ORIGINAL

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency:Nuclear Regulatory Commission
Incident Investigation TeamTitle:Nine Mile Point Nuclear Power Plant
Interview of:PERRY BERTSCH

Docket No.

1

LOCATION: Scriba, New York

DATE: Friday, August 23, 1991

PAGES: 1 - 10

ANN RILEY & ASSOCIATES, LTD. 1612 K St. N.W., Suite 300 Washington, D.C. 20006 (202) 293-3950.

9305060267 911031 ŌŌŌĀ10 **Þ**DR ADOCK

.

.

•

ζ.

ADDENDUM

۳,

e - 1

Correction and Reason for Correction Page Line tuning down to component level " should 17 3 to the component troubleshooting down pe **U** level and "A13 - A1" "813 - A-1" should be 8 7 "A13 - A] "813 - A-1" f) 8 13 Should ho wording + card designation. to correct Date 10/1/91 Signature ____

.

, .

1	UNITED STATES OF AMERICA
2	NUCLEAR REGULATORY COMMISSION
3	INCIDENT INVESTIGATION TEAM
4	
5	
6	Interview of :
7	PERRY BERTSCH :
8	(Closed) :
9	
10	
11	Conference Room B
12	Administration Building
13	Nine Mile Point Nuclear
14	Power Plant, Unit Two
15	Lake Road
16	Scriba, New York 13093
17	Friday, August 23, 1991
18	·
19	The interview commenced, pursuant to notice,
20	at 1:10 p.m.
21	
22	PRESENT FOR THE IIT:
23	Frank Ashe, NRC
24	Jim Stoner, Duke, NRC
25	

•

٠,

1

S. . . .

1.54

d

r,

. •

.

u

,

•

nį

PROCEEDINGS

1

2

[2:08 p.m.]

3 MR. ASHE: My name is Frank Ashe and I'm a member 4 of the Incident Investigation Team being -- as a 5 participant. I have today, Mr. Perry Bertsch who is in the 6 instrumentation and control department and we would like to 7 record some information from him.

8 Perry, could you go over and give us some of your
9 background and history with the station in terms of your
10 work activities and how long you've been employed here?

MR. BERTSCH: I've been with Niagara Mohawk since October of 1983. And I came in as a technician in the I&C department. And I've been here through most of the startup and I've worked on these units and various other equipment in the plant during that time.

MR. ASHE: Okay. When you say worked on this
equipment, could you explain --

18 MR. BERTSCH: Yes. On uninterruptable power 19 supplies, all the ones we have on site, or at least the ones 20 that are in the plant and all sorts of other equipment.

21 MR. ASHE: Could you give us some of your work 22 activities, specifics of some of your work activities?

23 MR. BERTSCH: During start-up, initial testing, 24 calibration of valves and control circuits and control cards 25 and start-up and maintenance functions on the -- on the

. ٠

र .

ч. Ч

· · · ·

, :

, . .

·

.

uninterruptable power supplies, maintenance on redundant
 reactivity control system, trouble shooting repair, doing
 various surveillance tests on the various instrumentation
 that we have in the plant.

5 MR. ASHE: Okay. In terms of the UPS that failed 6 during the event, had you previously worked on this 7 equipment?

8

MR. BERTSCH: Yes.

9 MR. ASHE: What were some of your activities with 10 regard to working on these items?

11 Initial start of initial testing, MR. BERTSCH: 12 doing the acceptance tests on the units, and then various 13 preventive maintenance along the way, various corrective 14 maintenance, you know, trouble shooting if something goes 15 wrong, assisting operators and training them on how to do 16 various things on the units. If the unit fails actually 17 going through there, you know, tuning down component level 18 replacement or fuses or whatever else. Normally various 19 things like that with electrical maintenance.

20 MR. ASHE: Were you involved with the recovery of 21 the units following their failure?

22

MR. BERTSCH: Yes.

MR. ASHE: Could you, as best you could, recall, explain your involvement and the activities that you participated in?

× • • .

12 C

h

`

-

1 MR. BERTSCH: I was a member of damage control 2 team three and we went down there to attempt to restart the 3 five Exide units. We went down and then -- let's see -reset the trips, closed the breakers in and restarted the --4 5 I forgot the order in which we started them up in. Ι 6 believe it was 1C -- started up the unit, transferred over 7 to UPS, found there wasn't any type of problem with the unit 8 in itself as far as startup or anything. Started up or 9 attempted to start all five units.

We found when we closed in CB-1 on 1A, we found we tripped the switch gear breaker twice so we didn't do anything with that and 1-Bravo we couldn't restore to service because CB-3 wouldn't close. I put the other units -- 1-Charlie, 1-Delta and 1-Gulf were returned to service.

MR. ASHE: Do you have an opinion as to what mayhave occurred with the units?

17MR. BERTSCH: At the time of the event, no.18MR. ASHE: At the time of the event?19MR. BERTSCH: At the time of the event, no.20Because I had no knowledge of, you know, all what had21transcribed, you know, prior to that. We heard we had22problems in the plant, but not as far as, you know, what23would have contributed to all the units going away.

24 MR. ASHE: Based on your knowledge today, would 25 you have an opinion as to what you believe occurred with the

.

, , , ,

•

1 events? During the event?

2 MR. BERTSCH: Just from doing some of the testing, and I'm not sure -- well, of the testing we've done so far 3 we're not totally finished. I'm not sure if we've got --4 5 you know, there's no real cause yet, but it looks like part 6 of the problem is the units being -- getting their logic AC 7 voltage -- or the AC voltage for the power supply is coming 8 from maintenance power instead of what we believed 9 originally was UPS power. And so when maintenance went away 10 we lost logic power to maintain the units and they tripped 11 off.

And then also during the same occurrence of Bphase transformer going -- output going low, it wound up giving the units a signal or a low voltage saying not to transfer over to maintenance and with that being watched or present at the time the unit will not transfer to maintenance so you wind up with a loss of all output power.

18 MR. ASHE: Okay. Do you have an opinion as ot why19 the class 1-E units were not lost?

20 MR. BERTSCH: Class 1-E's are a different design 21 and the fact that they maintain their logic voltage from the 22 DC off a DC to DC converter.

23 MR. ASHE: Okay. Could you describe current 24 changes in the -- perhaps preventative maintenance program 25 or even in the design that you're currently aware of that or

.

. ' ' ' ' '

u ,

v

. , • • •

P

1 that are currently being considered?

9

2 MR. BERTSCH: According to our vendor manual, in 3 the description section it shows the units would prefer UPS 4 output voltage over maintenance as their source for AC for 5 the logic power. And I guess in our units it's not that way 6 and per the vendor shortly after our units they changed 7 their design where logic power comes from UPS power, output 8 instead of maintenance.

MR. ASHE: Okay. So shortly after --

10 MR. BERTSCH: Some timeframe after according to 11 Exide, the next generation or something -- after our units 12 they changed the wiring over to the UPS preferred instead of 13 maintenance preferred which are ours.

MR. ASHE: Okay. Is there a reason why you, perhaps, would not have been aware of that information, a design change on the unit that apparently was made -- in other words, would you have information that would provide that information to you?

MR. BERTSCH: Not that I'm aware of, because we don't get -- you know, after a unit is sent to us, we don't get, you know, the information on designs that were after that. It's like just about anything else in the plant, the wordage in the instruction booklet showed that it was UPS preferred instead of maintenance preferred and we didn't realize it was maintenance preferred until we had the vendor

. -,

,

• ۰. ۲

,

•

.

in with us doing trouble shooting and then we realized the
 UPS is maintenance preferred.

MR. ASHE: To your knowledge, has any modifications been made to the units prior to this event and perhaps subsequent to the units arriving on site?

6 MR. BERTSCH: There has been a mod done to them 7 since they have been on site. And that was just for ground 8 detection on the 813-A-1 board.

9 MR. ASHE: Could you explain or describe that 10 modification?

11 MR. BERTSCH: The modification was done in the 12 fact that the units are designed to come off a dedicated 13 battery and the units themselves do ground detection and 14 give you an alarm if there's a ground on the batteries.

However, since we come off stations batteries which supply numerous devices, operators perform ground detection up in the control room. And with having two ground detection systems, is when they did a ground detection test up in the control room and actually feed a ground into the unit, the unit would pick up.

So, therefore, they decided instead of getting an annunciator every time they did ground detection or a certain percentage of time thereof, that was disabled in the unit, so it will not give you an alarm.

25

MR. ASHE: In your opinion, could this have

* · · · si .

,

.

.

* · · ·

1 contr:

•

contributed or was it relatable to the --

2 MR. BERTSCH: No, it was totally --3 MR. ASHE: -- performance --4 MR. BERTSCH: -- unrelatable. 5 MR. ASHE: During your servicing of the units, 6 have you observed any units having special anomalies or 7 characteristics that might be worth mentioning? 8 [Pause.] 9 MR. BERTSCH: Let's see -- the only difference --10 MR. ASHE: Are there any anomalies that you're 11 aware of with a particular unit?

12 MR. BERTSCH: Unit one at UPS-1A is slightly 13 different in the fact that it's got a new generation 813-A-1 14 card in there. So when that unit is started up, you get an 15 alarm indicating that circuit breaker 2, the DC input 16 breaker is still opened until that's closed. And that's 17 just the fact that we've got -- they don't make our --18 certain of our cards anymore and there's a new generation 19 card in there. That's the only difference between UPS-1A 20 and versus 1B, 1C, 1D and 1G.

21 MR. ASHE: Are there any special characteristics 22 of a particular unit that you would consider undesirable 23 prior to this event occurring?

24 MR. BERTSCH: Not really. The only thing we seem 25 to have problems with -- we've had problems, you know on

1

· .

.

.

1 occasions with CB-3 and CB-4 switching, you know, maybe the 2 design of that, but they're not designed to be cycled as 3 often as we do -- being in a station and going through 4 startup. But other than that, there's nothing that I --5 MR. ASHE: -- can think of. So, prior to the 6 event, as far as your knowledge, the performance of the 7 units were satisfactory?

8 MR. BERTSCH: Pretty much. The fact that they 9 have -- 1C and 1D are running at load. That's the only 10 problem I can see with those, but as far as the other ones, 11 there isn't --

12 MR. ASHE: Were there any maintenance request or 13 work orders that you are aware of that suggested work to be 14 done on some units prior to the event?

MR. BERTSCH: UPS-1B, to have CB-3 breaker
replaced.

MR. ASHE: Why? Do you recall why that breakerwas being replaced?

19 MR. BERTSCH: Because the motor operator wouldn't 20 have enough comph to close the breaker -- or actually no, to 21 reset the breaker on a trip. The unit on a transfer to 22 bypass sends a trip signal to the motor operator to open the 23 breaker and also a shunt trip signal to CB-3 and CB-3 would 24 trip, but the motor operator didn't have enough force to be 25 able to reset the breaker. The motor operator was replace

.

.

previously and it had no effect. So we suspect there's a problem with the circuit breaker itself, requiring too much force to reset. MR. ASHE: Is there anything else, Perry, that you would like to share with us that I haven't asked you? That perhaps I should have. [Pause.] MR. BERTSCH: I'm not sure what else there would be. MR. ASHE: Okay. Jim, do you have any additional questions? MR. STONER: No. MR. ASHE: This completes this interview. [Whereupon, at 2:22 p.m., the taking of the interview was concluded.]

ч.

. .

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

In the Matter of:

e.

NAME OF PROCEEDING: Interview of Perry Bertsch

DOCKET NUMBER: (Not applicable)

PLACE OF PROCEEDING: Scriba, New York

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Mark Handy

Mark Handy Official Reporter Ann Riley & Associates, Ltd.



OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant Interview of: PERRY BERTSCH

Docket No.

LOCATION: Scriba, New York

DATE: Friday, August 23, 1991

PAGES: 1 - 10

ANN RILEY & ASSOCIATES, LTD. 1612 K St. N.W., Suite 300 Washington, D.C. 20006 (202) 293-3950

Dupe of

.

,

a

*

,

ADDENDUM

Correction and Reason for Correction Line Page tuning down to component level " should 17 3 +roubleshooting the component +2 be **N** level and A13 - A1" 813 - A-1" " should be 8 "A<u>13 - A</u>] "813 - A - 1" Should ŋ 8 13 . •,• decignation wording card 40 ۲. Corret. . • • ۰, • Date <u>Id 1/91</u> Signature ____

14 - - V • • . .

• .

.

1	UNITED STATES OF AMERICA
2	NUCLEAR REGULATORY COMMISSION
3	INCIDENT INVESTIGATION TEAM
4	
5	
6	Interview of :
7	PERRY BERTSCH :
8	(Closed) :
9	
10	
11	Conference Room B
12	Administration Building
13	Nine Mile Point Nuclear
14	Power Plant, Unit Two
15	Lake Road
16	Scriba, New York 13093
17	Friday, August 23, 1991
18	
19	The interview commenced, pursuant to notice,
20	at 1:10 p.m.
21	
22	PRESENT FOR THE IIT:
23	Frank Ashe, NRC
24	Jim Stoner, Duke, NRC
25	

ĸ

ي. ما بستني

•

à

4

1

•



PROCEEDINGS

1

2

[2:08 p.m.] '

MR. ASHE: My name is Frank Ashe and I'm a member of the Incident Investigation Team being -- as a participant. I have today, Mr. Perry Bertsch who is in the instrumentation and control department and we would like to record some information from him.

8 Perry, could you go over and give us some of your 9 background and history with the station in terms of your 10 work activities and how long you've been employed here?

11 MR. BERTSCH: I've been with Niagara Mohawk since 12 October of 1983. And I came in as a technician in the I&C 13 department. And I've been here through most of the startup 14 and I've worked on these units and various other equipment 15 in the plant during that time.

MR. ASHE: Okay. When you say worked on this
equipment, could you explain --

MR. BERTSCH: Yes. On uninterruptable power supplies, all the ones we have on site, or at least the ones that are in the plant and all sorts of other equipment.

21 MR. ASHE: Could you give us some of your work 22 activities, specifics of some of your work activities?

23 MR. BERTSCH: During start-up, initial testing, 24 calibration of valves and control circuits and control cards 25 and start-up and maintenance functions on the -- on the

1 • L. ۲

-,

.

•

1 uninterruptable power supplies, maintenance on redundant 2 reactivity control system, trouble shooting repair, doing 3 various surveillance tests on the various instrumentation that we have in the plant. 4

MR. ASHE: Okay. In terms of the UPS that failed 5 6 during the event, had you previously worked on this 7 equipment?

8 MR. BERTSCH:

MR. ASHE: What were some of your activities with

9 10 regard to working on these items?

Yes.

11 MR. BERTSCH: Initial start of initial testing, 12 doing the acceptance tests on the units, and then various 13 preventive maintenance along the way, various corrective 14 maintenance, you know, trouble shooting if something goes 15 wrong, assisting operators and training them on how to do 16 various things on the units. If the unit fails actually 17 going through there, you know, tuning down component level 18 replacement or fuses or whatever else. Normally various 19 things like that with electrical maintenance.

20 MR. ASHE: Were you involved with the recovery of 21 the units following their failure?

22

MR. BERTSCH: Yes.

23 MR. ASHE: Could you, as best you could, recall, 24 explain your involvement and the activities that you 25 participated in?



1 MR. BERTSCH: I was a member of damage control 2 team three and we went down there to attempt to restart the 3 five Exide units. We went down and then -- let's see --4 reset the trips, closed the breakers in and restarted the --5 I forgot the order in which we started them up in. Ι 6 believe it was 1C -- started up the unit, transferred over' 7 to UPS, found there wasn't any type of problem with the unit 8 in itself as far as startup or anything. Started up or 9 attempted to start all five units.

We found when we closed in CB-1 on 1A, we found we tripped the switch gear breaker twice so we didn't do anything with that and 1-Bravo we couldn't restore to service because CB-3 wouldn't close. I put the other units -- 1-Charlie, 1-Delta and 1-Gulf were returned to service.

MR. ASHE: Do you have an opinion as to what mayhave occurred with the units?

17MR. BERTSCH: At the time of the event, no.18MR. ASHE: At the time of the event?19MR. BERTSCH: At the time of the event, no.20Because I had no knowledge of, you know, all what had21transcribed, you know, prior to that. We heard we had22problems in the plant, but not as far as, you know, what23would have contributed to all the units going away.

24 MR. ASHE: Based on your knowledge today, would 25 you have an opinion as to what you believe occurred with the

, ,

* 3

· . **,** .

1 events? During the event?

2	MR. BERTSCH: Just from doing some of the testing,
3	and I'm not sure well, of the testing we've done so far
4	we're not totally finished. I'm not sure if we've got
5	you know, there's no real cause yet, but it looks like part
6	of the problem is the units being getting their logic AC
7	voltage or the AC voltage for the power supply is coming
8	from maintenance power instead of what we believed
9	originally was UPS power. And so when maintenance went away
10	we lost logic power to maintain the units and they tripped
11	off.
12	And then also during the same occurrence of B-
13	phase transformer going output going low, it wound up
14	giving the units a signal or a low voltage saying not to
15	transfer over to maintenance and with that being watched or

16 present at the time the unit will not transfer to 17 maintenance so you wind up with a loss of all output power.

18 MR. ASHE: Okay. Do you have an opinion as ot why
19 the class 1-E units were not lost?

20 MR. BERTSCH: Class 1-E's are a different design 21 and the fact that they maintain their logic voltage from the 22 DC off a DC to DC converter.

23 MR. ASHE: Okay. Could you describe current 24 changes in the -- perhaps preventative maintenance program 25 or even in the design that you're currently aware of that or

ι. . . .

1

.

.

1 that are currently being considered?

MR. ASHE: Okay.

9

2 MR. BERTSCH: According to our vendor manual, in 3 the description section it shows the units would prefer UPS 4 output voltage over maintenance as their source for AC for 5 the logic power. And I guess in our units it's not that way 6 and per the vendor shortly after our units they changed 7 their design where logic power comes from UPS power, output 8 instead of maintenance.

MR. BERTSCH: Some timeframe after according to Exide, the next generation or something -- after our units they changed the wiring over to the UPS preferred instead of maintenance preferred which are ours.

So shortly after --

MR. ASHE: Okay. Is there a reason why you, perhaps, would not have been aware of that information, a design change on the unit that apparently was made -- in other words, would you have information that would provide that information to you?

MR. BERTSCH: Not that I'm aware of, because we don't get -- you know, after a unit is sent to us, we don't get, you know, the information on designs that were after that. It's like just about anything else in the plant, the wordage in the instruction booklet showed that it was UPS preferred instead of maintenance preferred and we didn't realize it was maintenance preferred until we had the vendor

, .

. -

.

.

in with us doing trouble shooting and then we realized the
 UPS is maintenance preferred.

MR. ASHE: To your knowledge, has any modifications been made to the units prior to this event and perhaps subsequent to the units arriving on site?

6 MR. BERTSCH: There has been a mod done to them 7 since they have been on site. And that was just for ground 8 detection on the 813-A-1 board.

9 MR. ASHE: Could you explain or describe that 10 modification?

11 MR. BERTSCH: The modification was done in the 12 fact that the units are designed to come off a dedicated 13 battery and the units themselves do ground detection and 14 give you an alarm if there's a ground on the batteries.

However, since we come off stations batteries which supply numerous devices, operators perform ground detection up in the control room. And with having two ground detection systems, is when they did a ground detection test up in the control room and actually feed a ground into the unit, the unit would pick up.

So, therefore, they decided instead of getting an annunciator every time they did ground detection or a certain percentage of time thereof, that was disabled in the unit, so it will not give you an alarm.

25

MR. ASHE: In your opinion, could this have

ı

•

۹.

contributed or was it relatable to the --

1

2

3

8

MR. BERTSCH: No, it was totally --MR. ASHE: -- performance --

4

MR. BERTSCH: -- unrelatable.

5 MR. ASHE: During your servicing of the units, 6 have you observed any units having special anomalies or 7 characteristics that might be worth mentioning?

[Pause.]

9 MR. BERTSCH: Let's see -- the only difference --10 MR. ASHE: Are there any anomalies that you're 11 aware of with a particular unit?

12 MR. BERTSCH: Unit one at UPS-1A is slightly 13 different in the fact that it's got a new generation 813-A-1 14 card in there. So when that unit is started up, you get an 15 alarm indicating that circuit breaker 2, the DC input 16 breaker is still opened until that's closed. And that's 17 just the fact that we've got -- they don't make our --18 certain of our cards anymore and there's a new generation . 19 card in there. That's the only difference between UPS-1A 20 and versus 1B, 1C, 1D and 1G.

21 MR. ASHE: Are there any special characteristics 22 of a particular unit that you would consider undesirable 23 prior to this event occurring?

24 MR. BERTSCH: Not really. The only thing we seem 25 to have problems with -- we've had problems, you know on

• • • · · ·

4

н. Г ie. . ł

1 occasions with CB-3 and CB-4 switching, you know, maybe the 2 design of that, but they're not designed to be cycled as 3 often as we do -- being in a station and going through 4 startup. But other than that, there's nothing that I --5 MR. ASHE: -- can think of. So, prior to the 6 event, as far as your knowledge, the performance of the 7 units were satisfactory?

8 MR. BERTSCH: Pretty much. The fact that they 9 have -- 1C and 1D are running at load. That's the only 10 problem I can see with those, but as far as the other ones, 11 there isn't --

12 MR. ASHE: Were there any maintenance request or 13 work orders that you are aware of that suggested work to be 14 done on some units prior to the event?

MR. BERTSCH: UPS-1B, to have CB-3 breaker
replaced.

MR. ASHE: Why? Do you recall why that breakerwas being replaced?

19 MR. BERTSCH: Because the motor operator wouldn't 20 have enough comph to close the breaker -- or actually no, to 21 reset the breaker on a trip. The unit on a transfer to bypass sends a trip signal to the motor operator to open the 22 breaker and also a shunt trip signal to CB-3 and CB-3 would 23 24 trip, but the motor operator didn't have enough force to be 25 able to reset the breaker. The motor operator was replace

, . . . ,

1

· · · · ·

previously and it had no effect. So we suspect there's a problem with the circuit breaker itself, requiring too much force to reset. MR. ASHE: Is there anything else, Perry, that you would like to share with us that I haven't asked you? That perhaps I should have. [Pause.] MR. BERTSCH: I'm not sure what else there would be. MR. ASHE: Okay. Jim, do you have any additional questions? MR. STONER: No. MR. ASHE: This completes this interview. [Whereupon, at 2:22 p.m., the taking of the interview was concluded.]

A

• •

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

In the Matter of:

NAME OF PROCEEDING: Interview of Perry Bertsch

DOCKET NUMBER: (Not applicable)

PLACE OF PROCEEDING: Scriba, New York

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

and

Mark Handy Official Reporter Ann Riley & Associates, Ltd.

, .

•

• •

.