something to
17 do with like storing up product for the cross Cascades
18 probably.

19 MS. PILKEY-JARVIS: Any others?

20 THE WITNESS: No.

21 MS. PILKEY-JARVIS: Thank you. That is the
22 only question I have.

23 MR. BESHORE: Tony, do you have any questions?

24 MR. BARBER: Just one or a series of one. Are
25 you familiar with the devices that give the signal from

1 the pressure indication?

2 THE WITNESS: The transmitters?

3 MR. BARBER: Well, the devices, themselves,
4 that are in the pipeline, mechanically being pressed
5 against to give some sort of pressure indication.

6 THE WITNESS: I have hooked them up, I have
7 calibrated them.

8 MR. BARBER: Okay. What would you, do you
9 have any knowledge of what the tolerances in those
10 pressure devices are, in other words, hypothetically if
11 the pressure in the pipeline was indicating, let's say
12 a thousand PSI, or 500 PSI, what might the actual
13 pressure be, high or low?

14 THE WITNESS: Those particular ones I don't
15 know. Typically, what it is, is -- I am going to use
16 this as an example, and it is probably not too far off.
17 It would be plus or minus one percent of span. So, if
18 you were calibrating the instrument for a thousand
19 pounds, it would be plus or minus one percent.

20 MR. BARBER: Okay.

21 THE WITNESS: Those transmitters, I am not
22 quite sure what their spec is, but it is like that.

23 MR. BARBER: That is all I have.

24 MR. BESHORE: Eric, do you have any questions?

25 MR. SAGER: I have none.

1 MR. BESHORE: I have a couple. You mentioned
2 the Wonderware product. Do you have any kind of a
3 formal training on that software product?

4 THE WITNESS: I have had several seminars that
5 I have gone to. I did take, I am trying to remember
6 timing, but I did take an advanced course on
7 Wonderware. It was a product, it is really fairly
8 easy to use, and so, just a bunch of us working
9 together and ~~Lance Lockman~~ **DAN SWATMAN** and I worked on it quite a
10 bit. Dave Abrams, because he worked with us on several
11 projects. He would pick up things and we would share
12 them.

13 MR. BESHORE: Now, in that training was, does
14 that include how do the -- logic part of it, is that
15 part of what is in Wonderware?

16 THE WITNESS: No, no.

17 MR. BESHORE: A separate kind of --

18 THE WITNESS: It is a, that is completely
19 separate from PLC ladder logic.

20 MR. BESHORE: Did you have any training in how
21 to set up those logics for --

22 THE WITNESS: Yes, I took an advanced PLC
23 programming course with GE.

24 MR. BESHORE: Is that, is that the hardware at
25 Bayview, is that a GE product?

1 THE WITNESS: Yes, it was, it was the same
2 product.

3 MR. BESHORE: And the example we talked about
4 earlier, about the control valve reduction in suction
5 pressure, you -- and you said that that control was
6 never really given to the controllers. Why was that
7 not given to the controllers, do you recall?

8 THE WITNESS: I resisted going any lower
9 unless they got the measurement guy's approval to go
10 lower. I didn't really want to give them the control
11 over it, because we were using those meters for leak
12 detection. And if you drop that down to zero, zero PSI
13 and you have got, you know, marginal response from your
14 meters, I didn't think would work very well for leak
15 detection.

16 MR. BESHORE: Okay. So, your concern was the
17 accuracy of the meter.

18 THE WITNESS: Yes.

19 MR. BESHORE: Would there be a concern with
20 the pumps?

21 THE WITNESS: The pumps were designed to pump
22 on a low pressure. They were built, they were built
23 specifically to pump, you know, just from the tank end,
24 which is going to be, you know, 10 pounds if you are
25 lucky.

1 MR. BESHORE: Okay. So, the pumps themselves
2 might not, they would shut down on some low sections at
3 some point, I am assuming. You wouldn't want a direct,
4 I guess.

5 THE WITNESS: I am trying to remember. We did
6 have some problems with that. They originally had flow
7 switches and pressure switches for low suction. And as
8 I recall, the pressure switches were the wrong range.
9 We couldn't, we couldn't set them low enough, so I
10 think we bypassed those and went on to the flow
11 switches, the unit's protection.

12 MR. BESHORE: Okay. So, the pumps,
13 themselves were protecting high flow switches.

14 THE WITNESS: Right.

15 MR. BESHORE: Okay.

16 THE WITNESS: And they were built to work on a
17 very low head pressure.

18 MR. BESHORE: And not necessarily this same
19 device that was controlling the back pressure, that
20 didn't also protect the pumps?

21 THE WITNESS: No. No.

22 MR. BESHORE: Okay. And I am sorry, I know I
23 asked you this, but, when did you get assigned or
24 involved in the Bayview Project? Was it, do you recall
25 what time frame?

1 THE WITNESS: I think it was the Summer of
2 '98, I believe.

3 MR. BESHORE: Okay. So, that, was before
4 they actually broke ground?

5 THE WITNESS: No.

6 MR. BESHORE: Okay. So, construction was
7 well under way?

8 THE WITNESS: Oh, yeah, it was well underway
9 and some parts of it were actually done. I think a lot
10 of the piping was done. They were still putting up
11 tanks.

12 MR. BESHORE: Somebody mentioned Jacobs, did
13 you actually work with any folks from the design firm?

14 THE WITNESS: No.

15 MR. BESHORE: So you didn't have any
16 interaction with them.

17 THE WITNESS: No.

18 MR. BESHORE: Was there a general sense, I
19 guess, within the people you dealt with in the
20 organization that Bayview Project was successful?

21 THE WITNESS: No. Okay. Let me, let me back
22 up.

23 I think everyone involved with the Bayview
24 Project would agree that it was constructed well. I
25 mean, you know, all that seemed to go together pretty

1 good. I don't think you would find very many people
2 from Olympic that thought it was a good project.

3 MR. BESHORE: Was that because of design
4 concerns?

5 THE WITNESS: They just couldn't figure out
6 how they were suppose to use it.

7 MR. BESHORE: Okay. So, that was based on
8 the commission, commissioning and then not really being
9 able to work out, how to operate the system.

10 THE WITNESS: Yeah, I think so.

11 MR. BESHORE: Okay. All right. Does anybody
12 else got any follow up questions?

13 MR. SMYTH: Just one last one on this low
14 pressure switch and low close switch for your,
15 controlling your tanks.

16 THE WITNESS: Okay. It didn't control the
17 tanks.

18 MR. SMYTH: No. It is attached to the tanks,
19 correct?

20 THE WITNESS: It was attached, and it was on
21 the suction piping of the pumps.

22 MR. SMYTH: Pumps. Okay. And you said that
23 the low pressure switch didn't have set points that
24 when low enough to read the lowest pressure that a tank
25 might send, because it takes -- would that be 10 PSI?

1 THE WITNESS: No, the transmitter, we could
2 read the pressure from the transmitter, you know, like
3 what pound is it, that was working fine. What was
4 happening is we were trying to put in a low pressure
5 switch so that we weren't trying to run the pump, so,
6 you know, without enough head to operate. And we just
7 couldn't adjust that pressure switch low enough. And
8 so, what was happening is we were losing the pumps on
9 low suction when we really didn't need to because --

10 MR. SMYTH: They could have operated.

11 THE WITNESS: They could have operated.

12 MR. SMYTH: And so, that switch, when you
13 realized that was the wrong switch, is that something
14 that you normally would have just, you could have
15 changed out, I mean, you could have called a
16 maintenance person and they could have changed the
17 switch out or is that something that goes to
18 Engineering and they make a decision on change the
19 switch out or --

20 THE WITNESS: As I recall, Jeff called some
21 factory reps and found a switch that they thought would
22 work in that position and order.

23 MR. SMYTH: And was that switch put in prior
24 to June 10th or do you remember the switch even going
25 in or has it been put in since then?

1 THE WITNESS: I think it was put in before
2 but, I don't know.

3 MR. SMYTH: Okay. Okay. That is all I
4 have.

5 MR. KATCHMARZ: On that same exact issue, I
6 thought I just heard you say that you removed the flow
7 switch on the suction side of the pumps.

8 THE WITNESS: You are right, I did say that.
9 I am trying to remember. We kind of went back and
10 forth a couple of times. I know they ordered low
11 pressure switches.

12 (Pause.)

13 THE WITNESS: I am not sure. I don't
14 remember.

15 MR. KATCHMARZ: Okay. And my question was,
16 was there reason that you would have removed the flow
17 switch instead of purchasing --

18 THE WITNESS: Pressure switch.

19 MR. KATCHMARZ: Pressure, what we are talking
20 about.

21 THE WITNESS: I am talking about pressure
22 switch.

23 MR. KATCHMARZ: Okay, then pressure switch.

24 THE WITNESS: I know that they did order lower
25 pressure setting for those pressure switches. I don't

1 really remember. I mean --

2 MR. KATCHMARZ: I am just asking --

3 THE WITNESS: Yeah.

4 MR. KATCHMARZ: I would like to ask you the
5 question is it, would it be common, maybe, to remove
6 something that an engineer put there for a reason? Was
7 the pressure switch put there for a reason in the first
8 place?

9 THE WITNESS: Well, I remember, I mean, as far
10 as engineer, we didn't just arbitrarily just go and
11 take that out on a maintenance level. I know Hammett
12 was involved in that.

13 MR. KATCHMARZ: Okay. And Craig is an
14 engineer as far as you know?

15 THE WITNESS: Yes.

16 MR. KATCHMARZ: Okay. Thank you.

17 MR. BESHORE: Anything else?

18 MR. SAGER: I have a question. I was prompted
19 by one of your answers.

20 We were talking about Bayview and perhaps why
21 it wasn't working out. And you suggested one of the
22 problems was that no one really knew what to do it.
23 Are you referring to the controllers didn't know how to
24 optimize or use Bayview as it was intended or that no
25 one had figured out how to use Bayview as it was

1 intended?

2 (Pause.)

3 MR. SAGER: Or some other alternative?

4 THE WITNESS: I know I heard a lot of the
5 controllers kind of going, how am I suppose to do this
6 strip, you know. There weren't any real guidelines.
7 They get a schedule and say, you know, so much product
8 goes in the tank and one guy would just put all the
9 product in the tank at one time and another guy would
10 try to drip a little bit in the tank and they didn't
11 really know how they were suppose to do it.

12 MR. SAGER: The controllers didn't.

13 THE WITNESS: Yeah.

14 MR. SAGER: Did anyone?

15 THE WITNESS: I, I didn't.

16 MR. SAGER: Okay. Fair enough.

17 MR. BESHORE: I just want to ask, Ken, if
18 there is anything else that we haven't asked you about
19 that you feel like we should know, that may be
20 important to us in our investigation?

21 THE WITNESS: Well, one of the things, I keep
22 reading in the paper about, you know, those valves were
23 closing, uncommanded, you know, like they just
24 arbitrarily were closing and nobody cared about them.
25 And that wasn't the case. And the other, I mean, if

1 that had happened, we would have definitely been trying
2 to figure out, you know, first thing they would have
3 been calling me and saying, Ken, why is that valve
4 closing? You know, we knew why the pressures. The
5 other thing is I keep hearing about, you know, how
6 these valve slammed closed and it is massive pressure
7 wave was reflected back up, you know, and that picture
8 that you see there, it doesn't look to me like a
9 massive pressure wave. It looks more like a hydro. It
10 just kind of pumped up and pressured up. It wasn't
11 this big reflected wave.

12 MR. SCHALL: What is the speed of those
13 operators?

14 THE WITNESS: What is the speed of those
15 operators?

16 MR. SCHALL: Yes -- do you know?

17 THE WITNESS: I am not sure. I am thinking
18 those are two minute operators, but I don't know for
19 sure.

20 MR. BESHORE: Is there anything else?

21 THE WITNESS: No.

22 MR. BESHORE: Okay. All right. Thank you,
23 Ken, we appreciate it.

24 (Whereupon, the interview was concluded.)

1
2 REPORTER'S CERTIFICATE

3 This is to certify that the attached
4 proceedings before: NTSB
5

6
7 In the Matter of:

8 PIPELINE ACCIDENT
9

10
11
12 were held as herein appears and that this is the
13 original transcript thereof for the file of the
14 Department, Commission, Administrative Law Judge
15 or the Agency.

16 EXECUTIVE COURT REPORTERS, INC.
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18

Official Reporter

19 Dated: OCTOBER 2000
20
21
22
23
24
25



National Transportation Safety Board

Washington, D.C. 20594

In the Matter of the National Transportation Safety
Board Investigation of the Pipeline Accident Occurring
in Bellingham, Washington, on June 10, 1999.

COMPULSION ORDER

It appearing to the satisfaction of the Chairman of the National Transportation Safety Board:

1. That Kenneth Huff has been called to testify or provide other information in this matter;
2. That Kenneth Huff has refused or is likely to refuse to testify or provide other information, on the basis of his privilege against self-incrimination;
3. That in the judgment of the Chairman of the National Transportation Safety Board, the testimony or other information from Kenneth Huff may be necessary to the public interest; and
4. That this order has been issued with the approval of the Attorney General or her designated representative, pursuant to 18 USC Section 6003 and 28 CFR Section 0.175.

NOW, THEREFORE, IT IS ORDERED, pursuant to 18 USC Section 6002 and 6004, that Kenneth Huff appear and give testimony or provide other information which he has refused or is likely to refuse to provide or give on the basis of his privilege against self-incrimination as to all matters about which he may be questioned in this matter.

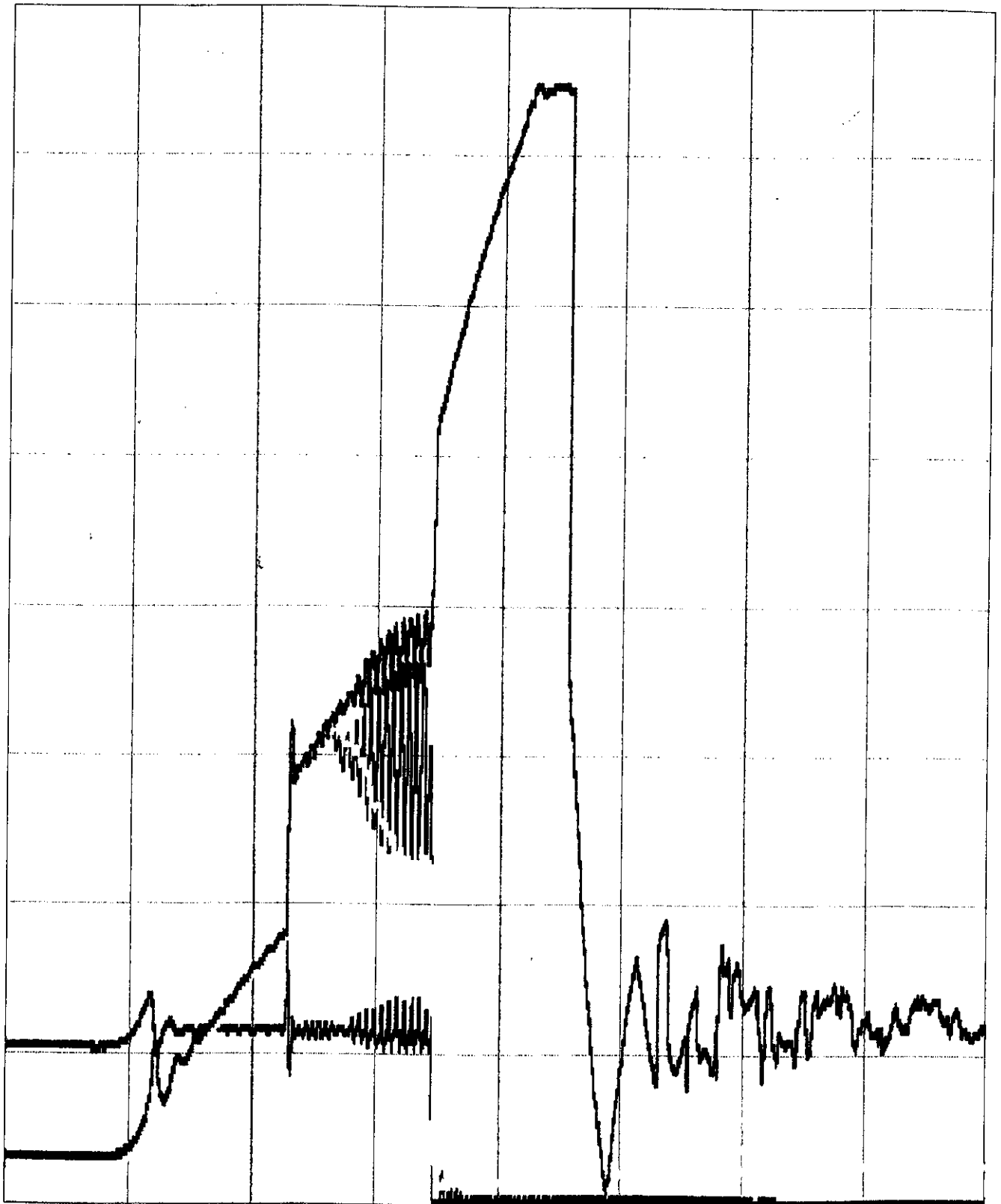
IT IS FURTHER ORDERED that in accordance with the provisions of 18 USC Section 6002, Kenneth Huff shall forever be immune from the use of such testimony or information or any information directly or indirectly derived from such testimony against him in any prosecution, penalty or forfeiture, either State or Federal or otherwise; but the witness shall not be exempt from prosecution for perjury, giving a false statement or contempt committed while giving testimony or producing evidence under this order.

Dated this 10th day of September, 2000.



Jim Hall
Chairman

Exhibit Huff #1



Pot_Disch_Press
 Pot_Inloc_Upstream_Press
 UI_Suction_Press
 Pot_Rec_Inloc_Press

BAYVIEW TERMINAL PLC

0000312

Exhibit Huff #2

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