

NUCLEAR REGULATORY COMMISSION

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In the Matter of:

HOUSTON LIGHTING & POWER COMPANY, et al.	)	
	)	DOCKET NOS. 50-498 OL
South Texas Nuclear Project Units 1 & 2	)	50-499 OL

DATE: June 22, 1981

PAGES: 5551 thru 5913

AT: San Antonio, Texas



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## UNITED STATES OF AMERICA

BEFORE THE

NUCLEAR REGULATORY COMMISSION

In the Matter of:

HOUSTON LIGHTIN & POWER  
COMPANY, ET ALSouth Texas Nuclear Project  
Units 1 and 2X  
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XDocket Nos. 50-498 OL  
50-499 OLBankruptcy Courtro  
Third Floor  
Federal Building

San Antonio, Texas

Monday  
June 22, 1981

PURSUANT TO ADJOURNMENT, the above-entitled  
matter came on for further hearing at 9:30 a.m.

## APPEARANCES:

Board Members:

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Administrative Law Judge  
Atomic Safety & Licensing Board  
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20	CCANP No. 23	5701	Not offered
21	Applicant's No. 43	5679	5681
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P R O C E E D I N G S

1  
2 JUDGE BECHHOEFER: Good morning, ladies and  
3 gentlemen.

4 This hearing represents a continuation of  
5 the Atomic License hearings, which have been held  
6 during the past few weeks in Bay City, Texas, and Houston,  
7 Texas.

8 The subject matter of these hearings, broadly  
9 speaking, are the quality assurance/quality control  
10 problems which have been raised in connection with the  
11 construction and operation of the South Texas facility.

12 Because we are in a new location, I will  
13 introduce the Board, and then ask the parties, also, to  
14 introduce themselves.

15 On my left is Judge Ernest Hill. He is  
16 employed at Livermore Laboratory in California, for his  
17 full-time occupation.

18 On my right is Dr. James Lamb of the  
19 University of North Carolina. Dr. Lamb is an  
20 Environmental Scientist.

21 I might add Judge Hill is a Nuclear Engineer.

22 My name is Charles Bechhoefer. I am an  
23 attorney with the Atomic Safety & Licensing Board Panel  
24 of the Nuclear Regulatory Commission.

25 I might add, I don't have sign, and that's

1 representative, because my name is the most difficult  
2 to spell.

3 I would, for the benefit of those who have  
4 not been here, the parties to identify themselves.

5 MR. NEWMAN: Mr. Chairman, I am Jack Newman  
6 of the Washington law firm of Lowenstein, Newman, Reis,  
7 and Axelrad.

8 On my left is my partner, Maurice Axelrad.

9 On my right is our co-counsel Finis Cowan  
10 with the Houston law firm of Baker & Botts.

11 JUDGE BECHHOEFER: Mr. Jordan.

12 MR. JORDAN: Mr. Chairman, I am William Jordan,  
13 of the firm of Harmon & Weiss in Washington, D. C.,  
14 representing Citizens for Equitable Utilities, Inc.,  
15 in this proceeding.

16 On my right is Geoffrey Gay of Fort Worth,  
17 who is my co-counsel.

18 JUDGE BECHHOEFER: Mr. Sinkin.

19 MR. SINKIN: Mr. Chairman, my name is Lanny  
20 Sinkin. I am a pro se representative of Citizens  
21 Concerned About Nuclear Power, based in San Antonio,  
22 Texas.

23 JUDGE BECHHOEFER: Mr. Reis.

24 MR. REIS: Mr. Chairman, my name is Edwin  
25 Reis. I am with the Nuclear Regulatory Commission.



3  
1 To my right is Jay Gutierrez, another attorney  
2 for the Nuclear Regulatory Commission, and to his right  
3 is Joe Tapia, an engineering consultant to the Staff.

4 Sitting to my left will be Donald Sells, who  
5 is Project Manager of this Project, who had to step out  
6 for a moment.

7 JUDGE BECHHOEFER: This morning we are going  
8 to begin the session with limited appearance statements  
9 from those who wish to make such statements.

10 Those statements are not evidence, as such,  
11 but if they present matters which should be taken into  
12 account by the Board we may ask the parties to address  
13 them. .

14 These statements will be limited to approxi-  
15 mately five minutes each.

16 I notice from the sing-up sheet that we  
17 have many more persons signed up for the daytime session  
18 than for the evening session.

19 To the extent that any of the people signed  
20 up for the daytime session wish to do so, or could do so,  
21 I think it would be preferable for as many people as  
22 possible to be heard tonight.

23 Tonight we have decided not to take any  
24 evidentiary material, so that the entire session,  
25 beginning at 7:30 tonight, will be for limited appearances.

1 We had announced that it would be through 9:00. If  
2 necessary, we could run as late as, just before 10:00  
3 o'clock. We have to be out of the building by 10:00.

4 The persons who are going to make statements  
5 should come up to the microphone in the center here.

6 MR. REIS: Mr. Chairman, I think there are  
7 additional names that have been signed over on that  
8 sheet, as well as the ones you already have

9 May I also suggest, that just as in boarding  
10 of an aircraft that maybe the people with small children  
11 who are here and have other things to attend to might be  
12 heard first, for their convenience.

13 JUDGE BECHHOEFER: In terms of -- I would  
14 normally call people in the order in which they are  
15 listed, but I would be willing to have people with small  
16 children appear first.

17 I also have one name -- two people who had  
18 asked to heard early, and I had thought I would call  
19 them first.

20 The first is Martin Raitiere.

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1 STATEMENT  
2 of  
3 MARTIN RAITIERE

4 MR. RAITIERE: My name is Martin Raitiere.  
5 I am presently a medical student here in San Antonio.  
6 I am the Chairman of San Antonio's Chapter of Physicians  
7 For Social Responsibility, a non-profit organization  
8 dedicated to informing the medical community, as well as  
9 the general public about the medical hazards of nuclear  
10 technology.

11 I would like to tell you something about  
12 this group, by way of suggesting that the opposition to  
13 nuclear power in this country comes from a responsible  
14 well-informed and politically non-partisan septrum of  
15 interest.

16 Five thousand doctors across the country  
17 belong to Physicians For Social Responsibility. Many of  
18 them distinguished members of the medical community from  
19 such schools as Harvard, Yale and MIT.

20 PSR members have gathered much medical  
21 evidence, testifying to the hazards of the nuclear fuel  
22 chain. They have come to the following conclusions:

23 One: From a medical point of view nuclear  
24 power plants are unsafe, due to large accidents or smaller  
25 planned or unplanned releases radioactive effluents enter

1 the air and water. These effluents contain isotopes  
2 that can cause cancers, leukemias, and genetic diseases.

3 As early as last Thursday Department of Energy  
4 officials admitted that a government-owned facility in  
5 Oak Ridge, Tennessee has accidentally a minimum of 11,270  
6 pounds of radioactive uranium hexachloride gas, since the  
7 facility opened in 1945.

8 While the DOE spokesman claimed the releases  
9 do not represent any measurable health hazard, an NRC  
10 consultant disagreed, noting that any uranium pollution  
11 would cause health problems.

12 The fact that the harmful effects may not be  
13 immediate, cancers may not appear for 15 to 30 years,  
14 and latent genetic damage not until generations later,  
15 in no way mitigates the seriousness of this threat.

16 Two: Nuclear waste cannot be safely stored.  
17 The average nuclear plant produces 33 metric tons of  
18 radioactive waste annually, including 500 pounds of  
19 plutonium 239, which has a half life of 24,400 years.

20 A study by the U. S. Environmental Protection  
21 Agency notes there is no evidence that the integrity of  
22 high-level waste storage cannisters can be guaranteed  
23 for more than a decade.

24 A Department of Energy Report obtained last  
25 Tuesday concedes that by the Year 2000 only 19 years from



1 now the nation will be burden with millions of tons of  
2 atomic waste, and leaves unresolved the question of how  
3 to dispose of it safely.

4 This report also projects that by the Year  
5 2000 the nation's nuclear generating capacity will be a  
6 mere 100,000 megawatts; whereas, a decade ago nuclear  
7 energy officials believed that by that date the U.S.  
8 would have an atomic generating capacity of more than  
9 one million megawatts.

10 Three: We don't need nuclear power to solve  
11 the energy crisis. Nuclear power provides 13 percent of  
12 America's electricity, and only three percent of our  
13 total energy. This contribution could easily be replaced  
14 by many alternatives.

15 A five-year study undertaken at the Harvard  
16 Business School concluded that American could cut its  
17 consumption by 50 percent through conservation and  
18 renewable technologies.

19 Ways to tap energy from the sun, wind, rivers  
20 and biomass already exist. To speed their implementation  
21 we have but to invest the capital presently tied up in  
22 nuclear technology.

23 Four: Nuclear power is not an example of a  
24 peaceful use of the atom. Nuclear power plants generate  
25 plutonium. Over 20 countries have thus gained access to

1 the material for nuclear bombs.

2 The concept of atoms for peace apart from the  
3 limiting case of nuclear medicine is by and large a fraud.

4 In light of the foregoing observations, based  
5 on sound scientific analyses, and backed by the authority  
6 of a group that numbers among its members many distinguished  
7 American physicians, I urge the Atomic Safety & Licensing  
8 Board of the NRC, to deny a nuclear plant operating status  
9 for the first time in its history.

10 Thank you.

11 JUDGE BECHHOEFER: I have next a representative  
12 I guess of the League of Women Voters.

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## STATEMENT OF MARY WHITE

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MS. WHITE: Thank you, Mr. Chairman.

My name is Mary White. I'm president of the San Antonio League of Women Voters.

The League of Women Voters stands for an open government that is, among other things, accountable and responsible to all citizens and the League is supporting meaningful citizen participation.

The League of Women Voters questions the accessibility of these formal NRC hearings on such matters as the STNP.

How can the general public become aware of the mechanics of participation? Adequate information has not been disseminated.

The League of Women Voters has followed the construction of the STNP for three years. We toured the plant a year ago and studied the Show Cause Order.

We became concerned over the safety problems revealed in that Order.

In July we made a statement, which is attached to this, at the City Council Hearings in order to alert the public to the serious problems in construction.

In August we attended the NRC meetings at Bay City, and in November we met with the Regional Director, Mr. Seyfrit.

In spite of all of this involvement, and in

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1 spite of the fact that we're a relatively well educated  
2 group of citizens, we were unaware until just a few days  
3 ago that we would be allowed to make a statement here.

4 We have not been able to see the recent  
5 updates on the welding, cement or soil foundation problems  
6 that beset the plant.

7 We question why it's necessary. Who is  
8 responsible for informing the public. Should it be the  
9 NRC? Should it be our own utility, or the managing  
10 conservator, Houston Lighting & Power?

11 If a person or group feels that he has  
12 legitimate concerns and wants to act effectively, must  
13 he be unemployed and wealthy in order to hire counsel and  
14 pay for travel and lodging in the city where the hearings  
15 are being held?

16 We realize that the NR is trying to give  
17 the public a voice in these matters, but the process is  
18 so lengthy, complicated and costly that it discourages  
19 the majority from even considering participation.

20 Only because of the charges and evidence  
21 that surfaced as a result of the efforts of the present  
22 intervenors did the NRC begin to take a close look at  
23 what was going on at the STNP.

24 The result was the Show Cause Order, the fine  
25 and the shutdown in the major area of -- major areas of



2-3

1 construction for a year.

2 This indicates a real importance for public  
3 input and public knowledge.

4 To be an Intervenor you must live with a  
5 50-mile radius of the plant.

6 We question whether this is reasonable, when  
7 four cities are involved in this plant and only one of  
8 them falls within that radius.

9 Also, San Antonio is downwind from this  
10 facility, making it most vulnerable should there be an  
11 accident.

12 We need accurate and objective information,  
13 and this must be presented to the public, and we must  
14 have a more realistic and practical criteria for public  
15 input in these hearings.

16 Thank you.

17 JUDGE BECHHOEFER: At this point I might  
18 comment, Ms. White.

19 Many weeks ago I approved a press release  
20 which was supposed to have been issued in addition to  
21 the notices in the Federal Registers, there was supposed  
22 to have been press releases to all the newspapers in  
23 the area.

24 I can't tell you whether it ever got out,  
25 but I approved it many weeks ago.

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MS. WHITE: There were a number of press releases printed, and we kept a neat clipping file, but as usual, those kind of things are relatively superficial and the way they read, it would have indicated that only the Intervenors were going to speak when you all came here.

That's the reason that until about five days ago all of a sudden we said, hey, we are going to be allowed to say something. Can we?

JUDGE BECHHOEFER: But the release I approved specifically said that limited appearance statements would be taken, both in the morning session and in the evening session, and it was supposed to have emphasized that.

MS. WHITE: Maybe we should be addressing this to the media.

Thank you, sir.

JUDGE BECHHOEFER: I might also add, there are several public document rooms for this facility, and information concerning all of these proceedings should be there, all the detailed information.

But I'll also confess I haven't gone around to read them there.

MS. WHITE: We've driven down to Bay City a couple of times. Thank you.

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JUDGE BECHHOEFER: Thank you.

Pat Legan.

I hope I've pronounced your name right.

MR. LEGAN: I can assure you I've been called worse than that. I say Legan, but it doesn't matter.

Thank you.

///

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STATEMENT  
OF  
PAT LEGAN

MR. LEGAN: I'll be very brief.

My name is Pat Legan. I'm appearing here simply as a citizen of San Antonio.

I was born here, raised here a long time ago and I've been in business here for 35 years now.

For the last ten years I've devoted a good bit of my time to trying to help San Antonio develop economically.

I've served as President of the Chamber of Commerce and as a Member of the Board of the Economic Development Foundation, and numerous committees.

I've also had the pleasure of serving on two task forces to try to examine the energy needs of San Antonio for the future, and a result of all this I can tell you I'm not an energy expert and I'm not a nuclear expert.

I'm just a businessman and a citizen.

But I have come to some definite conclusions and I want to pass these on to you, and I won't even use my whole five minutes, I hope.

I've concluded that the South Texas Nuclear plant is very badly needed by San Antonio, and as quickly as possible.

1 I've also concluded that it's had more than  
2 its share of problems, that it's had its share of waste  
3 and mismanagement, and I deplore that.

4 At the same time, I haven't gotten to be  
5 sixty years old without observing that most things  
6 human beings do in this world seem to have their share  
7 of mismanagement and cost slippages and time slippages.

8 I'm not defending what has gone on down  
9 there, but I am hopeful that we can put this behind us  
10 and have an expeditious resolution of these problems.

11 I think that San Antonio absolutely depends  
12 upon this additional source of energy for the jobs that  
13 we're going to need for our community.

14 We're just beginning to grow now. We're a  
15 poor community. Our wage standard is well below other  
16 communities of like size in the country.

17 We're now beginning to get the kind of  
18 industry that can give our poor people a better shake  
19 in life with better jobs and more jobs, and that can  
20 keep our children and grandchildren here in our community.

21 We are going to need the power that this  
22 plant will produce, and it's my earnest hope that the  
23 Commission will move expeditiously to fully, fairly and  
24 openly consider all of the problems, but I would hope  
25 that problems that have already been considered in other



1 hearings, or problems that will be addressed in future  
2 required hearings, will not be a redundant matter that  
3 would further delay our project.

4 I thank you very much for the opportunity to  
5 make this short statement.

6 JUDGE BECHHOEFER: Next, are there any of  
7 this with children who would like to make statements  
8 fairly early?

9 Come on up.

10 Will you identify yourself, please.

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1 STATEMENT  
2 OF  
3 BETSY TENNENBAUM

4 MS. TENNENBAUM: My name is Betsy Tennenbaum.

5 Gentlemen, I speak to you as a concerned  
6 citizen of San Antonio, as a taxpayer, as a professional,  
7 as the Acting President of the San Antonio Forum on Energy,  
8 as a wife, and above all as a mother.

9 I'm here to urge you to deny Houston Lighting  
10 & Power a license to operate the South Texas Nuclear  
11 plant. My reasons follow.

12 I begin with a disturbing pronouncement  
13 from the Union of Concern Scientists.

14 They say that unless we dispense with nuclear  
15 armants and nuclear power we human beings have less than  
16 a 40 percent chance of surviving past the year 2000.

17 A few months ago, when Dr. George Walk, a  
18 Nobel Prize winning biochemist from Harvard said this,  
19 I sat, like many others, rivited to my seat; depressed,  
20 anguished, terrified.

21 Now, lest you think me impressionable and  
22 the Union of Concerned Scientists rash, let me remind  
23 you who they include:

24 Dr. James Watson, Nobel Laureate from  
25 Harvard, who discovered the structure of DNA.

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1 Dr. Linus Pauly from Stanford, who won the  
2 Nobel Prize on two different occasions for work in  
3 chemistry.

4 Dr. Harold Urey, a Nobel Laureate in chemistry  
5 from Stanford.

6 Dr. John Gofman, Professor Emeritus of  
7 medical physics at the University of California at  
8 Berkeley.

9 Dr. Bernard Lown, Chairman of the Harvard  
10 School of Public Health. To name just a few.

11 These distinguished scientists and physicians,  
12 at the peak of their respective professions, are issuing  
13 us a warning, one which we must listen to most carefully.

14 When you consider the following facts about  
15 nuclear technology, hair-raising facts, you begin to  
16 understand why our odds of survival are so bad.

17 And if you have the dubious distinction of  
18 living only 150 miles upwind from one of the most ill-  
19 constructed nuclear power plants in the country, one's  
20 odds of survival become that much more diminished.

21 First, there is the problem of emissions  
22 from nuclear reactors.

23 As you know, each reactor daily leaks  
24 radioactive effluents which are carcinogenic and mutagenic.

25 According to Dr. Ernest Steinglass, Professor

2-11

1 of radiologic physics at the University of Pittsburgh  
2 School of Medicine, the cancer rate near nuclear plants  
3 is five to six times that of areas without nuclear  
4 reactors nearby.

5 Not surprisingly, the rate of cancer  
6 mortality varies directly with the size of the nuclear  
7 plant.

8 The South Texas Nuclear plant will, if  
9 completed, be one of the largest in the United States.

10 Then there is the problem of radioactive  
11 waste.

12 After three decades and millions of dollars  
13 of research, there is still no satisfactory answer to  
14 its storage.

15 Furthermore, several very serious accidents  
16 at nuclear power plants have already occurred.

17 In 1952 there was -- at Chalk River, Canada,  
18 the core was largely destroyed.

19 In 1957, radiation from Britain's Windscale  
20 plant contaminated the countryside.

21 In 1958, at a vast nuclear complex in  
22 Kyshtym, a small town in the Ural Mountains of Russia,  
23 a waste repository site exploded. It went critical.

24 Hundreds of people died, and today this vast  
25 area is a wasteland.

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1 In 1961, at the SL-1 plant in Idaho Falls,  
2 three workers were killed because of incorrect usage of  
3 the control rods. Another example of human frailty,  
4 something that is hard to predict and contain.

5 In 1966, at the Enrico Fermi plant in  
6 Detroit there was a meltdown of the reactor core.

7 As one nuclear engineer said, "We almost  
8 lost Detroit."

9 In 1975, at the Browns Ferry plant in  
10 Alabama, a raging fire put the safety system out of  
11 commission.

12 We all know about Three Mile Island, plus  
13 the most recent accident in Japan, and there are others.

14 As if this were not enough, there is a  
15 problem of plutonium, which is generated in nuclear  
16 power plants.

17 Over 500 pounds per year; only ten to twenty  
18 pounds of plutonium, you could carry it in a shopping bag,  
19 are needed to make an atomic bomb.

20 To date, enough plutonium to make several  
21 bombs is, in quotes, unaccounted for. This does not  
22 make for sound sleep.

23 Nuclear power in general, then, and the  
24 South Texas Nuclear plant in particular, with its  
25 scandal-ridden history, with its serious and prolonged



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breakdown of the quality assurance/quality control program, deserves to be forever dismantled and buried.

Clearly, anything less than a denial of the license would be both a miscarriage of justice and of common sense.

JUDGE BECHHOEFER: Thank you.

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## STATEMENT

OF

JOHN ELDER

1  
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4 MR. ELDER: My name is John Elder. I'm a  
5 public school teacher and private citizen of San  
6 Antonio.

7 I'd like to begin by saying that as an  
8 individual, I abhor the willingness of other individuals  
9 to let politicians, and even the so-called experts, make  
10 what amount to life and death decisions regarding nuclear  
11 reactors.

12 I'd like to touch very briefly on just three  
13 items, some of which have been mentioned already this  
14 morning.

15 The first is a conclusion that I share with  
16 the Physicians for Social Responsibility. This is a con-  
17 clusion they reached some years ago; namely, that the  
18 risk of nuclear power is not worth the economic benefits.  
19 This, in spite of the fact that many people are getting  
20 rich off of the contracts in effect right now.

21 The second point: I'd like to offer my  
22 opinion that children -- young children especially -- are  
23 perhaps the most oppressed, voiceless segment of our  
24 population. This is my opinion.

25 I think a fact may follow from that, and that

1 children -- human fetuses, human embryos -- have  
2 increased susceptibility to ionizing radiation. I don't  
3 think there's any question about that.

4 The third point (and one that has been  
5 mentioned several times this morning) is my very deep  
6 concern about the radioactive waste problem. In spite of  
7 years of research (as has been mentioned), there has  
8 been no satisfactory method to dispose of these wastes,  
9 some of which have lives up to a half million years.

10 In conclusion, I think we have a choice.  
11 We may speak now, and we may fight to stop this madness,  
12 or we may wait a very few years -- and in our bitterness,  
13 curse the spreading cancers and our selfish short-  
14 sightedness.

15 Thank you very much.

16 JUDGE BECHHOEFER: Mr. Elder, do I notice  
17 your wife on the list also?

18 MR. ELDER: It's just myself.

19 JUDGE BECHHOEFER: Okay. I saw her name on  
20 the list ...

21 Anyone else with children who wish to appear  
22 now?

23 (No response.)

24 JUDGE BECHHOEFER: Is there anyone who has  
25 some obligation which --

## STATEMENT

OF

RICHARD W. CALVERT

1  
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4 MR. CALVERT: My name is Richard W. Calvert.  
5 I'm Chairman of the Board of National Bank of Commerce,  
6 one of San Antonio's major banks.

7 I have lived in San Antonio most of my life.  
8 And during my career, I have tried to involve myself in  
9 the civic, charitable and economic activities of this  
10 area.

11 I am particularly interested in the resolution  
12 of energy problems, since they are the key to future  
13 economic growth of our nation and this area, as well as  
14 the economic well being of our citizens.

15 As a banker, I am particularly aware of the  
16 devastating effect the expenditure of nearly \$100 bil-  
17 lion a year for foreign oil has had on our balance of  
18 payments and our economy.

19 I share with most Americans the feeling of  
20 apprehension caused by the unrest and political upheaval  
21 in the Mideast, our principal source of oil.

22 Clearly, we must use every means to regain  
23 the energy independence of this nation. The great majority  
24 of our scientists, engineers, political and business  
25 leaders agree that this can be accomplished by the

1 balanced use of coal and nuclear fuel, both abundant  
2 domestic resources.

3 Yet, we hear that the construction of power  
4 plants to utilize nuclear fuels in this country take an  
5 average of 12 years to complete, while the same plants  
6 are constructed in only six years in other countries,  
7 notably France and Japan.

8 This is particularly frustrating since the  
9 United States was the nation that first developed the  
10 technology for the peaceful use of the atom.

11 I agree wholeheartedly with President Reagan  
12 and his request for a shortening of the regulatory pro-  
13 cedures required to locate, build and operate these  
14 plants.

15 The four owners of the South Texas Project  
16 have been in the forefront among utilities in switching  
17 to coal and nuclear energy and away from natural gas and  
18 oil, in accordance with the best interest of our nation  
19 and their ratepayers.

20 They have served their customers reliably and  
21 economically for decades, to the credit of the utility  
22 industry and their individual organizations.

23 Texas has one of the finest utility systems  
24 in the nation, as a result of combined efforts of our  
25 highly regarded utilities, so I doubt if there is any real



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1 question as to their competence to operate this nuclear  
2 plant and to take every precaution that it will be built  
3 and operated safely.

4 I, therefore, urge you to expedite this phase  
5 of operating license procedures, so that the project  
6 can be completed in a timely manner for the benefit of  
7 our nation and the citizens of this area.

8 Thank you.

9 JUDGE BECHHOEFER: I might say: Limit yours  
10 to five minutes, because you've made two other appearances.

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## STATEMENT

OF

BILL HUDSON

MR. HUDSON: I feel like we're old friends.

My name is Bill Hudson. This is my home town, though, San Antonio. I'm a citizen -- taxpaying citizen.

And I've been reading the papers (as usual), and I've got a few comments I'd like to make on the record.

In Boulder, Montana, which is nestled in a picture postcard valley, offering fresh mountain air and beautiful vistas with sparkling streams and vast pine forest nearby, most visitors who go there couldn't care less about that.

They go to sit in cold, dark tunnels of old uranium mines, soaking up low-level radiation from radon gas, and they pay for the privilege. Several thousand pilgrims trek there each year hoping that the radiation will heal such nagging ailments as arthritis and rheumatism.

Meanwhile, in Ottawa, Canada -- this was announced Monday, the 15th -- Ontario Hydro, which is a major Canadian electric utility, is expected to receive authorization from the Canadian National Energy Board this week to increase its electric power exports to the

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U. S.

1                   The Ontario government has supports its  
2 utility in exporting power for profit. Robert Welch,  
3 the Ontario Deputy Premiere and Energy Minister, dis-  
4 closed last week that the Energy Department is investigat-  
5 ing the feasibility of increasing Canada's nuclear power  
6 plants being built in Ontario to supply power to the  
7 U. S.

8                   Welch stated that additional export-oriented  
9 nuclear power plants would generate considerable earnings  
10 for Canada and would probably forestall construction in  
11 the U. S. of more coal-fired plants, which are a serious  
12 source of transborder air pollution.

13                   New Brunswick leads the way in Canadian  
14 nuclear power exports. It is scheduled to bring into  
15 operation this year the Powt La Port 630,000 kilowatt  
16 nuclear plant which will export about a third of its  
17 output to Maine and Massachusetts, since Seabrook has  
18 been delayed, of course.

19                   Good work, fellows!

20                   A second unit of smaller size is being con-  
21 sidered for the same site with much of its output destined  
22 for New England as well.

23                   Another item: In Washington, D. C. during  
24 the first week of June, a House Committee approved a  
25

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1 measure that would allow the Nuclear Regulatory Commission  
2 to grant interim operating licenses to new nuclear power  
3 plants, even when the full hearing procedures have not  
4 been completed.

5 A similar bill is awaiting floor action in the  
6 Senate, and supporters predict passage of a nuclear speed-  
7 up bill by the end of this session.

8 Why the fuss? Well, it seems that the 13  
9 nuclear power plants nearest completion today face a  
10 cumulative delay in operation of more than 90 months for  
11 lack of licenses.

12 The Nuclear Regulatory Commission and Depart-  
13 ment of Energy argue about the 90-month estimation,  
14 saying utilities hardly ever meet their planned con-  
15 struction completion dates -- I can't imagine why.

16 But in any case, the costs to the economy of  
17 keeping a two billion dollar nuclear plant idle are  
18 enormous.

19 The industry estimates it costs an average  
20 of one million dollars per day in extra capital, carrying  
21 costs and additional conventional fuel costs that would  
22 have been displaced by the nuclear plant's operation.

23 For those of you who are not handy with numbers  
24 in your heads, that amounts to \$2.7 billion, which,  
25 coincidentally, matches the most recent estimate for the

3-9

1 entire STP.

2 Other than placating a few local officials --  
3 and people like me, I suppose -- and nuclear opponents,  
4 the licensing hearings have rendered little, if any,  
5 tangible benefits or improved operating plants or  
6 safety.

7 Indeed, what started out as a good faith  
8 effort on the part of the Federal Government to get state  
9 and local officials to say at hearings in the new plant  
10 construction has turned into an obstructionist weapon  
11 for those who categorically oppose nuclear energy.

12 As the gentleman just said -- as the Chairman  
13 of NBC -- it used to take six years from conception to  
14 final operation of a nuclear plant. The time span has  
15 now stretched to 12 to 14 years in this country because  
16 of the growth of cumbersome and unnecessary procedures.

17 Procedural sabotage by the no-nukes has  
18 been very effective. Their orchestrated effort has  
19 produced cost over-runs to the tune of several hundred  
20 percent in many cases.

21 But let's compare nuclear power with the  
22 alternatives. Construction costs for coal plants -- I'm  
23 sure everyone is aware here -- have increased -- up until  
24 just recently at a greater rate than the nuclear  
25 plants.



3-10 1 Esso Resources of Alberta, Canada recently  
2 re-estimated that their coal-lake heavy oil plant will  
3 cost \$12.3 billion, instead of the \$4.7 billion estimated  
4 three years ago.

5 Nuclear power is still cheaper than the  
6 alternative. You can run, but you cannot hide.

7 Let's look at what these Intervenors have  
8 been doing. Unfortunately, they have been tying up so  
9 much of your time (the regulators) and the industry pro-  
10 fessionals, that they have had little opportunity to take  
11 care of the real issues -- the real safety issues.

12 I sat in Houston two weeks ago for two hours  
13 and listened to these fellows questioning an individual  
14 who at some point had had something to do with the  
15 construction of the South Texas Plant.

16 No, he was not president; he may have been a  
17 foreman. He was one of hundreds of engineers. And the  
18 Intervenors -- there were five of them -- they asked him  
19 sequentially -- and you guys know this -- questions about  
20 his politics, his college curriculum, what he had -- v  
21 know, how he combed his hair ... my God ... I was  
22 impressed -- depressed, I should say ... ad nauseum.

23 One of my favorite questions -- this is what  
24 I remember -- "Between graduation from college and your  
25 initial employment, how much on-the-job experience did

3-11

1 you have?"

2 That's a hell of a question.

3 "Would you explain that, please?"

4 "Would you expound on that?"

5 Most discouraging, however, was the fact that  
6 our publicly entrusted regulators -- the Atomic Licensing &  
7 Safety Board -- sits and listens, you monitor and you  
8 seem to encourage this effort, at my expense and every-  
9 one else's expense who pays utilities or federal income  
10 taxes (or both).

11 We now have hundreds of thousands of words,  
12 and volumes of transcripts of meaningless innuendo that  
13 has been wasted, and this nonsense stands on the record.

14 All I know is I'm paying for it.

15 This foolishness has been going on since  
16 the week of March 15th. I guess the 18th in Austin was  
17 when we first met.

18 And there was secret evidence that -- Ms.  
19 Buchorn had that the HL&P was guilty of violations of  
20 an insidious nature --

21 JUDGE BECHHOEFER: Are you almost through,  
22 because your first minutes is up?

23 MR. HUDSON: Okay, we'll pass through  
24 that.

25 I just want to --

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1 JUDGE BECHHOEFER: You can leave the statement  
2 with the reporter.

3 MR. HUDSON: My statement is here. This is  
4 mainly for the benefit of the people who --

5 JUDGE BECHHOEFER: Try to wind it up in a  
6 minute or so.

7 MR. HUDSON: Okay, one minute.

8 Some of the issues that have been taking up  
9 the time -- a million bucks a day they say estimated --  
10 well, \$500 million ... maybe not ... because they're not  
11 really holding up the plant right now; they want to  
12 stop it. I think they should because solar power is  
13 here to date. It's \$47,000 per installed kilowatt ...  
14 comparatively, but "Hey, we can afford it; we're rich;  
15 we're a big country."

16 The issue -- well, one of the gentlemen who  
17 worked on the plant didn't speak English very well, and I  
18 think that's a valid point. I don't want anybody pouring  
19 concrete that is not fully familiar with Hamlet and  
20 unless you can quote soliloquies of Shakespeare, you are  
21 not qualified to pour concrete or lay down rebar, in my  
22 opinion. I agree with these gentlemen.

23 VEPCO -- Virginia Electric & Power --

24 JUDGE BECHHOEFER: I think your time is up,  
25 Mr. Hudson. Give your statement --

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MR. HUDSON: -- \$414 million between --

JUDGE BECHHOEFER: We have a long list of people, and it will just take that much more time.

MR. HUDSON: Thank you, gentlemen.

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4-1

STATEMENT  
OF  
BARBARA MILLER

MS. MILLER: My name is Barbara Miller, and I'm with Citizens Concerned About Nuclear Power.

According to several sources, at projected use rates, the world will be out of currently economically recoverable uranium in about 17 years.

American oil companies, which are the main lobbyists for nuclear power, own 47 percent of the United States' known uranium or reserves.

They are determined to not be stuck with all that uranium.

I have serious reservations about the contract which City Public Service claims to have with Westinghouse for fuel for the STP.

Coastal States Lavaca and Burlington Northern also had contracts with us.

Westinghouse has already attempted to renege on their contract once. What makes CPS think they won't try again?

Even if they do fulfill their contracted obligations, that contract is good for, I believe, ten years.

After that, we'll be getting raped again, just as we have with the oil and gas and with coal.

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1 Decommission is a subject which no one wants  
2 to talk about.

3 In 1980, when my physics textbook was  
4 published, dismantling nuclear facilities was costing  
5 more than their original construction.

6 One nuclear facility in Minnesota cost six  
7 million dollars to build, and six point two million  
8 dollars to dismantle.

9 Usually, the method used for calculating  
10 dismantling costs is by percentage of capital construction  
11 costs.

12 The average estimated decommissioning cost  
13 for six other reactors, all smaller than the STP, is  
14 11.1 percent.

15 When applied to the revised estimate of the  
16 STP, which is \$1.5 billion, this tends to almost \$390  
17 million.

18 CPS says we will need only \$30 million to  
19 cover decommissioning costs of the STP. This works out  
20 to a ridiculously low 1.1 percent of CPS's original  
21 estimated construction cost, which, as we all know, is  
22 no longer valid.

23 CPS's credibility has been shattered on  
24 many issues, including decommissioning.

25 The nuclear industry has said that a nuclear



4-3  
1 reactor will probably have to be buried underground for  
2 65 to 110 years before the cobalt tin in the reactor  
3 vessel is sufficiently decayed to permit manual dis-  
4 mantling.

5 A minimum guess of cost to guard the useless  
6 STP with automated security, when it needs to be  
7 decommissioned, is \$88,000 per year.

8 For the minimum 80,000 years of protection,  
9 this works out to \$4.6 billion.

10 Nowhere in utility bills are these added  
11 costs figured in.

12 In addition, nowhere in the price of nuclear  
13 generated electricity is the cost of storing nuclear  
14 waste. Neither is the cost of guarding this waste from  
15 theft for thousands of years figured into the utility  
16 bills.

17 Plutonium is worth about \$10,000 per kilogram,  
18 considerably more than heroin or gold.

19 I would like to point out that between 1969  
20 and 1976, 99 separate incidents of threatened or  
21 attempted violence against licensed nuclear facilities  
22 were reported in the United States alone.

23 Another cost which is not reflected anywhere  
24 is the cost of the NRC or the over 30 other government  
25 agencies or departments, that are involved in some form

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1 of service or subsidy to the nuclear power industry.

2 The taxpayers, both today and in the future,  
3 are stuck with the bill, which amounts to nothing more  
4 than corporate socialism: Government subsidy pays for  
5 industry profit.

6 Thank you.

7 JUDGE BECHHOEFER: Thank you.

8 Is there anyone else who has to leave early?

9 Otherwise, I will --

10 Yes. Come on up.

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STATEMENT  
OF  
BURK EDWARDS

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3 MR. EDWARDS: I'm Burk Edwards, and I'm a  
4 member of the Alamo City Chamber of Commerce, and I'm  
5 here today representing the view of that organization.

6 The Alamo City Chamber of Commerce is an  
7 organization principally composed of minority businessmen  
8 and women working for the betterment of our community.

9 I come before you today to ask that you  
10 proceed with all due speed in licensing the South Texas  
11 Nuclear Plant.

12 Our organization believes that the STP is  
13 an important element in the city's move forward.

14 This is not the first time that we have  
15 expressed our strong support for the STP and nuclear  
16 energy.

17 We still contend that this form of energy,  
18 compared to other alternatives, and in the foreseeable  
19 future, is the best option for meeting our needs. With  
20 adequate supplies of electricity available at reasonable  
21 cost, our city will be able to attract new business and  
22 new industry, which is so badly needed to create new jobs  
23 and new economic opportunity for all our citizens.

24 Because of the escalating costs of energy  
25 in the past decade, especially natural gas and oil for

1 generating electricity, we have seen utility bills  
2 increase significantly.

3 City Public Service has helped stem some of  
4 the tide by building a coal-powered plant.

5 However, we must now continue in the same  
6 direction by getting the STP on line so it can further  
7 reduce our dependence on expensive gas and oil.

8 We realize you must carefully consider the  
9 character and competence of Houston Lighting & Power  
10 as project manager, and we encourage you to do so, but  
11 we also urge that you do so as quickly as prudence will  
12 allow.

13 We feel that San Antonio needs another  
14 reliable source of electricity, which the STP can offer,  
15 and San Antonio needs reasonably-priced electricity,  
16 which the STP can offer.

17 We feel that San Antonio needs the STP.

18 Thank you.

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STATEMENT  
OF  
H. B. ZACHRY

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3 MR. ZACHRY: Distinguished Judges of the  
4 Atomic Safety & Licensing Board, my name is H. B. Zachry,  
5 Z-a-c-h-r-y.

6 For 40 years I've lived in and worked for  
7 the betterment of San Antonio.

8 I am a graduate engineer from Texas A&M  
9 University.

10 I'm Chairman of the Board of H. B. Zachry  
11 Company, a construction company which I organized 57  
12 years ago, and is a world-wide working concern, and  
13 have built many power plants in the United States, and  
14 some in foreign countries.

15 We have worked extensively with investors  
16 and publicly-owned utilities in Texas, including City  
17 Public Service here in San Antonio.

18 In all of our experiences as contractors  
19 for power plants built for several of the owners of  
20 the South Texas Project, we have found them to be  
21 diligent and conscientious and capable in the supervision  
22 and operation of the power plants which my company has  
23 built.

24 Through their combined efforts, Texas has  
25 an electric power system second to none.

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1 We have done no work on the South Texas  
2 Project, but based on my' experience with all of the  
3 owners, I am confident that they will be most diligent  
4 in seeing that the plant is properly built and safely  
5 operated.

6 I believe that I speak for most of the  
7 community when I urge you to consider the testimony  
8 here presented in a logical and objective manner.

9 Then exercise your own professional qualities  
10 and judgment as expeditiously as possible so that we  
11 may move on to the operation of this plant.

12 In that manner, further delays and costs on  
13 the project can be minimized, and our area and our  
14 nation can progress in the economic matters that we  
15 need to do to assure its future place in the sun.

16 Thank you.

17 JUDGE BECHHOEFER: Thank you.  
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1 MR. DENMAN: May I be heard for just a moment?

2 I am an attorney, and I have a hearing in  
3 the federal court at 11:30, if I may be heard.

4 I have a very short statement, which I would  
5 like to leave with you. I would j-ust like to say --

6 JUDGE BECHHOEFER: You can leave that with the  
7 court reporter.

8 MR. DENMAN: With the reporter?

9 JUDGE BECHHOEFER: Yes.

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STATEMENT  
of  
LEROY G. DENMAN, JR.

MR. DENMAN: I would just like to say orally that my name is Leroy Denman. I was a member of the City Public Service Board from 1960 until 1970.

I was chairman of the Board for the last six of those years. My contact with the other members of the ownership of the South Texas Project was, in those years as more recently, we had an interconnect system with Houston, and, really, with all of the other members. Over the ten years that I was a member of our Board I watched that interconnect system work, and it gave me a considerable feeling of confidence, and, in fact, admiration for the staffs and the management of those other utilities, and, particularly of Houston Lighting & Power in the way they worked with us on our interconnect system, and that gives me a feeling of confidence as to how they would work as managers of the South Texas Project.

As did Mr. Zachry, I would urge that you act on it as expeditiously as possible so as not to have any delay in going forward with it.

I would like to leave my statement with the Clerk, if I may.

I served on the Board of Trustees of City

5/ 1 Public Service from 1960 to 1970, and was Chairman from  
2 1964 to 1970.

3 During the entire time that I served on the  
4 Board, the City Public Service worked closely with Houston  
5 Lighting and Power and the others who are now owners of  
6 the South Texas Nuclear Power Plant. The systems of  
7 these utilities were interconnected and they closely  
8 coordinated planning and operations of their electric  
9 systems to provide reliable, economic service to their  
10 ratepayers.

11 On all occasions we found Houston Lighting  
12 and Power to be professionally competent, responsible,  
13 and responsive to the needs of its customers. Houston  
14 Lighting and Power has played a key role in the remarkable  
15 growth of the area it serves and I feel confident in  
16 endorsing it and the other owners of STP without  
17 reservations as responsible, professionally qualified  
18 electric utility system managers and operations.

19 As an attorney and banker, I am in continual  
20 contact with clients who have mineral holdings in this  
21 and other areas. I am therefore well aware of eventual  
22 depletion of our fossil fuels and the necessity for  
23 supplementing these with uranium which does not have as  
24 many diverse uses as oil and gas. I recognize that the  
25 Atomic Safety and Licensing Board must assure itself and

5  
1 the public that the plant is being built safely, but I  
2 would urge the elimination of unnecessary delays and  
3 legal proceedings to the greatest extent possible in  
4 this matter.

5 This would be consistent with the program  
6 recommended by President Reagon -- a program which  
7 appears to have strong support in Congress and which  
8 will help our country to regain its energy independence.

9 JUDGE BECHHOEFER: Is there anyone else who  
10 must make statements early?

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STATEMENT  
of  
WALTER BEILSTEIN

MR. BIELSTEIN: Mr. Chairman, I am Walter Bielstein, Chairman of the Uran Affairs Council of the Greater San Antonio Chamber of Commerce, and am here in that capacity this morning.

The Greater San Antonio Chamber of Commerce represents more than 4,000 local businesses, and I think that we speak for them in this matter.

Many of the members also happen to be the largest utility bill payers in this city, and all of the members are aware of the increasing cost of energy.

Along with this we are also aware of the social and the economic cost of not having a steady-reliable source of reasonably-priced energy.

Since 1973 the Chamber of Commerce has monitored this project, and has had a policy endorsing San Antonio's full participation in the South Texas Nuclear Project. An Energy Task Force was organized and composed of the City's top managerial and professional talent at that time.

This Task Force represented one of the most prestigious groups ever assembled by the Chamber. These Task Force members included persons knowledgeable and

5, 6  
1 experienced in the areas of science, technical research,  
2 development, engineering, and active in the civic and  
3 professional community.

4 As I said before, the Chamber has continually  
5 monitored this project, and, again in 1979 after  
6 careful consideration the Task Force again concluded that  
7 the South Texas Nuclear Project is the most cost effective  
8 source of power for the City of San Antonio, which  
9 involved the least risk to human life and our environment.

10 Again, we are continuing to monitor this, and  
11 have a task force working on this at the present time.  
12 All forecasts point to escalation in the price of natural  
13 gas, as well as this project.

14 We believe that the South Texas Nuclear  
15 Project will thus save San Antonio rate payers over a  
16 billion dollars in fuel costs by 1995.

17 The project will, in effect, materially  
18 reduce US dependency on foreign oil and help conserve  
19 our domestic supplies of natural gas and oil for other  
20 purposes.

21 Despite its high initial cost and its  
22 continued escalation, the South Texas Nuclear Project  
23 will overall provide the city with the least expensive  
24 alternative.

25 Coal and lignite plants impacted by freight,



5- 1 mining, other costs, environmental equipment would cost  
2 the city much more to operate over a 20-year period.

3 Business development relocation firms  
4 emphasize a top priority for attracting businesses and  
5 providing for local business expansion, and this is the  
6 existence of an ample supply of reasonably-priced energy  
7 that attracts these people. This is a prerequisite to  
8 solid economic growth in San Antonio, which provides  
9 jobs for our community.

10 And while there have been a lot of allegations  
11 and theories regarding the safety, I think that the facts  
12 state or show that, really, when you consider everything  
13 that is going on in our world today that these plants  
14 have been operated at a relatively safe rate.

15 Your Commission's approval of full  
16 construction activities has resolved safety-related  
17 concerns of the South Texas Nuclear Project.

18 So it is in the interest of safety, economic  
19 growth, and energy self-sufficiency, that the Chamber  
20 continues to endorse the city's full participation in  
21 the South Texas Nuclear Project.

22 And, finally, as it has been mentioned before,  
23 not only do we ask that you endorse this and continue  
24 it, but would expedite this in order to cut down the  
25 great deal of time involved in getting these projects

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started.

So, we urge, and thank you for your full consideration, your time, and urge that you expedite this phase of the operating license as quickly as possible.

Thank you.

JUDGE BECHHOEFER: Thank you.

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STATEMENT  
of  
LARRY LYONS

MR. LYONS: My name is Larry Lyons, and I am First Vice President of the San Antonio Manufacturers Association and Vice President of a local bakery.

We wish to thank the ASLB for scheduling hearings this week in San Antonio and allowing us the opportunity to demonstrate our support for nuclear energy in general and the South Texas Project in particular. We have supported the South Texas Project since 1973.

While it is true the cost of construction of the STP has escalated, so has everything else. A load of bread, milk, soft drinks, food, services, all have escalated in the past few years.

Present estimates for the STP construction will be \$2.72 billion, with San Antonio's 28 percent share to be \$762 million. However, we must take into consideration San Antonio's future energy needs and what will happen if we do not have that 700,000 kilowatt share of electricity.

It has been predicted that the use of electricity in San Antonio is to increase by 5.2 percent a year. If San Antonio is unable to receive its full

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1 700,00 kilowatt share, then the only other alternative  
2 will be to depend upon other more expensive forms of  
3 generation to take its place as early as 1988 because  
4 of this prediction.

5 The escalating cost of natural gas and oil  
6 will make it so expensive that it will not be economical  
7 to use this type of fuel for generation and, under  
8 federal law, utilities will be prohibited from use of  
9 natural gas and oil for generation after 1990, excepting  
10 in emergency.

11 San Antonio, since beginning the use of  
12 generation by coal, has faced increase after increase  
13 in the cost of transportation of coal, and there seems  
14 to be no end in sight. Therefore, with CPS presently  
15 getting 60 percent of its electric generation from this  
16 type of fuel, this too will become expensive although  
17 not to the extent of natural gas and oil.

18 From a business standpoint, it is better to  
19 spend \$762 million for a project we are already committed  
20 to than face the possibility of not having the energy  
21 we need while awaiting the proposed lignite plant, which  
22 will not be in operation until the early 1990's.

23 During a July 23, 1980 hearing, we pointed  
24 out that we had asked the CPS to make an estimation on  
25 a Large Lighting & Power customer bill based on

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1 consumption for one month of 202,400 kilowatt hours,  
2 with a demand of 2628. Using the cost per kilowatt  
3 generated from STP as compared to future costs of other  
4 forms of generation, the saving over a 15-year period  
5 for just this one customer was estimated at \$141,000.  
6 With the many LLP customers in San Antonio, total savings  
7 over a 15-year period would be in the millions of dollars.

8 Another point to be considered is that  
9 although a massive initial capital outlay is required  
10 to build the STP, the cost of operating it and producing  
11 electricity with low cost nuclear fuel is far below the  
12 operating costs of natural gas or coal plants.

13 Critics of the STP allege the plant is being  
14 constructed poorly, that it is unsafe, although the  
15 Nuclear Regulatory Commission has clearly stated that  
16 no major deficiencies were found in any of the construction  
17 already completed.

18 These same critics claim they have support  
19 from large segments of the populace. In 1978, our  
20 Association mailed a letter with a return card to our  
21 membership as well as a cross section of firms that were  
22 not members. More than 300 were heard from and only one  
23 stated they did not support CPS continuance in STP.

24 Without assured needed energy for the future,  
25 as only the STP will provide, the City's economic growth



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may well be slowed, expansion of existing industries could be non-existent, and should we experience "brown-outs" there is always the possibility of many of these same industries will relate to other areas that can provide for their energy needs -- and this could very well mean the lost of needed jobs in our area.

The STP must be licensed and begin operation. Nuclear energy will save San Antonio ratepayers over a billion dollars in lower fuel costs by 1994.

Thank you.

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STATEMENT  
of  
LOUIS STUMBERG

MR. STUMBERG: Mr. Chairman, I am Louis Stumberg, and I am Vice Chairman of Del Monte prepared foods and beverages.

We have a frozen-food processing plant here in San Antonio, where we process Patio Frozen Foods, and we are large users of power.

I was the Chairman of the Chamber of Commerce in 1979 when the study by our Task Force was made. It was concluded at that time, without being repetitious, that the South Texas Nuclear Project was the best, most cost-efficient alternative that we have.

The question we asked ourselves then was: Should San Antonio continue to participate period. Since that time there have been a lot of cost escalations, but in everything.

I don't condone waste in my business. I don't condone waste in the nuclear project. Nor do I condone mismanagement. I've got a lot of employees here in San Antonio, and I live here, and I am deeply concerned about the overall cost of power to myself and to my people.

Since that time I have taken the time to

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1 study, as much as I can today's environment, and today's  
2 power and energy situation. I have concluded that the  
3 South Texas Nuclear Project still is the best that we've  
4 got in the short term, i.e. 20 years.

5 I have also concluded that if we don't stop  
6 cutting the dog's tail off with sandpaper and use a  
7 knife our cost can escalate to where we can fulfill our  
8 death wish of making nuclear power out of the price range  
9 of cost-efficiency.

10 Thank you, sir.

11 JUDGE BECHHOEFER: There was a woman over  
12 here. Yes.

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STATEMENT  
of  
ELLEN GUTTER

MS. GUTTER: My name is Ellen Gutter. As an average consumer it is hard for me to understand how we can continue to support the STP with its difficulties in construction, cost overruns, and schedule delays.

We also do not yet have an estimate as to how much it is going to cost us to decommission the STNP. It becomes impossible for me to support the STNP when living in south Texas I spend the majority of my utility bills cooling myself from the most logical alternative, what seems to be the ever-present sun.

Please, let's stop this economic tomfoolery with the STNP and devote our financial resources to the development of solar power.

Thank you.

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1 STATEMENT  
2 of  
3 MIKE GLASGOW

4 MR. GLASGOW: Gentlemen. My name is Mike  
5 Glasgow, and I am representing the majority of the  
6 officers and committee chairman of the San Antonio  
7 section of the American Society of Mechanical Engineers.

8 I am here this morning to urge the  
9 expeditious licensing of the South Texas Project nuclear  
10 power plant.

11 As professional engineers who are aware of  
12 our nation's energy situation, we conclude that nuclear  
13 energy must play an important part if our nation is to  
14 break the stranglehold of imported oil and regain energy  
15 independence.

16 In the early 1970's, our city was faced with  
17 the critical shortages of natural gas because the  
18 supplier could not make good on his contract.

19 Meanwhile, the scarcity of gas became more  
20 acute, and the price shot upward.

21 In response to this situation, City Public  
22 Service embarked on a massive generation fuels  
23 diversification program away from complete dependence  
24 on natural gas and toward less-expensive, more-abundant  
25 domestic energy sources.

5-77  
1 They completed a coal-fired power plant in  
2 1978, which has provided approximately 60 percent of  
3 our community's electrical energy at a fuel cost far  
4 below natural gas and fuel oil.

5 Coal has come a long way toward improving  
6 San Antonio's energy picture, but it is only part of the  
7 solution.

8 City Public Service chose to participate  
9 in the South Texas Project because nuclear energy is  
10 a safe, economical, and reliable source of energy for  
11 the future.

12 We support CPS' decision for precisely the  
13 same reasons.

14 In April 1981 the Regional Administrative  
15 Conference of the American Society of Mechanical  
16 Engineers, Region X, representing sections and sub-  
17 sections through Oklahoma, Arkansas, Louisiana, Texas  
18 and Mexico City was held. A majority of the delegates  
19 to that meeting voted for the proposal that ASME should  
20 be an active, enlightened voice in support of nuclear  
21 power as a safe and indispensable element of future  
22 United States energy supplies.

23 ASME has developed codes, many of which have  
24 been applied towards the safe construction of numerous  
25 power plants over the years. When these codes, and the

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and the codes of other responsible professional organizations are followed, the result is a safe plant, whether it is fossil fired, hydroelectric, solar, or nuclear.

We have confidence that the South Texas Project, or any other nuclear power facility, if designed and constructed in accordance with the appropriate codes and standards, can be operated in a manner consistent with the public health and safety. As long as compliance with applicable codes and standards can be demonstrated, it is time to cut through the red tape and get the plant operating for the benefit of the citizens of San Antonio.

Thank you.

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1 JUDGE BECHHOEFER: Ms. Santos.

2 (No response.)

3 JUDGE BECHHOEFER: Ms. Abrego.

4 (No response.)

5 JUDGE BECHHOEFER: Tom Wetzler.

6 STATEMENT

7 OF

8 TOM WETZLER

9 MR. WETZLER: Good morning. My name is  
10 Tom Wetzler. I'm here both as a working nurse in San  
11 Antonio and as a private citizen.

12 I'm not going to take up a whole lot of your  
13 time. There are people here better qualified than I to  
14 point out some of the dangers of nuclear energy.

15 Several of the things that have been mentioned  
16 so far is that the United States pioneered peaceful use  
17 of nuclear energy. It also pioneered war time use of  
18 nuclear energy.

19 I'd like to speak more in a personal way  
20 because you, the men on the Licensing Commission, are the  
21 ones who will be partially responsible for the results of  
22 nuclear energy.

23 So I'd like to speak as direct to you as a  
24 person and as a citizen as I can. Everyone I've heard  
25 so far -- or just about everyone I've heard so far -- has

1 felt that it's a good idea for nuclear energy has talked  
2 about the money involved, and they really haven't talked  
3 about their responsibility as businessmen to the com-  
4 munity that they serve.

5 I heard Mr. Zachry and several other people  
6 talk about the efficiency of our City Public Service  
7 boards. Last month I got a bill for well over a hundred  
8 dollars from them -- rather, well over \$400 from them.  
9 And after I picked my jaw up off the floor and went outside  
10 and checked the meter, and there had been a mistake in  
11 reading the meter. It was a simple, human error.

12 I called up the City Board. They came out and  
13 re-read it, and I paid my usually ... about \$40 bill.  
14 It was a simple mistake and ... you know, it didn't bother  
15 me a whole lot.

16 It was easily corrected. They did it as  
17 quickly as possible. But it was a mistake, nevertheless.

18 And just in terms of our being human, we have  
19 to realize that a simple mistake like this can have  
20 catastrophic results.

21 I'd like to speak directly with the plants  
22 that are in construction now that are affecting us, that  
23 while personally knowing many people that are working in  
24 the construction crews on the plant, every last one of them  
25 has told me that they're leaving the state the week that

1 that plant opens.

2 Most of them already have ... you know, they  
3 quit really lucrative jobs, well-paying jobs, and decided  
4 they couldn't do it any more.

5 I think the turnover rate in construction  
6 crews is probably fairly sizable; and it goes on to  
7 more than transient natures of the well-paying  
8 construction jobs.

9 And after watching people that feel that  
10 nuclear power plants are a good idea ... you know, I  
11 don't understand where their feeling of community sense  
12 is or isn't ... you know, it makes me feel very con-  
13 cerned.

14 And, once again, I'd like to suggest that  
15 you will be responsible for the results ... you know,  
16 we'll feel it here in San Antonio because we're in a  
17 direct path line. What happens here -- you know, when  
18 things happen here and if this Board goes through with  
19 the licensing procedure, I'll remember you three men  
20 sitting here at this desk that day, and thank you.

21 I'll remember you ... you know, like I  
22 remember a lot of people in the past and I'll wonder what  
23 happened.

24 A lot of it is personal for me. I take care  
25 of a lot of cancer patients, for instance. You'll have

1 people probably testifying about the poisoning effects, and  
2 so forth.

3 But there's a lot of needless suffering that  
4 we can avoid. We can also go into some of our alterna-  
5 tives ... you know, that are a lot more economically  
6 feasible.

7 And thank you very much.

8 JUDGE BECHHOEFER: Beverly Dorrell.

9 (No response.)

10 JUDGE BECHHOEFER: Dotty Anderson.

11 (No response.)

12 JUDGE BECHHOEFER: I might say, for those  
13 who don't answer, we'll call them tonight, because we did  
14 encourage people to come tonight. So ...

15 Terry Gorler.

16 (No response.)

17 JUDGE BECHHOEFER: Judy Wade.

18 (No response.)

19 JUDGE BECHHOEFER: Dr. Houston Wade.

20 (No response.)

21 JUDGE BECHHOEFER: Jason Osmond.

22 (No response.)

23 JUDGE BECHHOEFER: Tess Herr.

24 (No response.)

25 JUDGE BECHHOEFER: Cheryl Mazagamba -- or

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something like that.

(No response.)

JUDGE BECHHOEFER: I have a Jack Elder. I  
assume that's the same as the John Elder who made a state-  
ment earlier.

Tom Willome.

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1 STATEMENT  
2 OF  
3 TOM WILLOME

4 MR. WILLOME: My name is Tom Willome. I am a  
5 local teacher at San Antonio College.

6 I was deeply affected by Mr. Elder's talk a  
7 little bit earlier, when he referred to children. I am  
8 a child of the nuclear age myself. I was born 2 years,  
9 9 months and 5 days after the first social use of atomic  
10 energy in Hiroshima, Japan.

11 I grew up watching my parents struggle with  
12 the moral implications of that use. I also watched  
13 them struggle with the growing threat of nuclear war,  
14 and then with the final realization that there was no  
15 way possible to protect my brothers and me from the  
16 inevitable destruction of such a holocaust.

17 And I watched as time covered the slash of  
18 that devastating awakening with layers of scar tissue.  
19 I saw my people leap to grasp the psychology of the  
20 nuclear power for peace program, to escape this  
21 emotional dilemma.

22 And all the while, the air that I breathed as  
23 a child, the grass that I played in, the milk that I  
24 drank was being gently, but ever so violently, sprinkled  
25 with bomb test fallout.



6-7

1 I have since driven the public highways  
2 behind trucks marked with the familiar yellow and black  
3 warning, and I have shuddered to the news of further  
4 dispersions of stored poisons, polluting power plant  
5 systems due to flaws in handling and design.

6 And I have forced myself to forget. But the  
7 only thing that must survive is the fact that we live.

8 This forgetting is a scar on the soul of our  
9 people. It's a sure sign of an acute awareness of our  
10 self-abortion from what we might have known as life.

11 You must understand that the nuclear power  
12 is a symbol now. It's a symbol that once was bathed in  
13 propaganda light so strong that it was believed to be  
14 the technological icon which would catapult the American  
15 people into the 21st century and beyond.

16 It has been the graven idol of military and  
17 industrial belief systems, hailed simultaneously as the  
18 power that was too cheap to meter and too costly to  
19 confront.

20 However, the high priests who were charged  
21 with nurturing the icon and protecting it revealed by  
22 accident and intention that the idol was covered with  
23 gaping cracks.

24 The esoteric facade was too thin to bear  
25 out. The game was trumped. The power that had been

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1 promised to be too cheap to meter revealed that it was  
2 too costly, in terms of real human cost to use.

3 The power that would be too costly to confront  
4 became that which nations believed -- actually believed  
5 that they could confront each other with and win. And  
6 the cracked shell of our nuclear idol reveals the scarring  
7 of our presence of mind.

8 Instead of common sense, we have nuclear  
9 sense: a nuclear madness to which we have become  
10 passionately fixed.

11 My appeal to you falls in this following  
12 line. We know from history that imagination has always  
13 been the intellectual key to survival. It is the only  
14 mental and spiritual tool with which we face the un-  
15 known.

16 But it is the only -- But it is only as  
17 powerful as our dogmas allow it to be. To persist with a  
18 blind, fundamentalist belief in this nuclear method is  
19 by all measure of thought shamefully unimaginative.

20 We cannot afford to regret what we have or  
21 have not done. We also cannot afford to stall or continue  
22 in this way.

23 The idol has collapsed long ago. We are just  
24 now seeing that. And, fortunately, we find ourselves  
25 still at the edge of our lives.

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You are charged with the responsibility of drawing the necessary lines. Your work shall not be forgotten.

Thank you.

JUDGE BECHHOEFER: Rebecca Martin Bakey.

(No response.)

JUDGE BECHHOEFER: Diana Fox.

(No response.)

JUDGE BECHHOEFER: Charles Perez.

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6-10

## STATEMENT

OF

CHARLES PEREZ

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3  
4 MR. PEREZ: Good morning, Members of the  
5 Atomic Safety & Licensing Board; and good morning to all  
6 of the general public that's interested in these hear-  
7 ings for various reasons.

8 The Nuclear Regulatory Commission was  
9 established --

10 JUDGE BECHHOEFER: Do you want to identify  
11 yourself -- your name and address so the reporter gets  
12 it.

13 MR. PEREZ: Okay. My name is Charles  
14 Perez. My home is Houston, Texas.

15 The Nuclear Regulatory Commission was  
16 established to represent -- to defend the interest of  
17 the public in regulating the nuclear industry, since the  
18 public is the group that pays the cost in the end for  
19 construction and operation of these power plants.

20 And the monies that the utilities have col-  
21 lected come from the public, and your salaries are paid  
22 by the public.

23 And I feel that it's very important to give  
24 respect to the Intervenors because they do not have the  
25 tremendous funds that the utilities have to buy the

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1 best expert witnesses that they can afford, as well as  
2 the legal representation.

3 And I think it's also important to remember  
4 that the decisions made by you three men here will affect  
5 not only everybody here, but generations to come for a  
6 long time, because of the byproduct of nuclear fission  
7 and the byproduct of mining and milling of uranium.

8 And those costs that have not been figured  
9 into the overall cost of operating this plant ... as  
10 decommissioning, for instance, and storage of the waste,  
11 should all be taken into consideration now.

12 Another thing I'd like to bring up is that  
13 a good example of how a utility will be responsible in  
14 operating their plant is showed by how they're able to  
15 control the quality control of their plant while it's  
16 under construction.

17 And from what has been presented to me through  
18 articles in the newspaper, Houston Lighting & Power has  
19 done a very poor job of maintaining quality control of  
20 the plant during construction, which leads me to believe  
21 that once the plant is operating and many unexpected  
22 things occur, that happen in the operation of these  
23 plants ... since they're definitely not foolproof ... I'm  
24 afraid that Houston Lighting & Power may make some more  
25 mistakes, as they have while constructing this plant,

1 except the consequences, once the plant is operating,  
2 are much more grave; and the public will have to again  
3 bear the brunt of it.

4 I feel like the health of this country is its  
5 real wealth -- the health of the people, and not the  
6 monetary wealth.

7 I appreciate the chance to present my  
8 perspective on this.

9 Thank you.

10 JUDGE BECHHOEFER: Thank you.

11 Mark Davila.

12 (No response.)

13 JUDGE BECHHOEFER: Nancy Griffin.

14 Joy and Frank Hein -- I'm sorry, I didn't  
15 see you.

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## STATEMENT

OF

NANCY GRIFFIN

MS. GRIFFIN: Good morning.

My name is Nancy Griffin. I live in San Antonio.

I would like to bring to the attention of everyone here a small, rather insignificant looking article that appeared in the SAN ANTONIO EXPRESS Monday, June 15, 1981.

The article reads as follows: "STP Welders Go Back to School."

JUDGE BECHHOEFER: Could you get a little closer to the microphone? We're having trouble hearing you.

MS. GRIFFIN: I'm sorry.

This is an article in the EXPRESS, that appeared June 15, 1981.

"STP Welders Go Back to School. An inspector at the problem-plagued South Texas Nuclear Project and 70 co-workers have enrolled in weekend welding classes at nearby Brazos Port College. Each Saturday since May 30th, Thomas Jones and his co-workers have removed their hard hats for four hours and entered the classroom to learn

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1 structural standards and codes of welding under  
2 the tutelage of two American Welding Society  
3 inspectors.

4 "The program is sponsored by Brown & Root, a  
5 Houston-based company and contractor of the Bay  
6 City Project. Safety welding at the \$2.7 billion  
7 plant was halted in April 1980 and still has not  
8 fully resumed.

9 "'The more professionally trained people you  
10 have on a job, the less problems you have in  
11 construction,' said Jones, 27 of Bay City, who has  
12 worked 1 1/2 years as a welding instructor and  
13 inspector at the plant."

14 I think what this article reveals is of  
15 great relevance to the case being decided here. the  
16 character and competence of Houston Lighting & power are  
17 being questioned.

18 Part of the competence question revolves  
19 around HL&P's choice in management of Brown & Root as  
20 architect engineer and contractor for the South Texas  
21 Project.

22 What kind of competence is exhibited when  
23 HL&P chooses a firm whose welders, having been on the job  
24 building a nuclear power plant -- perhaps for years --  
25 are only now going to school to learn how to weld.

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What kind of confidence is this supposed to inspire in us, who are already beneficiaries of the work these welders did before they went to school to learn how to weld?

Another question arises: Who is paying for the schooling of Brown & Root's welders? Edward Teller, the father of the H-bomb, once said, "A gently sleeping nuclear reactor can put its radioactive poison under a stable inversion layer and concentrate it into a few hundred square miles in a truly deadly fashion. With the spread of industrialization, with the greater numbers of simians monkeying around with things they do not completely understand, sooner or later a fool will prove greater than the proof, even in a foolproof system."

I can think of no better example of the simians of whom Dr. Teller speaks than the partners being judged here today.

Thank you.

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STATEMENT  
of  
JOY AND FRANK HEIN

"Dear Sir: As citizens and taxpayers in a democracy,  
we wish to voice our objections to the South West Nuclear  
Project.

"We feel that the time, money and human  
energy poured into this dangerous energy alternative  
could be put to positive use in the field of solar,  
wind and water generated power plants.

"Not only do we question the safety of  
nuclear plants but also the inadequate storage of the  
radioactive waste, which is carcinogenic and mutagenic  
material.

"As parents and members of the human race  
we want a safe environment for our children and all the  
children of future generations.

"Joy and Frank Hein, Star Route, Mico,  
Texas 78056."

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JUDGE BECHHOEFER: Richard Pressman.

MS. VAN COPPENOLE: I have a wirtten statement from him, sir, and he asked me that it be read into the record.

Would that be possible?

JUDGE BECHHOEFER: Yes. You may do that if you wish, assuming that it's not too long.

MS. VAN COPPENOLE: No, it's one page.

I am speaking for Dr. Richard Pressman, and Dr. Pressman writes as follows:

- - -

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STATEMENT  
OF  
DR. RICHARD PRESSMAN

(Read by Loretta Van Coppenolle.)

I have been a resident of San Antonio and a professor of English at a local university for the past three years.

I regret that I am unable to be present at the STNP licensing hearing which is taking place in San Antonio on June 22nd.

I would very much have liked to make this statement in person and to see those I am addressing.

Anyone with a moderate working knowledge of regulatory agencies is aware of their intimate relationship with the very industries they are supposed to regulate.

It is commonly known that many who leave the agencies go to work in companies they previously may have had to chastise.

Government does not pay as well as private industry. Many, no doubt, enter government service in order to be noticed later for the jobs they are really interested in in the private sector.

Therefore, it is in the apparent self-interest of those people to tread lightly with their admonishments for the naughty firm of today could be the income source

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1 of tomorrow.

2 You of the Atomic Safety & Licensing Board  
3 are probably more aware than I of this symbiotic relation-  
4 ship between government and industry.

5 The Nuclear Regulatory Commission is among  
6 the best known of agencies whose employees often follow  
7 the practice of which I speak.

8 You yourselves are probably thinking in  
9 terms of not biting the hand that feeds, as you listen  
10 to endless testimony for and against the South Texas  
11 Nuclear Project.

12 In the history of commercial nuclear power  
13 there has never been an operating license denied a  
14 utility that requests one.

15 One Atomic Safety & Licensing Board even saw  
16 fit to license Three Mile Island, despite evidence against  
17 it that surfaced years before it began operating.

18 Thanks to that Atomic Safety & Licensing  
19 Board, we nearly had the greatest man-made catastrophe  
20 in the history of the civilized world.

21 I am here not so much to condemn as to  
22 question.

23 If you are indeed interested in your own  
24 well-being, and I believe few are not, then why do you  
25 not see how undesirable nuclear power is for you?

7-5

1 Three Mile Island, had its abnormal chain  
2 of events gone on another 60 minutes, would have wafted  
3 its radioactive dust in the direction of Washington, D.C.  
4 in a few short hours.

5 It is likely that among those you love  
6 there would have been numerous victims of radiation  
7 poisoning, cancer, et cetera.

8 You yourselves could quite possibly have  
9 been among the earliest victims.

10 Other nuclear plants, in cities you perhaps  
11 regularly visit, may have accidents that involve the  
12 release of radiation.

13 Nuclear plants routinely emit radiation  
14 even in normal operation, as you well know. You are not  
15 immune.

16 You may carry within your own bodies at  
17 this time, thanks to the nature of your work, the minute  
18 particles that will ultimately cause you to sicken and die.

19 You may have taken them home to your families.

20 Not only in terms of safety should atomic  
21 power be undesirable to you, but in terms of economics  
22 as well.

23 An energy source which is unsafe, uneconomical,  
24 unreliable and unpopular, will in a short time become  
25 outmoded. It will be replaced, as is happening at this

7-6

1 very moment, by safer, more economical, more popular  
2 alternatives.

3 Personnel of the Nuclear Regulatory  
4 Commission itself have made the odds of a disastrous  
5 accident's occurring so high, and those odds increase  
6 with each new plant and with the age of existing plants,  
7 that it is only a matter of time before a serious mishap  
8 puts you all out of a job.

9 You are sowing the seeds of not only our  
10 destruction but yours as well.

11 All of us share an environment, like it  
12 or not. If you allow it to be destroyed for us, it  
13 will be destroyed for you as well. Or, put differently,  
14 what is bad for the country obviously is bad for you.

15 Perhaps it would behoove you, for a change,  
16 to truly think in terms of your own self-interest.

17 Thank you.

18 JUDGE BECHHOEFER: Rita Birdside.

19 A VOICE: I have a statement from Rita  
20 Birdside. Could it be read into the record?

21 JUDGE BECHHOEFER: Could you do that tonight;  
22 I'd prefer to save it for tonight.

23 Roxanne Elder.

24 - - -

25

1 STATEMENT  
2 OF  
3 ROXANNE ELDER

4 MS. ELDER: Good morning. My name is  
5 Roxanne Elder.

6 I grew up in Corpus Christi and I'm now a  
7 resident of Austin, Texas.

8 Ladies and Gentlemen of the Audience, and  
9 Gentlemen of the Licensing Board, if there are no women  
10 of the Licensing Board:

11 I come to speak to you this morning, not so  
12 much to you but as to the audience here in the courtroom  
13 who still may be capable of hearing and caring about why  
14 there is so much concern about nuclear power, and the  
15 South Texas Project in particular.

16 Never before in the history of energy has  
17 there been so much opposition as there is to nuclear  
18 power today.

19 Has it ever occurred to you that there is a  
20 good reason for this opposition?

21 Those who oppose nuclear power are not  
22 opposing simply for the sake of opposing. They have  
23 better things to do with their time.

24 Their opposition is based on scientific facts,  
25 facts which many of the people sitting here up front are  
doing their best to hide; others are doing their best to

1 ignore or deny.

2 I would like to review here briefly some of  
3 the facts relating to the health and safety of nuclear  
4 power, facts that I hope the Board is already familiar  
5 with.

6 It would behoove all to listen, as none are  
7 immune to the dangers.

8 The risk of nuclear power can be summed up  
9 in one word, "radiation."

10 There is no harmless threshold for radiation  
11 exposure. Its dangers are cumulative, and its effects  
12 include cancer, sterility, birth defects and genetic  
13 defects.

14 Its most susceptible victims are unborn  
15 babies, young children and old people.

16 Women are more likely to develop cancer from  
17 radiation exposure than men.

18 Radiation is released at every step of the  
19 process that leads to a uranium fission reactor in the  
20 ractor core of a nuclear plant.

21 Human beings come in contact with radio-  
22 active materials at every one of these steps.

23 A 1978 Department of Energy study concluded  
24 that the uranium fuel cycle releases 300 to 600 times  
25 more radiation than coal.

7-9

1 Nuclear reactors emit radiation every day  
2 that they operate. Radiological physicist, Ernest  
3 J. Sternglass, has found that cancer deaths have risen  
4 most sharply in those states with the largest nuclear  
5 plants.

6 The cancer rate near nuclear plants is five  
7 to six times that of what it is in areas removed from  
8 them.

9 A lot of those who favor nuclear power say  
10 that there is already so much background radiation around  
11 that one need not be concerned about what's added to the  
12 nuclear cycle.

13 That is like saying that because the air we  
14 breathe is already polluted we need not worry about more  
15 poisons being thrown into it.

16 It took the human species thousands of years  
17 to evolve to the point of toleration of whatever natural  
18 background radiation there is.

19 Now suddenly, in the space of a single  
20 generation, my generation, we are loading our atmosphere  
21 and our genes with still more.

22 We aren't giving our bodies thousands of years  
23 to adjust. We're giving them no time at all, and they  
24 will suffer as a result.

25 Dr. George Wald has said that today's



7-10

1 radiation emissions are tomorrow's background radiation,  
2 calling attention to the industrial apologists who dis-  
3 own their emissions, once they are added to what's  
4 already there.

5 And not only are they adding to the back-  
6 ground radiation in rapidly increasing quantity, they  
7 are doing so in quality as well. They are adding  
8 elements that were never in the atmosphere before,  
9 elements that are more deadly than the ones nature  
10 put there.

11 Nuclear plants produce about 14 pounds of  
12 radioactive waste each day of operation. One of the  
13 components of this waste, plutonium, is considered by  
14 some as the most deadly element on earth. It was  
15 created by man.

16 One pound of it is enough to cause lung  
17 cancer in every inhabitant of the U. S., if efficiently  
18 distributed. No one knows what to do with plutonium  
19 or any of the other wastes spewed forth by the nuclear  
20 power plants.

21 Drawbacks have been found for every contain-  
22 ment type yet devised, and every geological medium yet  
23 proposed. Less than a year ago it was assumed that  
24 waste burial would finally occur at some -- to quote one  
25 Texas Senator -- remote Western state.

7-11

1 Well, just a few weeks ago, the Texas  
2 Legislature passed a bill permitting radioactive waste  
3 burial in Texas. I know because I lobbied against  
4 that bill.

5 I also worked along with numbers of other  
6 people who tried to get a provision passed in that  
7 bill for a baseline health study, to be provided for  
8 the community where that waste dump would be placed.

9 This baseline health study would be go  
10 into a community and get accurate medical history of  
11 the entire community before the waste dump opens and  
12 then monitor that community thence on to see if there's  
13 any change.

14 That request was denied. This fall a board,  
15 much like yourself, will meet to find out if that base-  
16 line health study is cost effective.

17 I have no hope that they will provide for  
18 one. Texas is not remote to those who live in it, and  
19 the waste sites will undoubtedly not be remote from  
20 rivers, streams, crops, animals and people.

21 And then there is the danger of serious  
22 accidents, many of which have been talked about earlier  
23 today.

24 Even if a nuclear power plant is built  
25 according to current safety standards, it will routinely

1 emit radiation in the atmosphere, and it stands a good  
2 chance of incurring safety-related problems.

3 But, obviously, a plant that is not well  
4 built stands more of a chance of suffering a serious  
5 accident than one that is built adequately.

6 The South Texas Nuclear Project is now  
7 known across the country as the worst built nuke in the  
8 United States.

9 We in Austin and San Antonio are only 150  
10 miles from it. That's not a long distance for radiation  
11 to travel.

12 Prevailing winds during eight months of the  
13 year are from the Coast towards the San Antonio/Austin  
14 area. If the wind were blowing 20 miles an hour when  
15 the STNP had a radiation release accident -- and I say  
16 "when" and not "if", I believe it will happen if this  
17 plant is licensed to operate -- it would take the  
18 radiation about seven hours to get there.

19 Your local civil defense has no intention  
20 of evacuating you in case there's an accident at STNP,  
21 so you'll be on your own.

22 That is, if you're told at all the accident  
23 is occurring.

24 JUDGE BECHHOEFER: Ms. Elder, are you almost  
25 through?

7-13

MS. ELDER: The last paragraph.

JUDGE BECHHOEFER: Okay.

MS. ELDER: All I can say is good luck to us and the human race in general.

And to the Atomic Safety & Licensing Board, I say good luck with your conscience and your God, if you can somehow justify licensing this plant.

Thank you.

JUDGE BECHHOEFER: The next one on the list is Stephanie ... and no last name.

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## STATEMENT

OF.

STEPHANIE HORNER

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MS. HORNER: Hello. My name is Stephanie Horner. I'm here -- I'm a citizen of Austin, Texas, and I have been concerned about nuclear energy for about 2 1/2 years and have been actively opposing it in various different ways.

I have some thoughts that I'd like to share with everyone in this room, and particularly with you gentlemen.

Energy demand is not growing at the rate predicted when most of the nuclear energy plants now coming up for licensing were designed. Their purpose as the best source for the immediate future to meet the rapidly rising energy needs is, therefore, obsolete.

Instead, desperately needed money and technical expertise, which should be diverted into more life-enhancing forms of energy, is now bogged down in nuclear plant construction.

Even these figures are not constant. The estimated costs of construction keep being revised upward, and the public's utility bills keep increasing to meet the revised estimate.

Our money must be used to develop viable,

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renewable energy sources, as a reflection of a change in attitude towards our energy needs and consumption.

Nuclear energy uses up uranium reserves, releasing various amounts of radiation at each step of the fuel cycle. It destroys.

The only things produced are deadly: Plutonium and other radioactive wastes, plus detrimental, biological, genetic and medical effects.

Thank you very much.

JUDGE BECHHOEFER: Martin Ross.

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## ORAL STATEMENT

OF

MARTIN ROSS

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4 MR. ROSS: My name is Martin Ross. I am  
5 the Chairman of a local citizens group by the name of  
6 Pro-Nuc of San Antonio; and we are a citizens organiza-  
7 tion that is dedicated to providing public information and  
8 promoting nuclear energy as a necessary part of a  
9 regional and national energy policy that is premised  
10 on the need for growth and progress.

11 The nuclear energy issue and associated  
12 public opinion debate is interesting to me simply be-  
13 cause of the outstanding significance of nuclear  
14 technology and how it relates to fundamental American  
15 achievements on which modern society is dynamically  
16 dependent.

17 In addition to the limitless variety of  
18 industrial and life-saving medical applications of  
19 nuclear technology, nuclear energy is remarkably the  
20 most concentrated source of electrical generating  
21 capacity presently available for commercial use.

22 One ton of enriched uranium pellets pro-  
23 vides as much fuel for generating electricity as  
24 approximately 150,000 tons of low sulphur coal, at a  
25 fraction of the cost.

7-17

1 One fueling of the South Texas Nuclear  
2 Project with twin 1250-megawatt units can generate as  
3 much electricity annually, as is presently generated  
4 with more than 800 trainloads of coal.

5 At today's coal hauling rates, this is no  
6 small advantage.

7 The successful completion and efficient  
8 operation of the South Texas Project is San Antonio's  
9 only hope for low cost, reliable electricity sufficient  
10 to meet growing needs during the next decade or more.

11 Keeping San Antonio a bright spot in the Sun  
12 Belt requires a combination of coal and nuclear energy,  
13 a conclusion reached by the City Council and City Public  
14 Service years ago.

15 As you may well know, this position support-  
16 ing the roles of coal and nuclear sources of electricity  
17 is generally supported by the prestigious National  
18 Academy of Sciences representing more than 1200 leading  
19 American scientists.

20 In short, they say that nuclear energy is  
21 safe, manageable and an economic source of abundant  
22 electricity.

23 Judging from the longstanding domestic and  
24 worldwide response to the commercial availability of  
25 nuclear energy, there is little question why experts say

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1 that it is here to stay.

2 There are more than 500 nuclear facilities  
3 committed in 35 countries, with the total non-U.S.  
4 facilities numbering more than 300. About 70 percent  
5 of these are of the type of fission reactor that was  
6 pioneered in America similar to STP.

7 Despite the regrettable fact of current  
8 rates of inflation and difficult times generally, the  
9 scope of serious attention and financial commitment to  
10 nuclear energy is ambitious.

11 I want San Antonio and America to keep up  
12 with the times and to be leaders. To do that, we need  
13 more nuclear energy, and we need it now. We need to  
14 streamline the regulatory process, to encourage economi-  
15 cal construction of safe, reliable nuclear facilities.

16 The Intervenors in this licensing proceeding  
17 have made the impression that they intend to impede  
18 progress to the effect of escalating the costs of  
19 building and operating a nuclear facility to prohibitive  
20 levels.

21 This is a tactic of demagogues whose social  
22 interest is philosophical, and their reckless inter-  
23 vention strikes at the material interest of the millions  
24 of consumers who seek a return on their investment in  
25 the South Texas Project.

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1 I say, "Let's get on with the program. Let's  
2 meet the challenge of high-priced foreign oil and gas  
3 with American ingenuity. Let's turn the table on  
4 scarcity with technology to create abundance. Let's not  
5 sit on our hands when what we need to do is pick up  
6 the ball and run with it."

7 I don't think anyone would deny that the  
8 utility ratepayers of San Antonio and other South Texas  
9 cities participating in the South Texas Project de-  
10 serve anything less than the best product for our  
11 money.

12 What we are paying for our share in STP is  
13 for one of the best commercial nuclear facilities  
14 available anywhere in the world.

15 What we will get when construction is  
16 completed is a facility that should be licensed to  
17 operate initially for 40 years, generating the  
18 cheapest, most reliable source of electricity that  
19 money can buy.

20 I think that will be an achievement that  
21 we can be proud of.

22 Thank you.

23 - - -

## WRITTEN STATEMENT

OF

MARTIN ROSS

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4 With licensing hearings on the South Texas  
5 Project (STP), currently in progress before the Atomic  
6 Safety and Licensing Board, appointed by the U. S.  
7 Nuclear Regulatory Commission, public attention is  
8 again focused on the nuclear energy issue. This  
9 issue and associated public opinion debate is interest-  
10 ing to me simply because of the outstanding significance  
11 of nuclear technology and how it relates to fundamental  
12 American achievements, on which modern society is  
13 dynamically dependent.

14 The discovery of nuclear phenomena and  
15 harnessing of nuclear energy, pioneered in the United  
16 States and other nations, certainly represents one of  
17 the most significant technological triumphs in the  
18 twentieth century. In addition to the limitless  
19 variety of industrial and life-saving medical applica-  
20 tions of nuclear technology, nuclear energy is re-  
21 markably the most concentrated source of electrical  
22 generating capacity presently available for commercial  
23 use. To illustrate this fact, one ton of enriched  
24 uranium pellets provides as much fuel for generating  
25 electricity as approximately 150,000 tons of coal, at a

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1 fraction of the cost.

2 Conventional uranium-fission facilities  
3 have been tested over time and have been so well proven  
4 for their reliability and utility, that in many  
5 respects they are regarded as interchangeable  
6 with coal-fired electric generating facilities.

7 Although coal is still the dominant source  
8 of electric power in the United States, uranium has  
9 emerged as the next most important source, replacing  
10 expensive oil and gas. Nuclear facilities are common  
11 in the U. S. and are in widespread use worldwide.  
12 Taken together (excluding oil and gas, which are  
13 being phased out as uneconomical), coal-fire and  
14 uranium-fission account for all but a few percent  
15 of the commercial electricity generated in the U. S.  
16 today, and this situation appears likely to continue  
17 for at least the next couple of decades. So, the  
18 fact that San Antonio now has both modern coal-fire  
19 generating capacity with nuclear facilities coming on  
20 line means that our city is keeping up with the times.  
21 And that, you know, is a necessity for remaining a  
22 "bright spot in the sun belt."

23 This positive estimation of the tangible  
24 benefits of nuclear energy development is apparently  
25 shared by our own City Public Service Board, Houston



1 Light and Power, Central Power and Light and the City  
2 of Austin, all participants in the South Texas Pro-  
3 ject. There are also a good number of other major  
4 U. S. metropolitan areas looking to a combination of  
5 coal and nuclear facilities to provide for their  
6 electric needs. (The city of Chicago presently de-  
7 rives as much as fifty percent of its commercial  
8 electricity from nuclear energy.)

9 By current standards, our own South Texas  
10 Project is one of the best, largest and most modern  
11 nuclear facilities, of the type pioneered in this  
12 country and most widely used internationally.

13 Progress with construction and licensing  
14 of STP is comparable to most other U. S. nuclear  
15 facilities being built at this time. Construction  
16 delays and the rising cost of financing the project,  
17 far beyond original estimates made nearly a decade  
18 ago, are common problems throughout the entire con-  
19 struction industry.

20 In the nuclear industry time and money  
21 problems are particularly sensitive to the impact of  
22 constantly changing federal regulations, the ongoing  
23 monetary inflation crisis and economic instability.

24 Added to the hardship caused by these  
25 factors are costly delays perpetrated by philosophical

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opponents of nuclear energy.

The current tactical thrust of demagogues, purported to represent an anti-nuclear movement, is to use legal intervention to impede progress, thereby escalating the cost of building and operating a nuclear facility to prohibitive levels.

Despite such temporary financial setbacks, progress at the South Texas Project is strong, as it is at other nuclear facilities around the country. Nuclear energy in general is growing in its appeal, based on sound scientific, political, environmental and economic reasoning and the experts say it is here to stay.

According to an independent study by the prestigious National Academy of Sciences, representing twelve hundred leading American scientists, "Coal and nuclear power are the only large-scale alternatives to oil and gas in the near term (before about the year 2000)."

This is because of many factors:

Growth rate - The rate of growth in the use of electricity is a primary factor affecting the strategy for the development of additional uranium-fission and coal-fire facilities;

Safety - The short-term health risks from

1 routine operation of the Light Water Reactor (LWR)  
2 nuclear fuel cycle appear to be far below the risks from  
3 the coal fuel cycle;

4 Waste - No insurmountable technical  
5 obstacles are foreseen to preclude safe disposal of  
6 nuclear wastes in geological formations;

7 Natural Resources - Since the United States  
8 has relatively large reserves of both coal and  
9 uranium, we are in a very favorable position to benefit  
10 from a national policy that supports the continued use  
11 of nuclear energy and coal-fire, without relying on  
12 either source of electricity to the exclusion of the  
13 other.

14 Such observations represent not only the  
15 dominant viewpoint of America's scientific community,  
16 but also reflect the "good sense" basis for the long-  
17 standing popular support that has made possible our  
18 national commitment to leadership in the nuclear energy  
19 field.

20 As Americans we can be proud of the fact  
21 that we have led the way in research and development  
22 for the commercial availability of nuclear energy, that  
23 is benefiting millions of consumers across the nation  
24 and around the world.

25 More than seventy nuclear facilities

1 operating in the U. S. are generating about 12% of the  
2 available commercial electricity. This 12 percent  
3 equals as much electricity as could be produced by 630  
4 million barrels of oil (which is enough oil for 12  
5 billion gallons of gasoline, enough to run 22 million  
6 cars for a year).

7 Worldwide, there are more than 500 nuclear  
8 facilities committed in 35 countries, with the total  
9 non-U. S. facilities numbering more than 300. About 70%  
10 of these are the type pioneered in America, similar  
11 to STP.

12 It is also noteworthy to find that Japan,  
13 West Germany, Canada, U.S.S.R., Mexico, Italy and  
14 France, to name just a few influential nations, have  
15 nuclear facilities on line and have ambitious programs  
16 underway for tremendous progress in new nuclear  
17 development.

18 These facts indicate the scope of serious  
19 attention and financial commitment being given to  
20 nuclear energy nationally and worldwide. Here in San  
21 Antonio, business and residential rate-payers are  
22 doing a fine job generating the funds necessary to do  
23 our part to build as good a nuclear facility as  
24 exists anywhere.

25 We hope our present efforts to ensure the

1 successful completion of the South Texas Project will  
2 enable us to enjoy the benefits of the most modern  
3 electric generating technology that is commercially  
4 available to date.

5 We expect that, because of its lower costs  
6 of operation and fuel (compared to the next best  
7 alternative, coal) and its long economic life, STP  
8 will pay for itself many times over, during decades  
9 of safe, reliable service.

10 Participation in STP is a great commitment  
11 to the future growth and prosperity of San Antonio and  
12 South Texas, providing economical diversity and additional  
13 reliability, where our vital supply of electricity is  
14 concerned.

15 The South Texas Project's twin units will need  
16 to be fueled just once each year in order to generate  
17 as much electricity annually as is presently  
18 generated in three years at present capacity, using  
19 more than 800 trainloads of low-sulphur coal. (At  
20 today's coal-hauling rates, this is no small ad-  
21 vantage.)

22 In summary, nuclear energy is the most  
23 potent source of commercial electric power on the  
24 market today. Based on what has already been  
25 scientifically demonstrated, nuclear technology can

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1 utilize fuel resources as limitless as coal, and can  
2 do so with less risk of hazard to human health and  
3 to the environment.

4 With more utilities generating electricity  
5 with coal and uranium, there is a vast amount of oil  
6 and gas available for other useful purposes. Nuclear  
7 energy seems to be here to stay, because it is a  
8 necessary means to material and social progress for  
9 the good of mankind.

10 Americans will continue to lead the way as  
11 long as we, as a nation, maintain resolute courage and  
12 a sense of pride in creative achievement.

13 JUDGE BECHHOEFER: Howard Broadson.

14 (No response.)

15 JUDGE BECHHOEFER: A. W. Betts.

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## STATEMENT

OF

A. W. BETTS

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4 MR. BETTS: Mr. Bechhoefer, members of the  
5 Atomic Safety and Licensing Board, representing the  
6 Greater San Antonio Chamber of Commerce and the  
7 Southwest Research Institute, I thank you for the  
8 opportunity to make a statement in support of issuance  
9 of an operating license for the South Texas Project  
10 nuclear power plant.

11 I believe that such action will be in the  
12 national interest, as well as clearly in the interest  
13 of this community. It is important that we bring this  
14 nuclear power plant on line as soon as it is possible  
15 to do so.

16 Before I expand on that statement, may I  
17 establish my credentials for making it. For over 20  
18 years, I served in responsible positions either on the  
19 Department of the Army General Staff, in the Office  
20 of the Secretary of Defense, or on the Atomic Energy  
21 Commission staff. In all of those positions that I  
22 held during that period, I dealt with some aspect of  
23 the use of nuclear energy.

24 Since arriving in San Antonio ten years ago  
25 to become a vice president of the Southwest Research

7-29

1 Institute, I have maintained a deep interest in  
2 nuclear energy.

3 Our Institute is heavily involved in various  
4 programs dedicated to the safe production of electricity  
5 from nuclear energy.

6 Moreover, I am a Fellow in the Institute  
7 of Environmental Sciences and in the Society of  
8 American Military Engineers and an Associate Fellow  
9 in the American Institute of Aeronautics and Astro-  
10 nautics.

11 As you are probably aware, all three of  
12 these professional societies have continuing involve-  
13 ment in the application of nuclear energy in their  
14 fields of interest.

15 For the Institute of Environmental  
16 Sciences, I currently serve as Manager of the Energy  
17 Division, one that addresses the technologies involving  
18 in balancing our need for energy and our quite  
19 natural desire for a pristine environment.

20 On the local scene I served on the Energy  
21 Task Force of the Greater San Antonio Chamber of  
22 Commerce in an in-depth study of the South Texas Pro-  
23 ject. I currently serve on the City Public Service  
24 Board's citizens group on energy.

25 From this extensive involvement and study, I

7-30

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1 am convinced that the perceived problems of radiation,  
2 waste disposal, safe operation and ultimate decommissioning  
3 are surely manageable. Which leads to my  
4 opening comment on the importance of bringing this  
5 nuclear power plant on line as soon as it is possible  
6 to do so.

7 In the national interest, we must recognize  
8 the importance of reducing our dependence on imported  
9 oil. In the complex energy picture we face over the  
10 next decade or so, whatever fossil fuel that we can  
11 save through the use of nuclear fuel will inevitably  
12 be reflected in decreased demand for imported oil.

13 At the community level, licensing the  
14 operation of this nuclear power plant will make at least  
15 two important contributions. First, it will permit  
16 the City Public Service to provide a non-polluting,  
17 safe, reliable source of electricity at a cost per  
18 kilowatt hour that should be about one-third of what  
19 that kilowatt hour would cost if produced by natural  
20 gas.

21 In the mid-eighties, expensive natural gas  
22 will be the available alternative. And second, the  
23 dependability of nuclear power will attract industry  
24 to San Antonio that will provide jobs necessary to the  
25 economic health of this community.

1                   And now, let's address directly the  
2 questions of quality of construction and competency of  
3 management that are central to the deliberations of  
4 this Board.

5                   I assure you that I have reviewed these  
6 matters in depth with members of the City Public Service  
7 staff, and I am convinced that their support of this  
8 project is based on a thoroughly well informed,  
9 technically competent and objective evaluation of all  
10 relevant alternatives.

11                   After all, they live in this community and  
12 they're highly motivated to select the most desirable  
13 course of all the alternatives they have studied.

14                   I strongly support their recommendations.  
15 Thank you, sir.

16                   JUDGE BECHHOEFER: Mr. Betts, I have  
17 another name on the list, which I don't know if it's  
18 your name also. It's a General Betts --

19                   MR. BETTS: Cross that out. That's also  
20 my name. That's my nickname, sir.

21                   JUDGE BECHHOEFER: Okay, thank you.

22                   - - -

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JUDGE BECHHOEFER: Is there anyone else who wishes to make a statement at this time?

MR. ELLISON: I can make it now, or I can make it later.

JUDGE BECHHOEFER: You may come forward and make it now.

///

///

///

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STATEMENT  
of  
NEWTON TREY ELLISON

MR. ELLISON: My name is Newton Ellison. I spoke with you in Bay City. My name is Newton Trey Ellison, and thank you for the opportunity for allowing me to speak again.

At that time I showed you this book. I neglected to put into the record where it could be obtained. This is a booklet prepared by the National Science Foundation, and its number is NSF-RA-N-74-063. It can be ordered for \$2.00 by sending to Washington to the Superintendent of Documents. Excuse me. It's \$3.00.

This is a very good book. It's entitled Solar Cooling For Buildings and it was published in 1974 as a result of a workshop held in Los Angeles, California by the Association of Heating, Refrigeration and Air Conditioning Engineers.

It has in it all of the information that I have been trying to talk about in San Antonio for the last several years about solar air conditioning.

Obviously, the reason that we have to have, according to the City Public Service Board, a nuclear power plant or any new generating capacity is that we have this peak demand in the summertime that is occasioned by



1 air conditioning. We are sitting in air conditioning  
2 right now, and just about every business in San Antonio,  
3 every factory, every home from middle class and up is  
4 an air conditioned home.

5 What I have given you is four sheets, two  
6 of them are from a Yazaki Corporation, Yazaki of Japan,  
7 that are building solar air conditioners. I would like  
8 to refer to those four sheets now.

9 The first is a compendium of of the history  
10 of the Yazaki Corporation, which began in 1970 with the  
11 production of a gas-fired chiller.

12 As you know, or possibly don't there was a  
13 time when there were refrigerators made; mass produced,  
14 that produced refrigeration out of natural gas heat.  
15 They are still made in small amounts now. They are used  
16 in motor homes.

17 In 1974 they developed a solar collector  
18 that they say is the best of them all, and from then on  
19 they have been building and installing air conditioning  
20 plants in Japan for hot water heating and air conditioning --  
21 rather systems in Japan, Japanese homes, and Australian  
22 homes, in Singapore, in Kuwait, all over the world. All  
23 of those installations are pictured in a brochure  
24 entitled Solar Systems In Operation, prepared by the  
25 Yazaki Company.

8  
1 I have submitted to you Page 1 of that  
2 booklet, and this page shows an elementary school with  
3 cooling, heating and hot water provided by solar energy,  
4 a home for the aged with cooling, heating and water, and  
5 a nursery school with cooling, heating and water.

6 They also have a ski lodge that only has  
7 heating and hot water. Obviously, they don't need to  
8 have too much air conditioning in a ski lodge.

9 Pat Legan, who spoke to you before, I am  
10 also a life resident of San Antonio, and I have been for  
11 the development of San Antonio and for the enhancement  
12 of our economic opportunities here. Obviously, there  
13 are a lot of poor people here who need jobs, and I  
14 propose that by develop solar air conditioning, which  
15 would obviate the need for nuclear power we could provide  
16 a lot more jobs than we can with a plant in Bay City  
17 that is going to be just operated by a handful of  
18 engineer. There aren't going to be any working people  
19 working there.

20 My proposal for solar hot water heating and  
21 air conditioning means that hundreds of thousands of  
22 people will be employed in this city, because we are  
23 going to have to eventually have to replace these  
24 compressor air conditioners, because they are just too  
25 expensive. They take too much electricity.

8/ 1 I was a member of the Tas Force that Pat  
2 Legan mentioned. I have been a member of two task  
3 forces here in this city, and, consequently, I have  
4 heard a lot about nuclear power, and I have heard a  
5 lot of the city public service board's position on it,  
6 and a lot of what Houston Lighting & Power wants to do.  
7 But what it boils down to is this: That a company called  
8 Brown & Root went and sweet talked the Houston Lighting  
9 & Power Company many years ago, when it was still to  
10 believe that nuclear power was clean and cheap, and safe.

11 Well, now we know it is not clean, and we  
12 know it is not cheap, and we know it is not safe. But  
13 yet they were successful in being able to convince the  
14 Houston Lighting & Power Company that they wanted to  
15 build a nuclear power plant.

16 So Houston Lighting & Power came over to  
17 San Antonio and presented our half-sleepy City Council  
18 at that time, with a dog-and-pony show that lasted a  
19 day and all of a sudden they voted. And the people have  
20 not been consulted on this. The people have never been  
21 consulted on this, and the people are just beginning to  
22 react.

23 There are two articles in the newspaper,  
24 and I will conclude my remarks with that, in recent days.  
25 In the Sunday June 14, 1981, Express there is an article

1 by Rick Casey which poses the question: What is the  
2 alternative to nuclear power?

3 Well, obviously, the Japanese have it here.  
4 Oh, I forgot Page 4 of my document. This Page 4 --

5 Have I used my time?

6 JUDGE BECHHOEFER: You are just at five  
7 minutes.

8 MR. ELLISON: Okay. Well, this is the only  
9 thing. There is a company in Evansville, Indiana, who  
10 is also building solar air conditioners, and in time  
11 there will be a competition set up between the Japanese  
12 and the Americans and I predict that solar air conditioners  
13 are going to win the day.

14 One last thing and I'll be finished. Two  
15 words have been used about the critics of STNP. They  
16 say we have not answered this question persuasively, and  
17 the second time Rick Casey says, "There was only one  
18 ineffectual dissenting voice." As the owner and operator  
19 of that dissenting voice on the Task Force that General  
20 Betts and Pat Legan were talking about, I was the one  
21 voice on there. I agree that I was ineffectual, but the  
22 people who protested the Vietnam war, until they stopped  
23 the war were also called ineffectual.

24 Thank you.

25 JUDGE BECHHOEFER: Is there anyone else who  
wishes to make a statement?



# Solar Systems in Operation

Yazaki Solar Systems are used  
World Wide



**Shinshu Shinmachi Elementary School**

1. Kamiminauchi, Nagano Pref.(J)
2. November, 1978
3. CHW
4. 800 units(1,528 m<sup>2</sup>)
5. 40RT(WFC3000 x4)



Since sales of Yazaki Solar Equipment began in February 1976, over 900 systems have been installed in Japan and abroad by the end of June 1980.

There are over 30,000 Yazaki "Blue Panel" Solar Collectors installed on these systems.

Representative solar systems using Yazaki equipment are shown in the following examples.

**Projects in Japan.....**

**Legend**

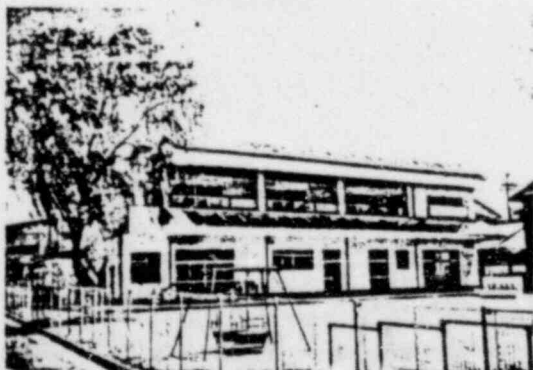
1. Location,(J):Japan
2. Date construction completed
3. kind of system  
CHW(Cooling,Heating & Hot Water Supply)  
CW (Cooling & Hot Water Supply)  
HW (Heating & Hot Water Supply)  
W (Hot Water Supply)
4. Quantity of Blue Panel installed (m<sup>2</sup>) is effective collector area.
5. Refrigeration capacity(RT)  
\*WFC:Model No. for the Yazaki Water Fired Absorption Chiller

**Ohbu Ryo for the Aged**

1. Ohbu city, Aichi Pref. (J)
2. November, 1979
3. CFW
4. 640 units(1,222 m<sup>2</sup>)

**Ohoka Nursery School**

1. Numazu city, Shizuoka Pref.(J)
2. February, 1979
3. CHW
4. 126 units(240 m<sup>2</sup>)
5. 10RT(WFC3000)

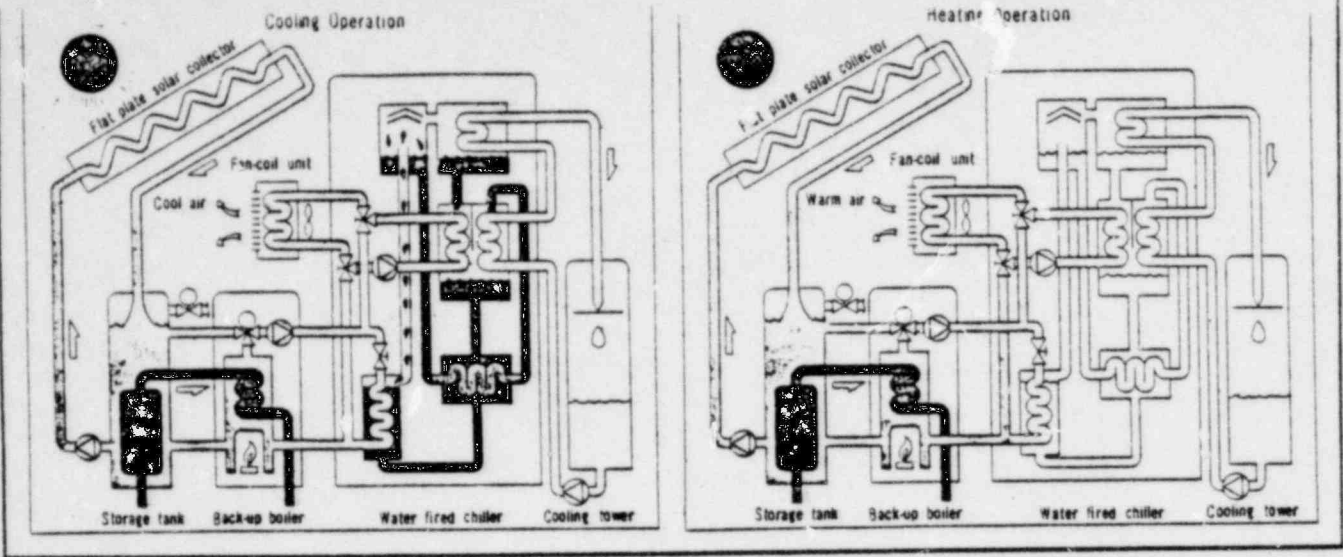


**Shintokusan Skiing Ground Lodge**

1. kamikawa, Hokkaido Pref.(J)
2. May, 1979
3. HW
4. 30units(57.3 m<sup>2</sup>)



**YAZAKI CORPORATION**  
17TH FLOOR MITA-KOKUSAI BUILDING  
4-28, 1-CHOME, MITA MINATO-KU, TOKYO, JAPAN  
PHONE: TOKYO 03-455-8811  
TELEX: 2426794, 2426795

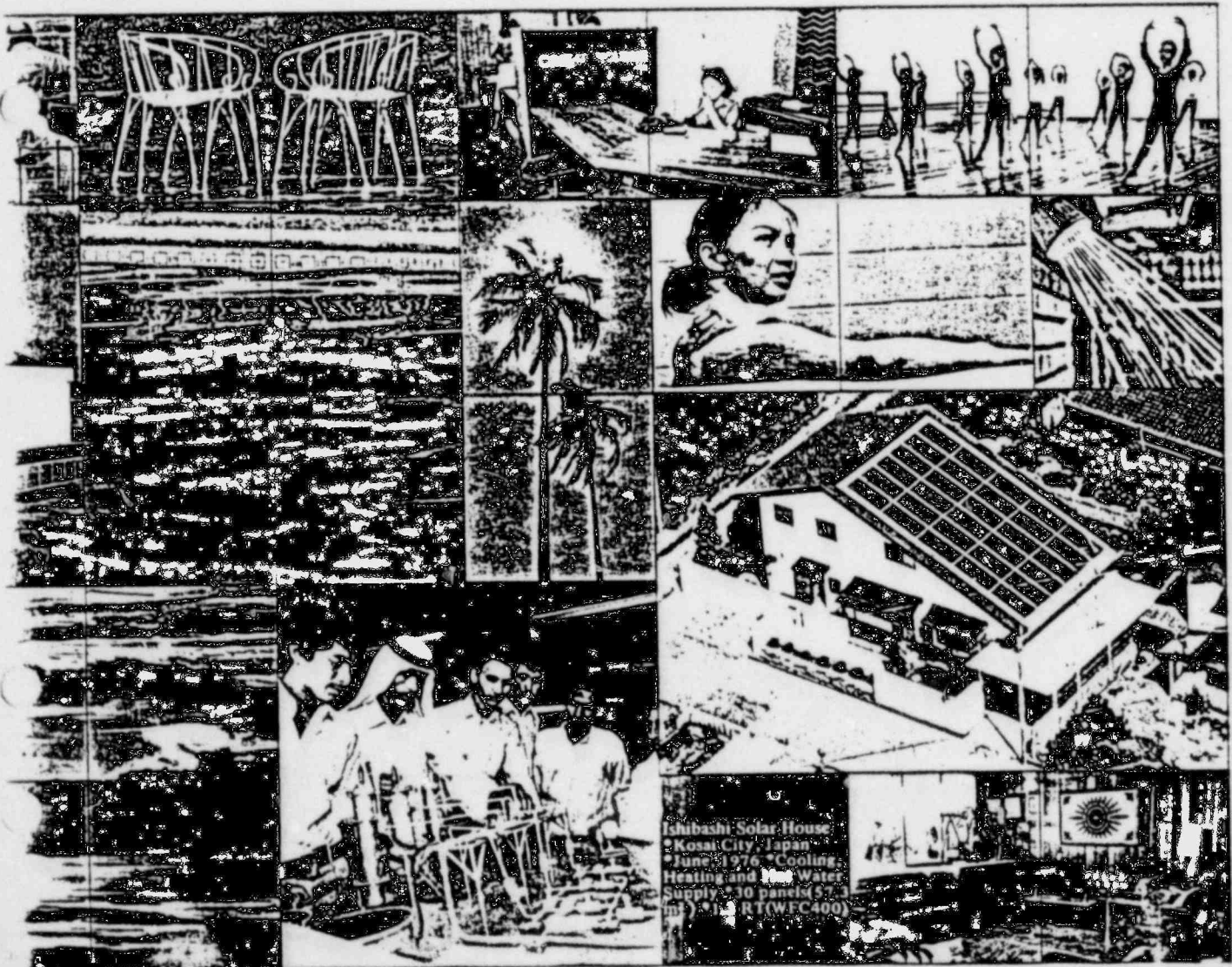


**How to Employ Solar Energy for Cooling, Heating and Hot Water Supply**

Solar cooling, heating and hot water supply systems utilize hot water heated by the sun and stored in a heat storage tank as illustrated. When the temperature in the storage tank is insufficient, (due, for example, to over-cast skies) a back-up boiler is used.

1) For cooling: Heat medium from the heat storage tank is supplied to the generator of the water fired chiller and returns to the heat storage tank. The heat medium activates the generator to produce an absorption refrigeration cycle making chilled water which is then circulated through the air conditioning system.

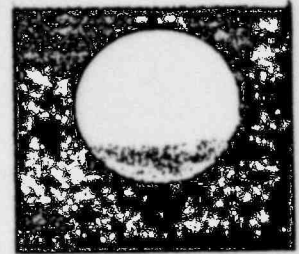
2) For heating: Heat medium from the heat storage tank is supplied directly to the fan-coil units to heat the individual rooms and returns to the heat storage tank.  
 3) For hot water: The main water supplied to heat exchanger is heated by heat medium in the heat storage tank and is used whenever needed.





"Working with people toward the richer development of society." This is the basis of Yazaki's philosophy in Japan and abroad. Yazaki is dedicated to working together with people for the betterment of society — satisfying real needs through Yazaki technology.

We will spare no effort in the promotion and expansion of the use of solar and other heat energy resources during the 1980's. Our efforts will include the fields of cooling, heating and the production of hot water.



### History of Yazaki Solar System Development

- March 1970: Began production and sales of gas fired chiller
- July 1972: Research and development of Yazaki Solar System began
- February 1974: Produced water fired chiller operated by hot water at 75°C to 100°C (U.S. PAT. No. 3978683, 4014183)
- March 1974: Developed highly corrosion-resistant special stainless steel
- April 1974: Developed "Blue Panel", patented selective surface for chemically treated special stainless steel panel. (U.S. PAT. No. 4097311)
- July 1974: Completed Yazaki Experimental Solar House I.
- February 1975: Supplied solar collector and water fired chiller to Soka Solar House of the Japan Science and Technology Agency
- July 1975: Attended Los Angeles Conference of International Solar Energy Society and announced results of the cooling operation for "Yazaki Experimental Solar House I"
- March 1976: Numazu Kanaoka Assembly Hall
- June 1976: Ishibashi Solar House
- October 1978: Omiya City Gymnasium
- October 1978: Eldridge Medical Clinic, Sydney, Australia
- January 1979: Yazaki records over 800 applications of solar systems.



Yazaki Experimental Solar House I

## Welded air conditioners use sun power

*Gas tungsten arc welding is the workhorse for critical airtight units that tame old Sol*

by ROSALIE BROSILOW, editor

When American homeowners and industry are ready for solar heating and air conditioning, Arkla Industries, Inc. will be ready for them. Arkla, headquartered in Evansville, Indiana, manufactures sun-powered air conditioners in two capacities: a 3-ton (2.7 Mg) unit for residential cooling, and a 25-ton (23 Mg) unit for light industrial plants.

The firm, a wholly-owned subsidiary of the Arkansas-Louisiana Gas Company (whence the name Ark-La), was founded in 1957, when

the parent company bought out Serval Inc., a manufacturer of air conditioning units. Many of its present employees came with the Serval purchase, giving the firm considerable experience in air conditioner design and assembly and advanced standing in the solar field. Arkla continues to manufacture gas-fired air conditioners, about 80 a day, and turns out about 5 sun-powered models a week.

### GTA is the workhorse

Certain principles are basic to the

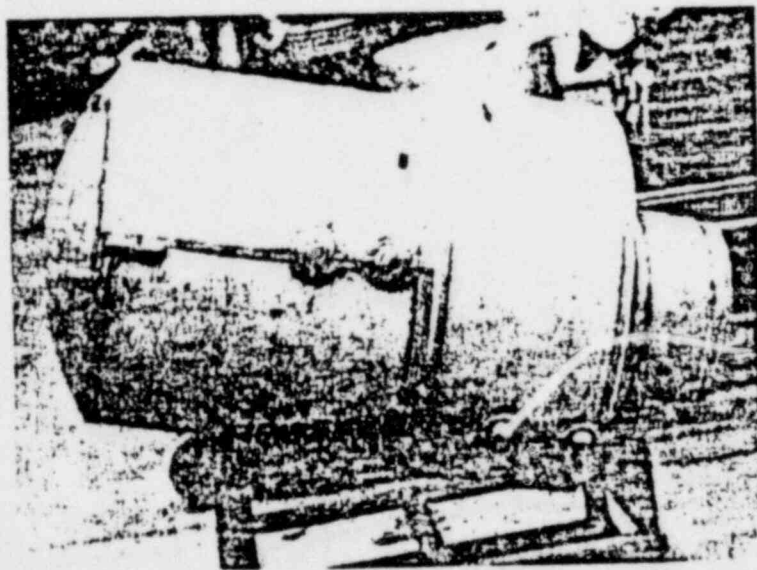
business of fabricating air conditioners, be they powered by solar energy or other. The first is that the unit as a whole, and certain of its subassemblies, must be leak-tight. Arkla welders work carefully, mostly with the gas tungsten arc-argon shielded process, and inspection follows their work every step of the way through the manufacturing process to assure leak-tight joints.

A second principle: subassemblies must be perfectly aligned with each other to assure even distribution of the fluids in the air conditioning unit. An air conditioner is really a series of heat exchangers, and even distribution and good contact between liquid- and vapor-metal interfaces is what makes for an efficient unit. Boiling and condensation, on which the cooling cycle depends, require even flow of condensed liquid around coils and between rows of coils from top to bottom of the unit.

The assembly must be clean and free of oils and other lubricants from fabricating, because these impurities can adversely affect the wetting action of the heat transfer surfaces. This requires cleaning of parts and assemblies that contact the working fluid, and gas-shielded welding to avoid slag adhesion.

### Cut, bend, and weld

Most parts for Arkla products start out as sheet or tube. The firm's large fabricating shop houses a dozen



Heart of the 3-ton (2.7 Mg) solar air conditioner. Section on left houses the generator and condenser; middle, the absorber and evaporator; bottom right, the solution sump. The housing is of mild steel, GMA welded with E70S-3 wire and argon-CO<sub>2</sub> shielding.

STATEMENT  
of  
TERESA WALLER

1  
2  
3  
4 MS. WALLER: I am Teresa Waller, and I live  
5 here in San Antonio. I am a housewife.

6 In studying the figures City Public Service  
7 uses to determine the projected cost of electricity from  
8 various sources of fuel I question the assumption called  
9 "capacity factor."

10 The capacity factor represents the percentage  
11 of time a generator is expected to operate. CPS assumes  
12 the capacity factor of 65 percent with the South Texas  
13 Project nuclear plant, as well as for coal and lignite  
14 plants. Large coal plants have performed at a 62  
15 percent capacity factor, small ones at 70 percent.

16 Of the 13 Westinghouse nuclear reactors of  
17 more than 800 megawatts the capacity factor is 52 percent.  
18 Of the two reactors built by Brown & Root corporation,  
19 the capacity factors are 52 percent and 48 percent.

20 One may question if the South Texas Project  
21 nuclear plant will perform even at that level considering  
22 the charges of poor workmanship. A difference of about  
23 15 percent in capacity factors between nuclear and coal  
24 or lignite would make a substantial difference in  
25 relative costs of generating electricity, as was

8-12

V

1 submitted by Jamie Crump, CPS director of generation  
2 planning. My source on this was the Express Newspaper  
3 June 21, 1981, Section D, Page 1, Author Rick Casey.

4 What about the cost of permanent storage of  
5 nuclear fuel waste, as there is currently no permanent  
6 storage technology available, no one can estimate this  
7 cost factor both economically and environmentally.

8 A further unknown is the cost of decommission-  
9 ing. This is the cost of sealing and guarding a nuclear  
10 power plant after its approximate 30-year life is  
11 terminated due to radioactive buildup.

12 Turning to the safety factor, we must  
13 consider the location of this plant on the coast that  
14 hurricanes. This nuclear power plant is supposed to be  
15 able to withstand 90-mile per hour winds. Hurricane  
16 winds of more than 100 miles per hour are common.

17 Last year I lived in the Valley in Texas  
18 and felt Hurricane Allen, reported to have winds from  
19 150 to 200 miles an hour. A nuclear power plant cannot  
20 be evacuated when a hurricane approaches.

21 Thank you.

22 JUDGE BECHHOEFER: Is there anyone else?

23 ///

24 ///

25 ///



1 JUDGE BECHHOEFER: The Board proposes to  
2 break for lunch at this time.

3 This afternoon we will continue with the  
4 evidentiary session, which will last throughout the  
5 afternoon.

6 Any further limited appearances will have to  
7 be tonight, when the session will be exclusively for that  
8 purpose, beginning at 7:30.

9 Since we haven't had a break this morning,  
10 let's take an hour and a half for lunch and be back  
11 about 1:25 or 1:30.

12 (Whereupon, at 12:00 noon, the hearing was  
13 recessed, to reconvene at 1:30 p.m. of the same  
14 day.)

15 - - -

10-1

## AFTERNOON SESSION

1:42 p.m.

JUDGE BECHHOEFER: Back on the record.

Before we begin this afternoon, I would like to read out one of the rules of this facility to which we are subject.

That is Rule 28(b)(h), to be precise. It states that the photographing, broadcasting or televising of any judicial proceedings, or of anyone directly or indirectly involved there, whether court is in session or not, in or from a courtroom or any other part of a United States Courthouse, shall not be permitted.

That rule is in force in this facility, and we are obliged to abide by it, and after discussion with the Judges here, they have advised us that our type of proceeding falls within that definition, as do proceedings of NLRB and a number of other regulatory agencies.

I might add that they added that that applies as well to recording devices and that type of thing, cameras, et cetera.

So when the Commission uses facilities of this sort, we abide by whatever rules they have.

Are there any preliminary matters prior to the recall of the Goldberg/Frazar Panel, with Mr. Barker added?



10-2

1 MR. AXELRAD: Only one preliminary scheduling  
2 matter, Mr. Chairman.

3 We have discussed with the Intervenors and  
4 with the Staff the possibility of an additional set of  
5 witnesses being taken perhaps on Wednesday.

6 After the Goldberg/Frazar Panel we will then  
7 proceed to the backfill panel. Two of the members of  
8 the backfill panel are Mr. Steven McKay and Timothy Logan,  
9 who, later on, with the testimony we've submitted, are  
10 also testifying separately on alleged incidents of  
11 document falsification.

12 That's a 13-page item of testimony.

13 Mr. McKay can be here until the close of  
14 business on Wednesday, as can Mr. Logan, so if we do  
15 get finished with the backfill panel by that time, the  
16 Intervenors and the Staff have agreed that Mr. McKay  
17 and Mr. Logan can be called on Wednesday so that they  
18 would not have to be recalled in July or September.

19 That's the only preliminary matter that we  
20 had, if the Board has no objections.

21 JUDGE BECHHOEFER: The Board sees no problem  
22 with that.

23 MR. AXELRAD: Thank you, Mr. Chairman.

24 At this time we are prepared to recall  
25 Mr. Goldberg and Mr. Frazar.

10-3

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1 JUDGE BECHHOEFER: Do other parties have  
2 any preliminary matters, first?

3 MR. JORDAN: Yes. Just quickly, with respect  
4 to the status of the -- I don't have the exhibit number  
5 on this copy, it's what purports to be the response to  
6 the Ferguson memorandum -- were you going to cover that  
7 right away in the panel?

8 MR. AXELRAD: Yes.

9 MR. JORDAN: Okay. Then I'll wait for that.

10 JUDGE BECHHOEFER: Any other matters?

11 The Staff doesn't have anything to say?

12 MR. REIS: No.

13 JUDGE BECHHOEFER: You may proceed.

14 MR. AXELRAD: Okay. At this time we will  
15 call Mr. Goldberg and Mr. Frazar and Mr. David G. Barker,  
16 who has not previously been sworn.

17 JUDGE BECHHOEFER: Mr. Barker, do you swear  
18 to tell the truth, the whole truth, and nothing but the  
19 truth, so help you God?

20 MR. BARKER: I do.

21 - - -

22

23

24

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10-4

1 Whereupon,

2 JEROME H. GOLDBERG

3 RICHARD A. FRAZAR

4 DAVID G. BARKER

5 having been previously duly cautioned and sworn to tell  
6 the truth, the whole truth, and nothing but the truth,  
7 resumed the stand and testified as follows:

8 MR. AXELRAD: Mr. Chairman, I might explain  
9 at this time how we plan to proceed with this panel, to  
10 make sure that we proceed in a fashion that the Board  
11 would prefer.

12 I have distributed to the Board and to all  
13 the parties and to the reporter several questions and  
14 answers which I would plan to ask of Mr. Barker and  
15 which he would respond orally to for the record. It is  
16 simply his qualifications and previous background with  
17 the South Texas Project.

18 I would then plan to ask Mr. Barker one or  
19 two questions with respect to Applicants' Exhibit 43,  
20 which Mr. Jordan has just alluded to, which was  
21 identified for the record previously, but at that time  
22 did not contain the attachments.

23 I now have it with the attachments associated  
24 with it, and I would ask Mr. Barker a question or two  
25 about it and move it into evidence.

10-5

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1 I would then plan to ask the panel just  
2 several questions with respect to 81-11, which is the  
3 reason why Mr. Goldberg and Mr. Frazar have been recalled.

4 Now, the last item is that Mr. Barker is  
5 appearing at this time because the Board wanted him to  
6 appear.

7 We never did ask the Board exactly what subject  
8 it wanted Mr. Barker to appear and testify on, and I  
9 would suggest that after I get through with the things  
10 I've just mentioned that the Board can then ask Mr. Barker  
11 whatever questions it wants to ask him, and then the  
12 cross-examination by the parties can then take place,  
13 based upon the information that I will adduce, plus  
14 whatever questions the Board has asked.

15 To us, that would limit the extent of  
16 Mr. Barker's testimony.

17 JUDGE BECHHOEFER: I think the Board would  
18 prefer the whole panel to go through cross-examination  
19 first, and then the Board can ask its questions.

20 MR. AXELRAD: Well, that's fine, Mr. Chairman,  
21 but the limited cross examination of Mr. Barker would be  
22 solely on his, I guess, qualifications.

23 JUDGE BECHHOEFER: Yes. Well, that could be,  
24 but I think we would prefer that, and then we'll ask all  
25 our questions together, and then through recross.

1 MR. AXELRAD: Well, that's fine, Mr. Chairman.

2 DIRECT EXAMINATION

3 BY MR. AXELRAD:

4 Q Mr. Barker, will you please state your name  
5 and current occupation?

6 BY WITNESS BARKER:

7 A I am the manager of the South Texas Project  
8 for Houston Lighting & Power Company.

9 My name is David G. Barker.

10 Q Will you please describe your educational  
11 and professional background?

12 BY WITNESS BARKER:

13 A I received the degree of Associate of Arts  
14 in Engineering from Shreiner Institute in 1964, and the  
15 degree of Bachelor of Science in Mechanical Engineering  
16 and Master of Engineering in nuclear engineering from  
17 Texas A&M University in 1967 and '68 respectively.

18 I have also attended short courses in  
19 specialized areas, such as the one-month University of  
20 Idaho Public Utilities Executive Course in 1975; the  
21 two-week NUS core analysis workshop in 1969; and the  
22 one-week Argonne National Laboratory fuel management  
23 workshop in 1967.

24 In addition, in 1970 I took an extension  
25 course in management principles, offered by the American



10-7

1 Management Association Extension Institute in cooperation  
2 with the Harvard Business School.

3 During 1967 and '68, while I attended  
4 graduate school, I was employed as a research and  
5 coordinating engineer by Texas A&M University, where I  
6 performed work in design, fabrication and testing of  
7 equipment used in the Triga reactor conversion.

8 Concurrent with these duties, I performed  
9 research work in activation analysis, health physics,  
10 gamma ray spectroscopy, high-energy gamma ray attenuation.

11 I was employed in 1968 by Todd Shipyards  
12 Corporation as a nuclear engineer in the engineering  
13 department of the nuclear division, and was named project  
14 engineer in 1969.

15 My responsibilities included supervision of  
16 a project team involved in the evaluation of the N.S.  
17 Savannah Core II.

18 This included such activities as design and  
19 modification of fixtures, writing procedures and test  
20 specifications, and supervision of work of subcontractors.

21 In 1969 I left Todd Shipyards and joined the  
22 H. B. Zachry Company as a quality assurance supervisor  
23 on the Aguirre Nuclear Project.

24 I worked on the development of the H. B. Zachry  
25 QA manual, and after its successful completion I assumed



10-8

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1 responsibility as a construction engineer.

2 I joined HL&P in 1972 as a nuclear engineer  
3 in the company's nuclear program.

4 My duties included development of the HL&P  
5 QA program for nuclear work, and development of NSSS  
6 specifications.

7 In 1973 the QA department was formally  
8 established and I was appointed as the manager.

9 I served as the HL&P QA manager from 1973  
10 until 1979, when I was appointed manager of the power  
11 plant construction department.

12 Q Mr. Barker, did you say 1979?

13 BY WITNESS BARKER:

14 A No, I said 1973 until 1977, or that's what  
15 I meant to say. Excuse me.

16 My responsibilities included management of  
17 construction of the South Texas Project, STP, and the  
18 W. A. Parish Units 5, 6 and 7, which are a large fossil  
19 fuel unit -- or units.

20 I was appointed to my present position as  
21 manager of STP in 1978.

22 In this position I supervise the HL&P project  
23 team, working on all aspects of the STP, except QA.

24 I'm a Registered Professional Engineer in  
25 the State of Texas.

10-9

1 Q Mr. Barker, please describe your responsi-  
2 bilities with respect to STP, and each position that you  
3 have held with HL&P.

4 BY WITNESS BARKER:

5 A STP was announced as a project on June 6, 1973.  
6 I was then the HL&P QA manager. The development and  
7 initial implementation of the HL&P QA program for STP  
8 were performed under my supervision.

9 I worked on the development of the corporate  
10 QA manual and the STP QA plan.

11 I recruited QA personnel to staff the  
12 corporate and STP QA staffs, and directed the activities  
13 of those personnel in the development and implementation  
14 of the QA program for STP.

15 As manager of the power plant construction  
16 department, I assigned personnel under my supervision  
17 to assist the project manager in providing direction to  
18 Brown & Root on construction efforts on STP.

19 Since becoming project manager, I have been  
20 responsible for providing HL&P's programmatic direction  
21 to the design and construction efforts of Brown & Root.

22 This involves continual interface with the  
23 Brown & Root project general manager.

24 MR. AXFLRAD: Mr. Chairman, we have previously  
25 had identified as Applicants' Exhibit 43 in this proceeding

LC-10

1 a letter dated August 22, 1979, from Mr. Kirkland to  
2 Houston Lighting & Power Company, Attention Mr. D. G.  
3 Barker.

4 At that time that letter did not contain the  
5 attachments thereto.

6 I have handed to the reporter and to all the  
7 parties a copy of that letter with the attachments  
8 included.

9 At this time I would like to have re-identified  
10 as Applicants' Exhibit 43 a three-page letter dated  
11 August 22, 1979, to which there is attached three pages  
12 of attachments.

(Applicants' Exhibit No. 43  
was marked for identifi-  
cation.)

16 BY MR. AXELRAD:

17 Q Mr. Barker, do you have before you a copy  
18 of the letter and attachments which have been re-  
19 identified today as Applicants' Exhibit 43?

20 BY WITNESS BARKER:

21 A Yes, I do.

22 Q Can you identify that as a letter which is  
23 dated August 22, 1979, which was sent to your attention  
24 by Mr. Kirkland of Brown & Root?

25 / / /

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BY WITNESS BARKER:

A. That is correct.

Q. Is that letter, with the attachments, complete?

BY WITNESS BARKER:

A. Yes, to the best of my knowledge this is complete.

Q. Were there any other direct responses received by Houston Lighting & Power Company to the August 13, 1979, memorandum from Mr. Ferguson to Mr. Dodd, that this August 22 letter responds to?

BY WITNESS BARKER:

A. To the best of my knowledge, there were no other responses.

MR. AXELRAD: Mr. Chairman, I would move at this time that Applicants' Exhibit 43, as re-identified today, be accepted into the record.

JUDGE BECHHOEFER: Any objections?

MR. JORDAN: No objections.

MR. REIS: No objections.

JUDGE BECHHOEFER: The document will be so admitted.

In case the record reflects otherwise, this one will be substituted for the previous version of Exhibit 43.

10-12

(Applicants' Exhibit No. 43 was  
received in evidence.)

BY MR. AXELRAD:

Q Mr. Goldberg, will you please describe for  
us the involvement of HL&P personnel working for you in  
Brown & Root's investigation of the matters that were  
discussed in I&E Report 81-11?

BY WITNESS GOLDBERG:

A Having learned of the problem, Mr. Barker  
was assigned to follow up, and he attended the exit  
interview with the Nuclear Regulatory Commission, which  
I believe was held on April 10th.

Mr. Barker kept me informed as to the  
developments associated with this problem, as I also  
undertook to keep myself personally informed by  
discussing the elements of this problem with various  
HL&P construction personnel at the jobsite.

Q When the report was received, dated May 20th,  
of Mr. Grote, with respect to the investigation Brown &  
Root had conducted, was that report addressed to you, or  
sent to you?

BY WITNESS GOLDBERG:

A Yes, it was.

Q And what actions have you taken with respect  
to that report since that time?

10-13

1 BY WITNESS GOLDBERG:

2 A We have -- or I have undertaken on two  
3 separate occasions to follow up relative to the actions  
4 required in the summary of that report.

5 There were basically four action items  
6 relative to this problem.

7 One dealt with determining whether or not  
8 there were any elements of intimidation by craft super-  
9 vision of craftsmen in other crafts other than the  
10 electrical group.

11 The review conducted by Brown & Root  
12 concluded that that was not the case, that it seemed to  
13 be isolated within the electrical group.

14 Another element of action dealt with  
15 establishing whether or not the supervisors were  
16 adequately qualified for the various responsible roles  
17 that they had to perform.

18 That review is in progress, and that is  
19 scheduled to complete on July 30th of this year.

20 Another action required the site resident  
21 manager, Mr. Thompson, to re-stress to the Brown & Root  
22 employees the need for being completely candid and open.

23 This was in addition to the information  
24 that had been sent to each employee, signed by Mr. Rice,  
25 which were attachments to the report, which I understand



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is now an exhibit.

And Mr. Thompson conducted two sessions. Apparently the first one was with the superintendents on May the 6th, and there was a subsequent session conducted in the early part of the second week of June in which he covered the same information with lesser levels of Brown & Root supervision.

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11-1

1 BY MR. AXELRAD:

2 Q Does that complete your reply, Mr. Goldberg?

3 BY WITNESS GOLDBERG:

4 A I was just double-checking my notes to see  
5 if there was another element worth of discussion at this  
6 time.

7 The only other thing I would like to add is  
8 we have, of course, a new resident construction manager.  
9 This is our Mr. Williams, who will be testifying at a  
10 later point in time to this Board, and Mr. Williams has  
11 taken it upon himself, as one of his first areas of  
12 activity, to personally follow the action plan established  
13 by Brown & Root.

14 In this pursuit he has a number of face-to-  
15 face meetings with various levels of Brown & Root  
16 construction supervision, and he has been able, I think,  
17 to appreciate some of the problems that Brown & Root has  
18 to deal with.

19 Their organization is basically a young one,  
20 and one that needs the kind of guidance that I believe  
21 both Mr. Thompson and Mr. Williams can provide.

22 I think that just about sums up the important  
23 elements.

24 Q Mr. Frazar, will you please describe for us  
25 the involvement of HL&P personnel working for you in

1 2

1 Brown & Root's investigation of the matters discussed  
2 in I&E Report 81-11?

3 BY MR. FRAZAR:

4 A Initially, as mentioned by Mr. Goldberg,  
5 there was an exit interview held by the Nuclear  
6 Regulatory Commission on the 10th of April. I was the  
7 one who set that exit interview up after having had  
8 discussion with Mr. Dick Herr, who was the NRC  
9 investigator who was at the jobsite.

10 The people that I contacted to attend that  
11 exit interview were Mr. Barker, Steve Grote of Brown &  
12 Root, and Dr. Knox Broom of Brown & Root.

13 Subsequent to that exit interview on the  
14 10th Mr. Grote, of course, pledged that he would conduct  
15 his own full investigation, which was the one just  
16 mentioned by Mr. Goldberg in his testimony.

17 The only other action or actions that were  
18 done by HL&P Quality Assurance personnel was that the  
19 documents that were contained in the equipment cases  
20 that were of some question during the investigation  
21 were reviewed by my staff to determine the significance,  
22 if any, of those documents. And it was through that  
23 process that we discovered that the documents dealt  
24 with rather innocuous matters on the project; four  
25 instruments all of whom had been used only in non-safety

1 related gear, and that there was no problem with the  
2 documents.

3 Then after, of course, Brown & Root completed  
4 their investigation of the incident, and made their  
5 decisions relative to personnel replacements, then my  
6 staff conducted a thorough implementation review of the  
7 termination shack activities to insure that the records  
8 and the procedures and all were in accordance with  
9 project requirements.

10 Out of that implementation review there were  
11 a couple of minor problems identified, one having to do  
12 with one of the individuals in the shack not knowing  
13 all of the requirements of the then operating procedure  
14 that governed the activities in that area, and another  
15 one having to do with some particular paper forms not  
16 being used to check out equipment.

17 Both of those items have been corrected, I  
18 understand, as of this date, and the issuance of the  
19 electrical construction procedure, which is the procedure  
20 that will carry forth the requirements for that area into  
21 even the safety-related work, which I guess is about a  
22 year from now and is going to begin, and then subsequently,  
23 of course, on the issuance of that procedure, people who  
24  
25

1 work in that area were retrained in the requirements of  
2 the new procedure.

3 Q Mr. Frazar, has HL&P performed any other  
4 surveillance or audit of the termination shack from about  
5 October 1980 to the present?

6 BY WITNESS FRAZAR:

7 A Yes. About the end of September 1980, one  
8 of the members of my staff received an anonymous  
9 telephone call from a female alleger, who alleged that  
10 there were some problems in the termination shack having  
11 to do with the activities not being done in accordance  
12 with the procedure that governed, that the foreman did  
13 not know how to do some of the activities for which he  
14 was responsible, and that the 13.8 Kv temporary power  
15 line on the jobsite was buried at a depth that posed a  
16 safety problem on the project.

17 At the time that we received this anonymous  
18 phone call, we initiated a special surveillance of the  
19 termination shack activities to determine the validity  
20 of these allegations, and we discovered only a couple of  
21 minor problems, both of them having to do with the  
22 checkout of I think it was a crimper and dynamometer  
23 that had been checked out and records were not clear as  
24 to how they had been used or when they had been turned  
25 back in. And those items did not relate directly, in

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1 our opinion, to the allegations that were made.

2 So we were not able to confirm any of the  
3 other allegations as being problems.

4 Again, -- and I might add that around that  
5 time was when the NRC came in subsequent to our special  
6 surveillance and performed their inspection 80-34, which  
7 looked into the operation of the termination shack, in  
8 quite some depth, and I think that that report confirms  
9 the results that we got out of our special surveillance.

10 Then the next thing that we heard was in  
11 about March 12th of 1981 when one of the members of my  
12 staff again received an anonymous telephone call from a  
13 female alleger, and some allegations were made about  
14 similar types of things that were mentioned in September,  
15 such as equipment not being checked out properly and  
16 turned in properly in accordance with forms, that some  
17 of the people didn't necessarily know what the requirements  
18 were that governed their particular area of activities.

19 I might emphasize that even still today all  
20 of the activities of this shack or of this particular  
21 part of the construction organization are applicable  
22 only to non-safety related areas. We are at least a  
23 year away from any safety-related activities in the  
24 termination shack area.

25 And, also, I think it is germane that there



11-6

1 are only two or three employees in the whole termination  
2 shack working in this particular area. So when we  
3 received this March 12th, 1981 telephone call of the  
4 same sorts of allegations, we had some discussions. I  
5 believe the gentleman that received the call also talked  
6 with the Project QA General Supervisor, and they concluded  
7 that the allegations should be checked out, so we planned  
8 to do a special implementation review.

9 There was one additional allegation that I  
10 failed to mention that personnel in the shack had been  
11 instructed to suppress information to HL&P. So we plan  
12 to go ahead and check all of that out by doing a special  
13 implementation review. We are going to put that on the  
14 schedule for the early part of April to be performed, and  
15 before we were able to get it on the schedule and get it  
16 accomplished the NRC showed up for their 81-11  
17 investigation.

18 I believe that was around the 29th of March  
19 when they showed up. That upstaged our implementation  
20 review. So from there on we waited until they completed  
21 their activities, and then we went in and did our  
22 implementation review, which I gave the results of a  
23 minute ago.

24 ///

25 ///

2-1 1 MR. AXELRAD: Mr. Chairman, we have no  
2 further questions of this panel at this time. They're  
3 available for cross-examination.

4 JUDGE BECHHOEFER: Before we begin cross-  
5 examination, I would like to know, Mr. Frazar, if the  
6 female voice in March was the same as the female  
7 voice earlier.

8 WITNESS FRAZAR: Your Honor, I'm not sure  
9 that we can state that that's the case. The individual  
10 was different in each case that got the telephone call.  
11 so there is no way to compare them.

12 JUDGE BECHHOEFER: Thank you.

13 Mr. Jordan.

14 MR. JORDAN: Well, in terms of the cross --  
15 as we do with 81(11), I think that CCANP will proceed  
16 before CEU.

17 I would like to get it clear on when Mr.  
18 Williams is going to be called to testify, since Mr.  
19 Goldberg has said he will be a witness. I'm not  
20 clear on that.

21 MR. AXELRAD: Well, the Board had asked  
22 Mr. Williams to appear. I believe we'll do it in  
23 July.

24 MR. JORDAN: Okay. I just didn't recall.  
25 I thought it made sense, since he's obviously a person

12-2  
1 to talk to. I didn't recall that that had been ar-  
2 ranged.

3 Okay, thanks.

4 MR. AXELRAD: Well, it hadn't been arranged  
5 as far as the schedule, but the Board had asked for  
6 him.

7 CROSS-EXAMINATION

8 BY MR. SINKIN:

9 Q Mr. Barker, in terms of your position with  
10 Houston Lighting & Power after 1978, you state that  
11 you supervised the Houston Lighting & Power Project  
12 Team working on all aspects of STP, except QA.

13 BY WITNESS BARKER:

14 A That's correct.

15 Q So then you had no involvement with the  
16 drawing up of the new QA program that was submitted in  
17 response to 7919?

18 BY WITNESS BARKER:

19 A That's basically correct. However, there  
20 is probab'y certain information I needed to supply the  
21 QA department who actually formalized that response  
22 relative to organizational structure and things of  
23 this nature.

24 But primarily, it was more or less just  
25 giving information to the QA department for their

1 formalizing into formal text.

2 BY WITNESS FRAZAR:

3 A Mr. Sinkin, I might add that Mr. Barker was  
4 the Project Manager at that time, of course; and all of  
5 the people in the engineering and construction or-  
6 ganizations worked under his management authority.

7 And as we described in testimony on Satur-  
8 day, the Task Force -- the large Task Force that was set  
9 up to respond to 7919 and the Show Cause and so forth,  
10 were made up of those people.

11 So in the broad sense of the word, those  
12 people came from Mr. Barker's organization.

13 Q I was really after whether there was any  
14 direct input by Mr. Barker into the rewriting of the  
15 QA plan.

16 BY WITNESS FRAZAR:

17 A No. I think his answer is correct.

18 Q You state, Mr. Barker, that since becoming  
19 Project Manager, you have been responsible for pro-  
20 viding Houston Lighting & Power's programmatic direction  
21 to the design and construction efforts of Brown &  
22 Root.

23 Could you elaborate just a little bit of  
24 detail on what the term "programmatic direction"  
25 means in your work?

12-4

1 BY WITNESS BARKER:

2 A I believe that term has been used primarily  
3 in the area of quality assurance in the past. I think  
4 it applies equally well to the project management side,  
5 as well as construction.

6 As you know, we have hired Brown & Root as  
7 our architect engineer constructor. They are the  
8 engineer of record.

9 They have been charged with the  
10 responsibility of carrying out their duties associated  
11 with designing and constructing the facility.

12 We as a client and a responsible owner have  
13 a requirement, we believe, to monitor their particular  
14 work activities. And these usually take the form of  
15 various inputs from the contractor in the form of  
16 specifications, drawings, commenting on these drawings  
17 and specifications, giving this input back to Brown &  
18 Root such that our "druthers" as an owner relative to  
19 plant configuration, design, operability and main-  
20 tenance aspects are translated into the final design  
21 itself.

22 MR. SINKIN: Mr. Cowan, if I might ... if  
23 you could move just slightly to the left.

24 (Pause.)

25 ///

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1 BY MR. SINKIN:

2 Q So in other words, you would work in monitor-  
3 ing the design engineering department at Brown & Root?

4 BY WITNESS BARKER:

5 A Through my project engineering team. I  
6 don't do it directly myself. We have approximately a  
7 staff of 50 engineers who monitor the day-to-day  
8 activity of Brown & Root engineering.

9 Q In terms of those 50 engineers, how many  
10 are referred to as QA?

11 BY WITNESS BARKER:

12 A None.

13 Q None. Thank you.

14 So QA activities are separate from your  
15 monitoring effort?

16 BY WITNESS BARKER:

17 A That's correct.

18 Q Can you explain to me what would be the  
19 inter-relationship between HL&P's QA monitoring and  
20 your engineers' monitoring, how the two components of  
21 the HL&P program inter-relate?

22 BY WITNESS BARKER:

23 A We have staff meetings on a periodic  
24 basis whereby various activities of the project are  
25 discussed relative to status. At some points in time



1 we must inter-relate some of the planned QA activities  
2 into the project schedule.

3 And in that aspect the QA department --  
4 personnel side of the project -- participate with myself  
5 and with my staff to carry out their duties relative  
6 to audits, performing vendor surveillance and construc-  
7 tion surveillance activities on the site.

8 BY WITNESS FRAZAR:

9 A Mr. Sinkin, I might add that Mr. Barker's  
10 engineers in performing their reviews and monitoring  
11 efforts on the Brown & Root design engineering effort  
12 perform their duties in accordance with written  
13 procedures that are required by the project QA plan,  
14 and as part of our overall quality assurance program.

15 And in carrying out those responsibilities  
16 through those procedures, they get audited by the  
17 quality assurance department to see that they are,  
18 in fact, doing their duties in accordance with those  
19 procedures.

20 Q Let me focus again on the term "program-  
21 matic direction." This is an inter-relationship between  
22 HL&P and Brown & Root.

23 You have HL&P QA and you have HL&P Engineers.  
24 Are each of those components sort of looking over the  
25 shoulder of Brown & Root design engineering, for

1 example?

2 BY WITNESS BARKER:

3 A I would say that the QA department has no  
4 responsibility at all for the design activities of  
5 Brown & Root. They would be primarily interested in  
6 seeing that the defined procedures that Brown & Root  
7 engineering has written are indeed properly imple-  
8 mented.

9 And this is most likely done in two  
10 ways. Number one is the Brown & Root QA department  
11 themselves would audit the Brown & Root engineering  
12 activities.

13 In addition to that, on a selected basis,  
14 our QA department would audit the Brown & Root en-  
15 gineering activity against their written procedures.

16 BY WITNESS GOLDBERG:

17 A I wonder if I might amplify it and make  
18 sure it's clear. What Mr. Barker was identifying is  
19 the fact that the responsibility for assuring that  
20 Brown & Root is performing its engineering activities  
21 in accordance with the technical requirements of the  
22 codes and the SAR, that falls under engineering's  
23 responsibility -- HL&P's engineering responsibility.

24 The responsibility to assure that Brown &  
25 Root is following its program -- its procedures that it

12-8

1 has prepared, that identifies how it goes about perform-  
2 ing these tasks, that's a dual role.

3 Engineering is sensitive to that, as well  
4 as our quality assurance department.

5 Q Applicant's Exhibit 43 was submitted today  
6 through you. I want to pick up one particular point  
7 and then come back to the document itself.

8 On the next-to-the-last page titled  
9 "Control Document Level," what I'm trying to do is  
10 inter-relate Level 3, "Integrated Area Schedule," to  
11 what you've said about HL&P QA trying to assure that  
12 design procedures are properly implemented.

13 Does HL&P QA try to assure that the  
14 schedule is being met by Brown & Root design engineers?

15 BY WITNESS BARKER:

16 A No, sir

17 BY WITNESS FRAZAR:

18 A No, sir.

19 Q Do you agree with that answer, Mr. Barker?

20 BY WITNESS BARKER:

21 A That's correct.

22 Q Returning to the document as a whole, Mr.  
23 Barker, are you aware of any other correspondence --  
24 I assume you have seen the original Ferguson memorandum  
25 to Mr. Dodd.

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1 BY WITNESS BARKER:

12-9 2 A That's correct.

3 Q The August '79 memorandum.

4 And this is the response of Brown & Root  
5 to that memorandum?

6 BY WITNESS BARKER:

7 A That's correct.

8 Q To your knowledge, was there any other  
9 correspondence back and forth between the two companies  
10 about the Ferguson memorandum?

11 BY WITNESS BARKER:

12 A To the best of my knowledge, this is it.

13 Q Let me be quite clear. Are you aware of  
14 any correspondence -- further correspondence from Mr.  
15 Ferguson to Mr. Dodd?

16 BY WITNESS BARKER:

17 A That's a different question.

18 Q Well, I said correspondence back and forth  
19 between the two organizations. Maybe I didn't state  
20 myself clearly.

21 Could I have --

22 MR. REIS: Mr. Chairman, there is no  
23 reference to this -- to the original August memorandum  
24 from Ferguson to Dodd in that question. I think if  
25 that question referred to it -- right now, it's so

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broad that we can't tell whether it's relevant to these proceedings or not.

MR. SINKIN: Well, rather than have the question re-read by the court reporter, I'll try again.

BY MR. SINKIN:

Q I believe the question I asked was: To your knowledge was there any further correspondence between the two companies generated, let's say, initiated, on the fact that Mr. Ferguson wrote that August '79 memorandum to Mr. Dodd?

BY WITNESS BARKER:

A There is no other correspondence that I'm aware of that related to Ferguson's memo to Dodd and response back and forth, from either company specifically relative to that particular letter.

Project cost and schedule activities, management supervision, craft productivity is an on-going monthly discussion that takes place between any responsible owner and its contractor.

And these activities usually find themselves in the monthly project report, various other information that is written.

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1 BY MR. SINKIN:

2 Q And you testified that there would be other  
3 correspondence about the same topics?

4 BY WITNESS BARKER:

5 A That's correct.

6 Q What I'm looking for would be anything that  
7 would track precisely, or very closely, the concerns of  
8 Mr. Ferguson, and it could have been further correspon-  
9 dence by Mr. Ferguson, Mr. Dodd, yourself, anybody, that  
10 closely tracks what was being communicated by Mr. Ferguson  
11 to Mr. Dodd.

12 MR. AXELRAD: Mr. Chairman, I must object.  
13 That question is still impermissibly vague. There were  
14 a number of matters that were raised in the August 13,  
15 1979 memorandum.

16 The witness has testified that there was  
17 any number of correspondence between the parties on  
18 those subjects. I can't imagine how he can answer  
19 meaningfully to the question as now put by Mr. Sinkin.

20 (Bench conference.)

21 JUDGE BECHHOEFER: Mr. Sinkin?

22 MR. SINKIN: Just one moment, Your Honor.

23 BY MR. SINKIN:

24 Q I'm going to ask you to review a document  
25 that I will distribute for the moment to mark for



14-2

1 idendification.

2 JUDGE BECHHOEFER: Has the previous question  
3 been withdrawn?

4 MR. SINKIN: I would like this marked CCANP  
5 Exhibit No. 23 for identification purposes at this time.

6 (CCANP Exhibit No. 23 was  
7 marked for identification.)

8 BY MR. SINKIN:

9 Q I will give you a chance to review the  
10 document, Mr. Barker.

11 (Document handed to witness.)

12 Have you reviewed the document, Mr. Barker?

13 BY WITNESS BARKER:

14 A I have not read it in detail. I have scanned  
15 it.

16 Q Do you recall this document?

17 BY WITNESS BARKER:

18 A I don't specifically recall this document.

19 Q Is that your name at the top of the document?

20 BY WITNESS BARKER:

21 A No.

22 Q And it's Mr. Dodd's; right?

23 BY WITNESS BARKER:

24 A Yes.

25 Q And it was from Mr. Ferguson?

1 3

1 BY WITNESS BARKER:

2 A Correct.

3 Q And on Page 4 of the document on the copying  
4 list, is that your name?

5 BY WITNESS BARKER:

6 A That is correct.

7 Q Are you familiar with the meeting that is  
8 discussed in this document?

9 BY WITNESS BARKER:

10 A Yes. I am.

11 Q Were you in attendance at that meeting?

12 BY WITNESS BARKER:

13 A On some occasions I am.

14 Q It refers very specifically to, in the first  
15 line of the document it refers to a meeting held on  
16 August 20th, 1979.

17 BY WITNESS BARKER:

18 A I cannot recall whether I was at that  
19 particular meeting. I think if we check that particular  
20 date that is probably a Wednesday.21 MR. REIS: Mr. Chairman, I'm going to object  
22 to any further questions along this line, unless there  
23 is a showing and outline of relevance on cost and  
24 scheduling, and how it comes to Quality Assurance, and  
25 the things we are concerned with in this hearing.

1 We are getting quite far afield and I don't  
2 know whether we are not just chasing things for the sake  
3 of chasing things, without any particular purpose in  
4 mind.

5 I have to know what the purpose is, in order  
6 to see whether matters are relevant, and whether I should  
7 or should not object.

8 MR. AXELRAD: I would also object, Mr.  
9 Chairman, in that if Mr. Sinkin had wanted to inquire  
10 about this meeting he had ample opportunity to do so when  
11 the information that he, himself, put into the record,  
12 the Ferguson memorandum was discussed with the Panel  
13 witnesses that were then appearing.

14 The limited purpose for calling Mr. Barker  
15 at this time with respect to Exhibit 43 was that the  
16 Intervenors properly pointed out that they wanted the  
17 full document included in the record. We were pleased  
18 to do that.

19 MR. SINKIN: I believe, Mr. Chairman, that  
20 our specific request dealt with all responses that were  
21 produced by the memorandum from Mr. Ferguson to Mr. Dodd.

22 Now, perhaps that request was not understood  
23 to include --

24 MR. AXELRAD: I don't see how another  
25 memorandum from Ferguson to Dodd can be classified as a

1 response --

2 MR. SINKIN: Let me finish, Mr. Axelrad, and  
3 you might see it.

4 What we were asking for were all documents  
5 that would be responses to the fact that Mr. Ferguson  
6 wrote the memorandum to Mr. Dodd.

7 I would assume that a follow-up memorandum  
8 from Mr. Ferguson is part of the response to the original  
9 memorandum having been written. I can see that that would  
10 be quite easily misunderstood, and that a document such  
11 as this one might not have been submitted.

12 MR. REIS: Mr. Chairman, this doesn't even  
13 indicate it was sent. It says on top that this is a  
14 draft, in pencil.

15 I don't know whether that means it was --

16 JUDGE BECHHOEFER: Before we go any further,  
17 one of the questions the Board would like clarified is  
18 whether this document was ever sent. It is marked a  
19 draft.

20 JUDGE HILL: I would also like to ask the  
21 question: It is dated August 21st as a draft. And you  
22 were asking earlier, Mr. Sinkin, was there any  
23 correspondence after the response to the Ferguson letter,  
24 which the response was dated August 22nd.

25 MR. SINKIN: No. Excuse me, Judge.

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JUDGE HILL: Is that correct?

MR. SINKIN: I was asking if there was any response to the Ferguson memorandum, the earlier memorandum from Mr. Ferguson to Mr. Dodd.

What the Applicants replied with is a document that is a response from Brown & Root to HL&P. Our original request was anything initiated by the Dodd, Ferguson to Dodd memoradnum, which would be before August 21st.

JUDGE HILL: Okay. The Ferguson to Dodd was dated the 13th.

MR. SINKIN: Excactly.

JUDGE HILL: And the response to it that you have is dated the 22nd.

MR. SINKIN: That is apparently --

JUDGE HILL: And this document appears to be a draft, which we don't even know whether it was ever sent.

MR. SINKIN: At this point --

JUDGE HILL: And, secondly, we don't know what its date was, since it is a draft.

MR. SINKIN: That is apparently --

JUDGE HILL: Does that add to the confusion?

MR. AXELRAD: I think that is all very important, Mr. Chairman.

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In addition to all of this I might point out I don't recall exactly what kind of request the Intervenor's counsel made or did not made, but the period for discovery was truly over.

The only thing that we had done at the time, since they were introducing the Ferguson-Dodd memorandum of March 13, we suggested that the response that we were aware of, which is Response dated August 22, also be made part of the record.

And now -- And the Board wanted that to be a part of the record with the enclosure.

Now, if the Intervenor's have any objections to the August 22nd document being made part of the record they should have done so when it was moved into the record.

It seems to me that that did not open up an entirely new line of cross-examination and document production with respect to any subsequent memorandum from anybody to anybody else.

(Bench conference.)

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MR. REIS: The Staff would concur in that.

(Bench conference.)

JUDGE BECHHOEFER: To the extent -- The Board, and this appears to relate only to scheduling, and to the extent it does so it is not relevant to what we are considering.

If it could be connected up to quality in some way -- A quick look at it, it doesn't appear to relate to quality.

MR. SINKIN: Mr. Chairman, if you're finished.

JUDGE BECHHOEFER: Yes. What I was saying is that at least on its face it does not appear to relate to quality matters, rather than purely scheduling.

MR. SINKIN: On the point of the relationship, I think we have had testimony during these proceedings that pressure was placed or might have been placed on Quality Control Inspectors, because of scheduling difficulties at the plant.

So if you have documentation of scheduling difficulties, the relationship of that to quality is that if you are falling behind, and in trouble, and bringing pressure you are creating quality problems.

I might point out in the Order to Show Cause the objection to the QC pamphlet at the back of the Order to Show Cause, was that cost and schedule were being

14-9

1 emphasized too heavily, and that was detrimental to  
2 quality. That was the NRC's objection to that pamphlet.

3 I think the relationship between the two is  
4 already made clear in 79-19.

5 (Bench conference.)

6 MR. AXELRAD: Mr. Chairman, with respect to  
7 that reference in the brochure, the only thing that has  
8 ever been discussed was the possibility that the brochure  
9 was inappropriate because it appeared to state that QC  
10 Inspectors should take cost and scheduling into account  
11 in the performance of their duties, which, of course, is  
12 not at all what anything in this particular document  
13 refers to.

14 The cost-and-scheduling matters here are not  
15 at all directed to quality functions. The relevance of  
16 this particular document to any quality matter would be  
17 highly remote and speculative.

18 MR. REIS: The Staff, similarly, feels that  
19 what we were talking about in 79-19 in talking about the  
20 brochure, was just the effect that --

21 JUDGE BECHHOEFER: Could you speak a little  
22 louder?

23 MR. REIS: The consideration that cost-and-  
24 scheduling should not affect QC Inspectors in their  
25 inspections, general cost-and-scheduling considerations

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on the job had nothing to do with that.

If we start going into cost-and-scheduling on this job, which has been going on since 1973, really, in one way or another, we will be here forever looking into cost-and-scheduling of this project. And I think we have to draw the line someplace, and I think this sort of a memorandum is the place.

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1 MR. SINKIN: Well, Mr. Chairman, 79-19 on  
2 Page 10, states that the problem with the lecture --  
3 "This lecture repeatedly overemphasized the B&R QA/QC  
4 organization's responsibilities to minimizing project  
5 costs and maintaining the construction schedule."

6 Now, that does stress the role fo QA/QC.  
7 At the same time, if there is a reason that QA/QC was  
8 being pressured over cost and schedule, that's what I  
9 would call a root cause, and that we ought to know  
10 about that.

11 I think the tone of the Ferguson memorandum  
12 to Mr. Dodd is very clearly a tone that deals with that  
13 kind of problem, and that that creates an atmosphere  
14 in which pressure on QA/QC can happen.

15 MR. AXELRAD: Mr. Sinkin's own characteriza-  
16 tion of 79-19 has made clear that it is explicit  
17 reference to --

18 JUDGE BECHHOEFER: Wait just a second.  
19 We're going to sustain that objection.

20 I'm going to say that we -- the prior  
21 memo -- the August 13 memo did include certain matters  
22 related to quality. This one does not, as far as we  
23 can see.

24 And absent that, we will sustain the  
25 objection.

1 BY MR. SINKIN:

2 Q Returning to Applicant's -- I'm sorry.  
3 You all wrote to each other every now and then, I  
4 guess ... or at least communicated.

5 By the way, did you communicate with Mr.  
6 Ferguson about the writing of that memorandum in August  
7 of '79?

8 BY WITNESS BARKER:

9 A Which one are you talking about?

10 Q The August --

11 BY WITNESS BARKER:

12 A August 13th?

13 Q Yes, August 13th.

14 BY WITNESS BARKER:

15 A Those particular subjects that were dis-  
16 cussed in that particular memorandum are not at all  
17 unfamiliar to me relative to being a Project Manager.  
18 They were subjects that we deal with on a day-to-day,  
19 week-to-week, month-to-month basis. Relative to Mr.  
20 Ferguson discussing that specific memo, I do not recall.

21 Q Returning to Applicant's Exhibit 43, which  
22 was sent to you, the normal communication chain between  
23 Brown & Root and HL&P on these kinds of matters would  
24 be from Mr. Kirkland to you, and you to Mr. Kirkland,  
25 would it not?

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BY WITNESS BARKER:

1  
2 A It depends. On some occasions our site  
3 management would communicate back and forth at a site  
4 level.

5 On some occasions, depending upon the overall  
6 project implications and the subject, it's more properly  
7 that it's addressed between respective project managers.

8 Q On page 2 of this letter, Mr. Kirkland says  
9 at -- really the first full paragraph, "We have been  
10 and are in the process of evaluating the capabilities  
11 of construction supervision down to the craft foremen."

12 Did you ever receive the results of that  
13 review?

BY WITNESS BARKER:

14 A Yes. I do recall that there was a review  
15 that was given to HL&P at the site level. And I think  
16 I did attend one meeting where the results were also  
17 reviewed.  
18

19 Relative to anything being in writing on  
20 that particular subject, I do not recall.

21 Q On Page 3 of this particular document, Mr.  
22 Kirkland says that they are transferring various  
23 activities -- this is in the third paragraph --  
24 transferring various civil and structural activities  
25 to the day shift. And it says, "except some backfill



1 work."

2 Can you tell me if the backfill work was  
3 done primarily at night?

4 BY WITNESS BARKER:

5 A I can't answer that.

6 BY WITNESS FRAZAR:

7 A Mr. Sinkin --

8 Q Yes.

9 BY WITNESS FRAZAR:

10 A -- I believe backfill activities were done  
11 on both shifts.

12 The off-shift work ... that being done  
13 primarily in areas where there would be interference  
14 with other construction work going on during the day-  
15 time.

16 But there was work on backfill on both  
17 shifts.

18 Q You testified in relation to 81-11 that you  
19 kept informed by conversations with Houston Lighting &  
20 Power personnel. In particular, whom were you in  
21 conversation with?

22 BY WITNESS GOLDBERG:

23 A In particular, I spoke with our electrical  
24 supervisor, Mr. Eric Avery, and also the construction  
25 superintendent, Mr. I. T. Morrow.

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1 Q I'm sorry. That last name was?

2 BY WITNESS GOLDBERG:

3 A Morrow, M-o-r-r-o-w.

4 Q Do you know if Mr. Avery in any way in-  
5 volved himself in the investigation of 81-11?

6 BY WITNESS GOLDBERG:

7 A No. Specifically what I asked Mr. Avery  
8 was his personal evaluation of the performance and  
9 attitudes of the Brown & Root electrical supervisors  
10 who were associated with the termination facility, so  
11 that I could get the benefit of the impressions that  
12 these people had made on Mr. Avery.

13 Q Did you ask Mr. Avery for his evaluation  
14 of Mr. Frankum?

15 BY WITNESS GOLDBERG:

16 A Yes, I did.

17 Q And what was his evaluation?

18 BY WITNESS GOLDBERG:

19 A It was somewhat uncomplimentary. I think  
20 he characterized Mr. Frankum as a small person who had  
21 a big job.

22 Q A small person who had a big job.

23 BY WITNESS FPAZAR:

24 A Mr. Sinkin --

25 Q Yes.

1 BY WITNESS FRAZAR:

2 A -- if I might add, that in response to your  
3 earlier question about Mr. Avery and whether or not he  
4 was involved in the investigation of 81-11, I believe  
5 when the NRC arrived at the job site, they requested  
6 that Mr. Avery assist them in going to the termination  
7 shack and -- not at the termination shack -- going to  
8 the office where Mr. -- I believe it's Mr. Kay and  
9 Mr. Stewart were.

10 So Mr. Avery accompanied the NRC down to  
11 that area.

12 Q Did Mr. Avery give you his opinion on any  
13 of the other people? You said, I believe, electrical  
14 supervisors. Were there other supervisors that he gave  
15 you opinions on?

16 BY WITNESS GOLDBERG:

17 A The only other person that I remember he  
18 gave me a rather emphatic expression of ... shall we  
19 say ... feeling, had to do with a gentleman by the  
20 name of Kay.

21 He felt he was a very forthright and honest  
22 person, and he was of the opinion that he was a victim  
23 of this investigation, rather than necessarily a guilty  
24 party.

25 Q Were you in direct communication with Mr.

Grote?

1 BY WITNESS GOLDBERG:

2 A I had been in contact with Mr. Grote on a  
3 couple of occasions, some with him privately, some in  
4 the presence of both HL&P, and in one case an NRC --  
5 in fact, it was Dick Herr investigating a person.

6 Q Those are the only two people you remember  
7 Mr. Avery giving you an evaluation of?

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1 BY WITNESS GOLDBERG:

2 A He did give me the evaluation on Mr.  
3 Hawkins and Mr. Stewart, but, quite frankly ... I think  
4 it would be fair to say that you remember the best and  
5 you remember the worst. And the ones in between leave  
6 you with no impression at all.

7 Q Did you ask for similar evaluations from  
8 Mr. Morrow?

9 BY WITNESS GOLDBERG:

10 A I did, and he basically -- he was present  
11 when I was asking these questions of Mr. Avery. And  
12 he basically was very supportive of his comments, and  
13 he differed on no points, nor did he add anything.

14 Q Are you familiar with how long Mr. Frankum  
15 was working for Brown & Root?

16 BY WITNESS GOLDBERG:

17 A No, I'm not familiar with that.

18 Q Mr. Barker or Mr. Frazar?

19 BY WITNESS BARKER:

20 A No.

21 BY WITNESS FRAZAR:

22 A No, I couldn't say specifically. I think  
23 he was a long-term employee, but I couldn't qualify  
24 it.

25 Q Mr. Frazar, you stated that the end of

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1 September 1980 was the first call from the anonymous  
2 female allegor.

3 BY WITNESS FRAZAR:

4 A That's correct.

5 Q And the anonymous female allegor said that  
6 there was an electric line that was a safety hazard.  
7 That was one of the allegations.

8 MR. REIS: I have an objection. There is  
9 no showing that this safety hazard had anything to do  
10 with quality assurance/quality control and safety in  
11 the sense of regulations of the Nuclear Regulatory  
12 Commission rather than as industrial safety.

13 And unless that first be connected, I object  
14 to the line of questioning.

15 MR. SINKIN: Mr. Chairman, the connection  
16 is 81-11, and Mr. Frazar's direct testimony on 81-11;  
17 and he connected to 81-11 an anonymous call making  
18 various allegations and proceeded to tell how they  
19 checked out those allegations and what they found.

20 I'm returning to his direct testimony to  
21 follow up on one of the allegations; that's all.

22 (Bench conference.)

23 JUDGE BECHHOEFER: We'll overrule the  
24 objection. The question may be answered.

25 WITNESS FRAZAR: The 13.8 kV power line that



1 the anonymous allegor referred to is a temporary power  
2 line.

3 Mr. Reis is exactly correct, that that  
4 safety hazard that the person referred to in no way  
5 related to the regulation of the nuclear safety of this  
6 plant.

7 It had to do with personnel safety, if you  
8 will, in that if you put 13.8 kV under a shallow portion  
9 of earth, and somebody digs into it, then there can be  
10 personal injury that results.

11 But it did not relate in any way to the  
12 safety-related aspects of this plant from a regulatory  
13 sense.

14 BY MR. SINKIN:

15 Q Did you find the allegation to be true?

16 MR. REIS: Your Honor, I object again. We  
17 now have testimony that it had nothing to do with NRC  
18 regulations. I don't see where the relevance of this  
19 is ... to any NRC proceeding.

20 MR. SINKIN: Mr. Chairman, it goes to the  
21 veracity of the allegor.

22 JUDGE BECHHOEFER: That's what we were just  
23 discussing. The objection is overruled.

24 WITNESS FRAZAR: I don't know if we confirmed  
25 that that allegation was correct or not. We generally

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don't get involved in looking at areas too deeply that are non-safety related because that's not the business of the quality assurance department.

BY MR. SINKIN:

Q Well, who do you turn it over to?

BY WITNESS FRAZAR:

A We generally refer those kinds of matters to our construction department.

Q Was this matter referred?

- - -

1 BY MR. SINKIN:

2 Q Was this matter referred --

3 MR. REIS: Your Honor, I again object. The  
4 veracity of the allegor, I don't know where it's been  
5 called into dispute in this proceeding yet.

6 I don't see where the veracity of the  
7 allegor as the allegor is an issue in this proceeding.

8 We might look at the allegations, but I  
9 don't see checking the veracity of everyone who ever  
10 told anything to HL&P, and that's exactly what we're  
11 looking into now, and I don't see where that's relevant  
12 to any safety-related issue in the sense that the Nuclear  
13 Regulatory Commission regulates.

14 MR. AXELRAD: I agree with Mr. Reis,  
15 Mr. Chairman. We are really straying quite afar from  
16 any matters of interest to the Board in this proceeding.

17 We don't even know if we have one, two or  
18 three allegors, so whatever veracity any of them may  
19 have, obviously will not be of help to anyone

20 MR. SINKIN: Mr. Chairman --

21 JUDGE BECHHOEFER: We will sustain the last  
22 objection. I think we're getting into the details of  
23 the solution of a question that isn't very relevant to  
24 our particular -- what we're looking for is -- I think at  
25 this stage no one has questioned the veracity of the

1 person who made the allegations, so from the record we  
2 could not determine, for instance, that those allegations  
3 were not valid, and they certainly warranted an  
4 investigation, and the record clearly shows that.

5 So we will sustain the objection, but we  
6 also will not be inclined to accept any proposed finding  
7 that all of the allegations were invalid, or something  
8 of that sort.

9 MR. SINKIN: Well, Mr. Chairman, I will  
10 point out that I was not allowed to argue on the  
11 objections, and I would like to have in the record, on  
12 this point for appeal, that Mr. Frazar testified that  
13 they received an anonymous call that made various  
14 allegations.

15 They did a special surveillance. They found  
16 only minor problems, and that these allegations were  
17 similar to the allegations that were investigated in  
18 81-11.

19 What I was attempting to do was follow up  
20 on one of those allegations which he did not discuss  
21 the resolution of and to see if that resolution would  
22 have shown the allegation was true, which would tend to  
23 indicate the allegor was telling the truth about some of  
24 the others.

25 I was not allowed to pursue that line of

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1 examination.

2 MR. REIS: Mr. Chairman, the Staff again feels  
3 this is very tenuous.

4 MR. AXELRAD: Well, the Board has ruled, I  
5 assume, so Mr. Sinkin can now proceed with his examination.

6 JUDGE BECHHOEFER: Yes. we will uphold that  
7 ruling.

8 I might say, we are not questioning that the  
9 allegations were true. As far as we're concerned, the  
10 allegations were true.

11 No one has raised the question -- I mean, as  
12 long as we're cutting off questioning on it, but we're  
13 going to assume that the person was telling the truth  
14 insofar as he or she knew the truth, certainly.

15 MR. AXELRAD: Mr. Chairman, I'm not sure I  
16 understand that ruling, but Mr. Frazar has testified as  
17 to the investigation that was performed as to the matters  
18 that were not found to be substantiated, so I assume the  
19 Board is not questioning his version of what took place.

20 JUDGE BECHHOEFER: No, but we have testimony  
21 that he doesn't know what happened on this particular  
22 thing.

23 MR. AXELRAD: Maybe I missed one particular  
24 item.

25 JUDGE BECHHOEFER: Right. That's what I'm



1 saying.

2 MR. AXELRAD: That doesn't make all the  
3 other allegations true.

4 JUDGE BECHHOEFER: No, no, but to the extent  
5 we've cut off questioning on that particular item, we  
6 will assume that the allegation was true.

7 MR. REIS: Your Honor, I don't think you can  
8 assume that.

9 JUDGE BECHHOEFER: Well, then you shouldn't  
10 have objected to the question.

11 MR. REIS: No. I totally disagree.

12 JUDGE BECHHOEFER: You can't have it both ways.

13 MR. REIS: No, Your Honor, this was an  
14 allegation, and certainly you don't say an allegation is  
15 true. You can't say an allegation is true.

16 Yes, something has been alleged; that's  
17 all an allegation means. And maybe even the person who  
18 said it believed it was true, but that doesn't mean it  
19 was true, and I don't understand how an allegation could  
20 be true without going into it.

21 JUDGE BECHHOEFER: Mr. Reis, if we have cut  
22 off questioning on it, if we can't find out, then we will  
23 assume it is, but if it doesn't have any safety signifi-  
24 cance it won't matter.

25 MR. SINKIN: Mr. Chairman, I think the problem



1 we're having is precisely because of this objection. I  
2 think the objection should have been overruled, and I  
3 would move to reconsider that ruling of the Board on  
4 this basis:

5 What we have here is, we are told that in  
6 September of 1980 similar allegations to those that  
7 eventually were made and led to 81-11, were brought to  
8 the attention of HL&P.

9 Among those was an allegation that is not  
10 necessarily covered in 81-11.

11 The problem is, were those allegations true  
12 at that time and did HL&P perhaps fail to find out in  
13 that special surveillance that they did.

14 If the allegation about the KV line is true,  
15 that would tend to indicate the other allegations were  
16 true.

17 We were cut off from finding out of the KV  
18 line allegation was true in order to make that argument.  
19 We are now left with no evidence on which to make any  
20 kind of finding.

21 We have their report of what they did. We  
22 have no report on the KV line, and we don't know whether  
23 they did a good investigation, a lousy investigation, or  
24 no investigation at all.

25 MR. REIS: Mr. Chairman, that has about as much

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1 relevance as saying that if X shot Y, X shot Z, that when  
2 you prove X shot Y you also prove X shot Z. That's  
3 ridiculous.

4 MR. SINKIN: Wrong.

5 MR. AXELRAD: Not only that, Mr. Chairman,  
6 one of the basic objections to the questioning in the  
7 first place was that the subject matter did not relate  
8 to anything that was safety related, and that therefore  
9 the inquiry any further into the allegation and whether  
10 or not the allegation was truly investigated, went beyond  
11 the scope of the proceeding, and the only possible  
12 relevance might have been this question of veracity.

13 And as Mr. Reis pointed out, even if a single  
14 allegation was true, that would not at all tend to prove  
15 that all the other allegations were true.

16 The Board has ruled and I believe we can let  
17 the record stand as it may and let the Intervenors  
18 proceed with their examination on other subjects.

19 JUDGE BECHHOEFER: Off the record a minute.

20 (Discussion off the record.)

21 JUDGE BECHHOEFER: Back on the record.

22 Actually, the Board would like to take a break  
23 at this moment and discuss it. Let's have our afternoon  
24 break for about 15 minutes.

25 (A short recess was taken.)

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JUDGE BECHHOEFER: Back on the record.

The Board has decided to sustain the objection, to overrule the motion for reconsideration.

The grounds being, one, the witness had nothing to do with the resolution of that particular as he answered.

Two, the subject is not a safety-related subject, and, therefore, not relevant.

MR. SINKIN: I would just note for the record, Mr. Chairman, that it was fully my intention then to turn to Mr. Barker, who as construction manager would have been involved in the resolution of that issue. But on the second ground, fine.

BY MR. SINKIN:

Q Mr. Frazar, the call at the end of September 1980, was Mr. Grote informed of that call, to your knowledge?

BY WITNESS FRAZAR:

A Not to my knowledge.

Q Mr. Goldberg, do you know?

BY WITNESS GOLDBERG:

A Would you repeat your question again, please, Mr. Sinking.

Q Mr. Frazar has testified to a call received at the end of September in 1980, making various allegations

1 about the electrical termination shack.

2 My question is whether Mr. Grote was told  
3 that Houston Lighting & Power had such a call? -

4 BY WITNESS GOLDBERG:

5 A I don't know whether he had. I certainly did  
6 not talk to him about it.

7 Q What about the call in March of 1931, Mr.  
8 Frazar?

9 BY WITNESS FRAZAR:

10 A Not to my knowledge -- Are you asking if  
11 Mr. Grote was informed of the March --

12 Q Yes.

13 BY WITNESS FRAZAR:

14 A No, not to my knowledge, he was not informed.

15 Q Mr. Goldberg?

16 BY WITNESS GOLDBERG:

17 A I have no knowledge of that, either.

18 MR. SINKIN: Mr. Chairman, at this point we  
19 would like to request a conference at the Bench with the  
20 parties attorneys.

21 (Bench conference.)

22 JUDGE BECHHOEFER: Back on the record.

23 Mr. Sinkin, do you have further questions?

24 MR. SINKIN: Just actually one or two wrap-  
25 up questions, Mr. Chairman.

1 3

1 BY MR. SINKIN:

2 Q Mr. Frazar, or Mr. Goldberg, in terms of  
3 81-11, do you know whether any investigation was conducted  
4 into the prior work history of the people involved in that  
5 incident, particularly Mr. Frankum, Hawkins, Stewart,  
6 Kay, as to their previous work history at STP?

7 BY WITNESS GOLDBERG:

8 A There wasn't a structured investigation, but  
9 I did ask some in-depth questions of Mr. Avery relative  
10 to -- for each person how did he perceive their  
11 capabilities from the standpoint of leadership, knowledge,  
12 integrity, attention to detail, and to that extent I think  
13 that would constitute an inquiry into other matters.

14 MR. SINKIN: That concludes my cross-  
15 examination, Mr. Chairman.

16 JUDGE BECHHOEFER: Mr. Jordan?

17 MR. JORDAN: I have cross-examination, brief  
18 cross-examination, Your Honor, with respect to Mr. Barker.

19 CROSS-EXAMINATION

20 BY MR. JORDAN:

21 Q I simply want to get clear, Mr. Barker, I  
22 have sort of distilled from your initial testimony, which  
23 we also got in writing, the following: From 1973 to 1977  
24 you were in the QA job.

25 1977 to 1978 you were manager, Power Plant



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1 Construction Department.

2 1978 to the present you were the STP Project  
3 Manager.

4 Could you put months on those transitions?

5 BY WITNESS BARKER:

6 A Yes. I can.

7 March 1973 to April 1977. April 1977 to  
8 November 1978. 1978 to now.

9 MR. JORDAN: Pass the witness and the Panel.

10 CROSS-EXAMINATION

11 BY MR. REIS:

12 Q Mr. Barker, where is the Aguirre Nuclear  
13 Project?

14 BY WITNESS BARKER:

15 A Puerto Rico.

16 Q Did that ever go to construction?

17 BY WITNESS BARKER:

18 A No. It was cancelled.

19 Q And at what stage was it cancelled?

20 BY WITNESS BARKER:

21 A I think that we were in the process of  
22 excavation when they found the evidence of a fault.

23 Q Did it ever receive a construction permit?

24 BY WITNESS BARKER:

25 A I believe it received an LWA of some variety



L 5  
1 at that point, which allowed some excavation and site  
2 work.

3 Q What is an LWA, sir?

4 BY WITNESS BARKER:

5 A Limited Work Authorization.

6 Q And that is from the NRC?

7 BY WITNESS BARKER:

8 A At that time it was the AEC, yes, sir.

9 Q Thank you.

10 Mr. Goldberg, you mentioned that there were  
11 four action items that you followed up on. I think you  
12 gave us three and not four.

13 BY MR. GOLDBERG:

14 A When I looked at it I think that one item  
15 I counted as potentially two, and that had to do with the  
16 action of examining the qualifications of various people.  
17 And there was an element to the effect that it might be  
18 useful to bring in a consultant.

19 Well, that's under consideration, but so far  
20 that has not been done.

21 Q Well, consider a consultant to look at what,  
22 sir?

23 BY WITNESS GOLDBERG:

24 A I think to provide another point of view to  
25 Brown & Root relative to evaluating their people.

1 Q Do you feel that such a consultant would be  
2 worthwhile?

3 BY WITNESS GOLDBERG:

4 A I'm not sure.

5 Q What factors are you considering to see  
6 whether such a consultant would be worthwhile?

7 BY WITNESS GOLDBERG:

8 A Well, I think that an important element is  
9 going to be the kind of leadership that the new site  
10 manager provides.

11 I believe that the tone of the job, and the  
12 importance of being thorough is something that would  
13 emanate from good leadership. I believe that their new  
14 resident manager exudes those qualities, when I've met  
15 him.

16 In discussions that I have had with our new  
17 resident manager, Mr. Williams, he, also, feels very  
18 hopeful that Brown & Root's new manager has got the  
19 experience and the leadership qualities to really take  
20 charge for Brown & Root, and I believe that if Brown &  
21 Root is able to stand on their own two feet, they probably  
22 would be better off without bringing in consultants.

23 Q What is the name of this new manager, if you  
24 can recall, for Brown & Root?

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L-7

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BY WITNESS GOLDBERG:

A. Mr. James Thompson.

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1 BY MR. REIS:

2 Q Can you recall for me -- and I know it has  
3 been testified to -- just what his immediate past  
4 experience was, so I can bring it to mind?

5 BY WITNESS GOLDBERG:

6 A Yes. He was the -- I think the Assistant  
7 Site Manager for Florida Power and Light at St. Lucy.

8 Q This thoroughness that you just spoke of,  
9 you felt it lacking prior to this time, I take it?

10 BY WITNESS GOLDBERG:

11 A I can only speculate that what I have been  
12 able to detect has been lack of experience. There have  
13 been few people on the site who have had prior ex-  
14 perience working at the construction of nuclear power  
15 plants.

16 And I think that lack of experience has  
17 certainly made it difficult for them to appreciate the  
18 importance of some of the work practices.

19 I think Mr. Thompson will provide the kind  
20 of guidance to the rest of the work force to provide,  
21 I think, a little clearer direction -- stronger emphasis  
22 on the basic elements, and I think will make a difference  
23 in the performance of the work.

24 Q Now, you've talked about two terms there.  
25 work practices and, I guess, basic performance. Can you

1 tell us what you mean by work practices and what you  
2 meant by basic performance?

3 BY WITNESS GOLDBERG:

4 A Well, the work practices, of course, are  
5 dictated to a large extent by the procedures that have  
6 been developed.

7 We have talked previously about the concern  
8 that some of these practices may not be as efficient  
9 perhaps as they could be.

10 The procedures have been prepared by some  
11 people who may not have had sufficient experience to  
12 enable them to take advantage of that experience in  
13 providing the kind of direction that would avoid some  
14 of the pitfalls that you can find yourself in.

15 Procedures from time to time have been  
16 found to be overly complex, which makes their achievement  
17 more difficult, which raises the likelihood of potential  
18 failure.

19 Q These pitfalls that you talk of, can they  
20 lead to problems in the quality of the job constructed  
21 from the point of view of what the Nuclear Regulatory  
22 Commission regulates?

23 BY WITNESS GOLDBERG:

24 A I think that if you have mistakes, that  
25 while you hope that you can find them and failing

18-3

1 construction finding them, you hope the quality control  
2 might independently find them.

3 Under the school of thought that you derive  
4 a better measure of protection if you can reduce the  
5 number of mistakes ... it's kind of the basic adage,  
6 if you don't make the mistake, you're not depending on  
7 anybody to find it.

8 Obviously, if you've made one, unless it  
9 is found, that could be a problem.

10 Q When you said a young organization in your  
11 testimony before, Mr. Goldberg, what did you refer to?  
12 You said there was a young organization that we -- or  
13 you said the organization was a young one ... to use  
14 the exact phrase, before.

15 And you were talking about Brown & Root.  
16 What did you mean -- and Brown & Root at the site --  
17 what did you mean?

18 BY WITNESS GOLDBERG: :

19 A That was a characterization of the degree  
20 of seasoning in the construction of nuclear power  
21 plants.

22 Q And does -- when we talk about a young  
23 one, Mr. Thompson has just arrived on the site. Are  
24 there other recent changes on the site?

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1 BY WITNESS GOLDEBERG:

2 A Yes, there are. Another important change,  
3 which I feel will also have a significant impact, and  
4 a very positive one, I believe, is the acquisition of  
5 their new site quality assurance manager, Mr. Smith.

6 Q Thank you.

7 Mr. Frazar, before you talked about --  
8 there was talk about document falsification and 81-11,  
9 keeping documents from the NRC.

10 And you made a point -- and it has been  
11 made several times that no safety-related work was  
12 involved in the termination shack.

13 Did you mean to play down or diminish the  
14 importance of record falsification, or keeping matters  
15 from the NRC on the fact that there was no safety-  
16 related work going on at the termination shack?

17 BY MR. FRAZAR:

18 A Mr. Reis, first of all, I don't think I  
19 used the introductory phrases that you led into your  
20 question with concerning records falsification or  
21 keeping information from the NRC. I don't recall  
22 mentioning any of that in my testimony earlier today.

23 However, let me assure you that I consider  
24 those matters to be of great importance. I think that  
25 the reason that we conducted our special surveillance

1 in September when we received the phone call is that we  
2 feel that any lack of discipline or rigidity on the  
3 part of people to follow procedures can portend future  
4 problems.

5 And for that reason we were interested in  
6 going into the area and looking to see exactly what the  
7 attitudes of the people were, to the extent that we  
8 could determine them from looking at how they worked  
9 according to procedures and what records they kept and  
10 that sort of thing.

11 I certainly don't want to minimize the  
12 importance of being open and candid about any and all  
13 problems that we have on the project.

14 Q Then why did you seem to emphasize the  
15 point -- or you seemed to emphasize to me anyway that  
16 the work at the termination shack was not safety-  
17 related?

18 BY WITNESS FRAZAR:

19 A It was important to me to emphasize that  
20 from a standpoint that we are not dealing with a  
21 question here that was directly related to the con-  
22 struction of the safety-related portions of this  
23 plant.

24 We are dealing with activities that ulti-  
25 mately -- of people and following procedures that

18-6

1 ultimately a year from now will deal with safety-  
2 related construction.

3 It's important for us to make sure that we  
4 have the right kinds of procedures and attitudes and  
5 training and so forth as a precursor to going into those  
6 areas.

7 But I think it's also important, in the eyes  
8 of the Board, in noting that these areas did not at  
9 the time relate to safety-related construction.

10 MR. REIS: That's all I have at this  
11 time, Your Honor.

12 BOARD EXAMINATION

13 BY JUDGE HILL:

14 Q Mr. Barker, I was the Board member that  
15 requested that you be brought into this panel. I have  
16 several questions, which will be directed entirely to  
17 you.

18 First, in your prepared testimony, the  
19 question that Mr. Reis asked about Aguirre was a  
20 question I was going to ask you to clarify -- or a point  
21 I was going to ask you to clarify.

22 And I think you ought to show for the record  
23 that your statement -- "After its successful com-  
24 pletion" -- this is in the next-to-last paragraph of  
25 the first page of your testimony.

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The words "successful completion" apply to the QA manual, rather than to the project. Is that correct?

BY WITNESS BARKER:

A Yes, that is correct.

Q All right.

BY WITNESS BARKER:

A The name of the project is pronounced Aguirre [pronouncing]. That may help.

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1 BY JUDGE HILL:

2 Q You mentioned in this that you assumed  
3 the role -- or the job of manager of STP in 1978. Can  
4 you tell us what month that was?

5 BY WITNESS BARKER:

6 A That was November.

7 Q Where is your office?

8 BY WITNESS BARKER:

9 A My office is with the Brown & Root facilities  
10 on Clinton Drive in Houston, Texas.

11 Q Is this -- the reference in some of these  
12 documents to the word "Clinton," is this the reference  
13 to the Brown & Root office?

14 BY WITNESS BARKE :

15 A That is correct.

16 Q And your office is there? Your organization  
17 is also there?

18 BY WITNESS BARKER:

19 A That is correct.

20 Q Just an aside: Mr. Goldberg, is your  
21 office there also?

22 BY WITNESS GOLDBERG:

23 A No, sir. My office is located at Baybrook,  
24 which is in the south suburbs of Houston.

25 Q Is that a Brown & Root office or an HL&P

1 office?

2 BY WITNESS GOLDBERG:

3 A That is an HL&P facility.

4 Q Mr. Barker, can you go through the pro-  
5 gression of the -- I believe the term is the HL&P  
6 resident construction manager. This, to get this on  
7 the record correctly, is on the Applicant's Exhibit  
8 38.

9 Could you give Mr. Barker a copy of  
10 that?

11 (Document handed to Witness Barker.)

12 On page one you indicate -- You are shown  
13 there as Project Manager and then the construction  
14 refers to page six.

15 So now if you'd turn over to page six.  
16 And that page refers to construction, and it presently  
17 shows Leon English.

18 Could you go through the progression of  
19 the people who occupied that position from '78 up  
20 until Mr. English.

21 BY WITNESS BARKER:

22 A Okay. That particular position in November  
23 1978 did not exist in its current form.

24 When I assumed responsibility for the  
25 project, we had a construction supervisor at the job



3-10

1 site. And we within the next 60 days placed a site  
2 manager at the project over all site activities,  
3 which would include construction, accounting, project  
4 controls, purchasing, et cetera.

5 And that person was named Dick Alford,  
6 T. R. Alford, A-l-f-o-r-d.

7 I don't recall exactly when Dick moved to  
8 the site, but it may have been the latter part of  
9 November or the first part of December of 1978.

10 Q Can you continue that progression?

11 BY WITNESS BARKER:

12 A Okay. Dick Alford remained in that  
13 capacity until approximately, I would say, the summer  
14 of 1979. At that time Dick was reassigned back to  
15 some fossil projects. He had been very successful in  
16 conducting some fossil projects, basically when he did  
17 work for me in another capacity ... when I was  
18 construction manager.

19 And it was deemed best that he return to the  
20 fossil area and assist the company's endeavors in that  
21 particular project -- W. A. Parrish.

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1 From that point Mr. Ferguson then assumed,  
2 as an interim responsibility, he was on a special assign-  
3 ment to Mr. Turner as consultant.

4 Jack Ferguson had a lot of construction  
5 expertise and he was moved to the jobsite for a period  
6 of roughly, I'd say, six weeks, until Leon English  
7 reported, which would have been the latter part of  
8 August or first part of September of 1979.

9 And from 1979, September, roughly, until  
10 the end of May, roughly the end of May of 1981,  
11 Mr. English occupied that position.

12 That position is now, effective June 1,  
13 filled by Mr. James Williams.

14 Q All right. At the time of the August 13th  
15 Ferguson memo was Mr. Ferguson occupying that position  
16 at that time?

17 BY WITNESS BARKER:

18 A That is correct. In an acting basis.

19 Q And Mr. English has not come on board at  
20 that point?

21 BY WITNESS BARKER:

22 A That is correct.

23 Q Specifically when did Mr. English arrive?

24 BY WITNESS BARKER:

25 A I believe it was the last week in August or

L<sup>o</sup>-2

1 the first of September.

2 Q Was there -- how long an overlap was there  
3 with Mr. Ferguson and Mr. English at that point?

4 BY WITNESS BARKER:

5 A I do not recall the specific overlap, but  
6 I would say it would be roughly a matter of weeks.

7 Mr. Ferguson did continue making trips to  
8 the jobsite and stayed at the jobsite on occasions  
9 during the ensuing months of September and October and  
10 November.

11 Q Were you aware -- I'm sorry, let me back up  
12 on that and ask, were you present last week in Houston  
13 when we were questioning the Brown & Root management on  
14 the progression through their site manager and their  
15 project manager, some six people occupying each of those  
16 positions for a period of -- over a period of four years?

17 Did you sit in on that?

18 BY WITNESS BARKER:

19 A I was there during part of it. I do not  
20 recall staying for its entirety there at that time.

21 Q This process was going on in B&R during the  
22 period of '77 to the present.

23 Were you aware of this?

24 BY WITNESS BARKER:

25 A Yes, I was aware of the changes, project

19-3

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1 management changes and the construction manager changes  
2 that took place during that period of time.

3 I don't recall exactly the months, but I  
4 have a general recollection of the year that some of  
5 the changes did take place and the personalities involved.

6 Q Did you institute or request some of those  
7 changes?

8 BY WITNESS BARKER:

9 A The changes that were instituted, primarily  
10 were instituted on the part of Brown & Root.

11 We were conferred with on those changes, and  
12 we concurred with the moves.

13 Q In your opinion, was Brown & Root making  
14 improvements by those frequent changes?

15 BY WITNESS BARKER:

16 A Yes, sir. I do believe that the changes  
17 that were made during these periods of time was an attempt  
18 to improve management at the site, as well as to provide  
19 career broadening for some of the people as well, too.

20 On a nuclear power plant project it's very  
21 difficult to keep a man in some of these key positions  
22 for the entire duration. It's a very stressful position.

23 Q I assume that you were aware that Mr. Ferguson  
24 was writing that letter, or did you -- the letter of  
25 August 13th, or did you not become aware of that until

19-4

1 you received your copy?

2 BY WITNESS BARKER:

3 A The subjects that were discussed in the memo --  
4 I don't have it in front of me here -- but I do recall  
5 the subjects themselves were part of normal discussions  
6 between HL&P and Brown & Root during that period of time.

7 We were in the process of putting together  
8 a very detailed cost and schedule analysis for the project.  
9 In fact, it was published the last part of August of that  
10 year 1979, and during that process we were trying to get  
11 Brown & Root to be more responsive in some of the areas  
12 that we were concerned about, craft productivity,  
13 planning and scheduling activities, et cetera, and  
14 Mr. Ferguson, in his memo, simply documented some of these  
15 discussions that we had had for some time with the Brown &  
16 Root management.

17 I believe in that aspect of it, it is proper  
18 for us to have done that, from the standpoint that  
19 Brown & Root then knew exactly where our concerns were  
20 in writing and they could respond accordingly, and they  
21 did respond in their letter.

22 So the whole subject of these particular  
23 subjects were very timely with a lot of other activities  
24 that were going on on the project at that time, dealing  
25 with what we later referred to as the base line estimate.

L<sup>o</sup>-5

1 Q Did you feel that Brown & Root was responsive  
2 in their letter of August 22nd? Did you feel that that  
3 was responsive to what HL&P had stated in the August 13th  
4 letter?

5 BY WITNESS BARKER:

6 A I would to -- Judge Hill, I would have to go  
7 back and probably analyze the August 13th memo in detail  
8 compared to what the response was, just to refresh my  
9 memory on that.

10 But I would believe that the Brown & Root  
11 response primarily was a letter that summarizes their  
12 intended actions, and so forth.

13 I think that we were more interested in the  
14 physical detail activities of which their response would  
15 actually represent.

16 In other words, we'd be more interested in  
17 seeing the implementation of some of the improvements  
18 that they had indicated in their particular response to us.

19 And this did transpire in the ensuing months  
20 from that point.

21 Q Do you remember the -- or do you know the  
22 date that the NRC started the inspection that led up to  
23 the issuance of 79-19?

24 BY WITNESS BARKER:

25 A As I recall, that was in November of '79 when



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I was informed that a special investigation team had  
 been sent to the site, and that is the date of my  
 recollection.

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1 Q All right. There's two to three months  
2 between August and November. What were yours, and I  
3 presume by this point, Mr English was on board?

4 BY WITNESS BARKER:

5 A That's correct.

6 Q What kind of follow-up activities were you  
7 and Mr. English doing during those three months leading  
8 up to the beginning of that investigation?

9 BY WITNESS BARKER:

10 There were a lot of activities going on during  
11 that part of the year.

12 As I said earlier, we had just published our  
13 base line estimate and given it to the owners of the  
14 project, and during those ensuing months we were in the  
15 process of answering a lot of their detailed questions.

16 There was a lot of information that was  
17 presented to the owners. Some information in some case  
18 that they did not fully understand, and I would say for  
19 the next three months that we were spending a great deal  
20 of time addressing some of those questions.

21 Relative to Mr. English's responsibilities  
22 during that point in time, I think he was primarily  
23 occupied getting his feet on the ground, so to speak,  
24 and becoming familiar with the project, becoming familiar  
25 with the base line estimate, of which he had not been a

20-2

1 part of, and at the same time trying to conduct some of  
2 the normal construction project review type meetings that  
3 transpire on the jobsite on a week-to-week basis and a  
4 month-to-month basis.

5 Q Was Mr. Ferguson involved in the follow up  
6 activities during that three months?

7 BY WITNESS BARKER:

8 A Yes, he was.

9 Q Last week we heard Mr. Oprea and Mr. Turner's  
10 reaction to the Show Cause Order.

11 My final question to you is, what was your  
12 reaction to the Show Cause Order?

13 BY WITNESS BARKER:

14 A My first reaction, when I did receive my copy  
15 of the document -- I read it and I was disturbed by the  
16 fact that this was happening to us, and I took all the  
17 violations, all the instances that had been described in  
18 the Show Cause Order, I took them very seriously.

19 I don't even care about even arguing the point  
20 whether they were valid or invalid.

21 Taking each one individually, they may not  
22 have been so important in that aspect, but taking them  
23 collectively, that's how I dealt with it.

24 As a responsible project manager I was  
25 primarily interested in putting the concerns of the NRC

1 to rest, and cooperating with them to the fullest extent  
2 to remedy the situation so we could continue and complete  
3 the project.

4 JUDGE HILL: Okay. That's all I have.

5 BOARD EXAMINATION

6 BY JUDGE LAMB:

7 Q Mr. Barker, I notice that your -- well,  
8 first of all, could you explain to me exactly what your  
9 position is related to Mr. Turner?

10 BY WITNESS BARKER:

11 A I have no relationship to Mr. Turner at this  
12 point. I report to Jerry Goldberg, and Jerry Goldberg  
13 reports to George Oprea, and George Oprea reports to  
14 the president of our company.

15 Q And Mr. Turner also reports to Mr. Goldberg?

16 BY WITNESS BARKER:

17 A No. Mr. Turner reports to Mr. Jordan.

18 Q I beg your pardon. With respect to Mr. Turner  
19 when he was at the plant, when he was at the site.

20 BY WITNESS BARKER:

21 A Mr. Turner was never positioned at the site.

22 I reported to Mr. Turner from November of '78  
23 until June of 1980. During that time Mr. Turner was  
24 vice-president of construction and technical services.  
25 I reported directly to him. Mr. Turner was never at the

20-4

1 jobsite except during some of the project review meetings  
2 and weekly meetings on occasions.

3 Q I see. At one time you reported to Mr. Turner?

4 BY WITNESS BARKER:

5 A That is correct.

6 Q I notice that you started in the QA program.

7 In the time soon after you became the manager  
8 of the South Texas Project, did QA report to you?

9 BY WITNESS BARKER:

10 A Never. No.

11 Q Now, you're located in the Houston area?

12 BY WITNESS BARKER:

13 A You're right. In the Clinton Drive office of  
14 Brown & Root.

15 Q Right. How often do you visit the site?

16 BY WITNESS BARKER:

17 A I'm normally at the jobsite, as a minimum,  
18 once a week.

19 I've got to admit during the most recent  
20 months, because of the hearing, I have supported some of  
21 these activities and I have not been there on a week-to-  
22 week basis, but normally I'm at the jobsite two days a  
23 week.

24 Q Two days a week?

25 / / /

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1 BY WITNESS BARKER:

2 A That's correct.

3 Q With respect to the Show Cause Order, to what  
4 extent were you directly involved in the activities that  
5 immediately followed HL&P receiving that?

6 Were you one of the main participants in  
7 the reaction to that in response? What was your position?

8 BY WITNESS BARKER:

9 A My responsibilities at first, as I recall,  
10 we had a meeting with Mr. Oprea, Mr. Turner, Mr. Grote,  
11 Jim Geurts --

12 Q Excuse me. Was that a time in which you were  
13 working for Mr. Turner?

14 BY WITNESS BARKER:

15 A That's correct. That was April of 1980.

16 Q Right.

17 BY WITNESS BARKER:

18 A We discussed the report. We had not had an  
19 opportunity to read it, and my instructions at that time  
20 from my management was to review it and develop an action  
21 plan associated with it.

22 Since I was the project manager the burden of  
23 that primarily would logically rest upon myself, and  
24 during that evening and the early morning hours, as it  
25 went as well, we reviewed the results of it.



2<sup>n</sup>-6  
1 The Brown & Root as well did it, because it  
2 was the first time they had ever seen a copy of it, and  
3 my own management, namely Mr. Turner and Mr. Oprea had  
4 not really reviewed it in detail as well.

5 So there was only proper in the first 24 or  
6 48 hours for us to review the contents of the document.

7 After reviewing the contents of the document  
8 there were some planning sessions that were held with my  
9 project team associated with it, Mr. Frazar participated  
10 with us relative to some of the activities that needed to  
11 be planned and carried out.

12 From that point forward the task force was  
13 assembled, which my Houston operations manager, Mr. Joe  
14 Briskin, was assigned as the task force leader, manager,  
15 to spearhead that effort.

16 Q Excuse me. Mr. Briskin reports to you?

17 BY WITNESS BARKER:

18 A That's correct.

19 And during the process of response to the  
20 Show Cause Order itself, the preparation of the documents,  
21 my primary responsibility was supporting the task force  
22 effort itself from the project team, managing the project  
23 team, because we still had a power plant project to manage,  
24 and also reviewing in some aspects the commitments that  
25 were contained in the response to the Show Cause Order.

20-7

1                   Those were my three primary areas of  
2 responsibility from April until July, when the final  
3 response was transmitted.

4 BY WITNESS FRAZAR:

5           A       Judge Lamb?

6           Q       Yes, sir.

7 BY WITNESS FRAZAR:

8           A       I'd like to clarify one point there.

9                   There was a period of time there, as I think  
10 I testified on Saturday, where I was assigned as the  
11 task force leader until we filed our response to the  
12 initial 22 items of noncompliance, and that was about  
13 from the end of April until the 23rd of May.

14                   And thereafter, Mr. Briskin was the chairman  
15 of the task force.

16           Q       Thank you.

17                   Did you read the Bechtel report?

18 BY WITNESS BARKER:

19           A       I did not read the Bechtel report in detail.  
20 However, I did scan the contents of it, and I think I did  
21 receive the basic substance of that report.

22           Q       I was wondering about whether you agree or  
23 disagree with any of the causes that were pinpointed  
24 there for the problems and the recommendations for  
25 solving them. Did you review it enough to have a feeling

20-8

1 about that?

2 BY WITNESS BARKER:

3 A I'd have to admit at this time I'd have to  
4 go back and refresh my memory, Judge, because as I recall,  
5 that's quite a lengthy document.

6 I think it's -- to the best of my recollection,  
7 I do agree with the conclusions of the report and I do  
8 agree with the recommendations that Bechtel did make.

9 Q The question has been discussed with several  
10 people, members of panels, about the organization for  
11 this type of job, that is, the design, the construction,  
12 the inspection, QA/QC, whether these should be one, two  
13 or more organizations.

14 Since you have viewed this job from probably  
15 a slightly different perspective, do you have a feeling  
16 on this as to whether one should separate, for example,  
17 the functions of design and construction?

18 BY WITNESS BARKER:

19 A I would say at this point in time, the way  
20 the nuclear power industry has grown over the past  
21 decade, it's much more complex than what it used to be,  
22 and I would say that future jobs, I think, my company, in  
23 all likelihood, will strongly consider the separation of  
24 the construction activities from the engineering activities.  
25 In other words, not assign them to the same firm.

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Q Do you agree with that?

BY WITNESS BARKER:

A I believe that either one can be successful. I believe that separation of engineering and construction may be the best way.

But having them within the same firm, that can be successful.

Q Do you feel that too much responsibility was left with Brown & Root during those periods of the project prior to, say, 1979?

BY WITNESS BARKER:

A No, I don't believe too much responsibility was left with Brown & Root.

I think we had a proper contract with them that basically is similar in fundamental structure to what other utilities have with other firms around the country.

I'm generally familiar with the arrangement of some of the other utility organizations who are designing and who are building nuclear power plant facilities at this time, and I'm also familiar with their approach to managing some of these jobs when they have a single responsibility contract, whether it's with Bechtel, with EBASCO, and I believe that our delegation of authority to Brown & Root to design and construct is

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✓

1 reasonable and responsive.

2 Q There were a lot of top management changes  
3 at the site in the Brown & Root organization over a  
4 period of a few years.

5 Do you view these, or did you view these as  
6 being a problem in maintaining the integrity of the job?

7 BY WITNESS BARKER:

8 A Well, no, I don't believe that that's a  
9 problem maintaining the integrity of the job. We must  
10 always meet requirements. Whatever requirements are in  
11 the specifications and the procedures, we must meet those.

12 Some of the changes that took place were  
13 because -- I know on two occasions people were offered  
14 some nice opportunities to accept other positions, and  
15 from that aspect of it one could consider that we had  
16 some toprotch people on the job because other firms were  
17 interested in promoting them into higher responsible --  
18 higher positions of responsibilities within their own  
19 firms.

20 It's just an unfortunate situation that we  
21 got caught into when we had some of these turnovers.

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1 BY JUDGE HILL:

2 Q What: I'm looking for is whether in your  
3 view the number of changes and the lack -- perhaps lack  
4 of continuity created any problem.

5 BY WITNESS BARKER:

6 A Well, I can say this for sure: It didn't  
7 help.

8 The job, they would go into some aspects  
9 relative to efficiency a little bit better. But from a  
10 quality standpoint, I don't think there were any detri-  
11 mental activities because of a change in the management.

12 Q You don't think this affected this QA/QC  
13 problems that led up to the Show Cause Order?

14 BY WITNESS BARKER:

15 A No, sir, I don't think there was any  
16 connection.

17 Q With respect to Mr. Ferguson's memo, did  
18 you agree with that, when you did get your copy?

19 BY WITNESS BARKER:

20 A Yes, I didn't have any particular problem  
21 with the memo itself. As I said earlier, those subjects  
22 have been discussed in many sessions with Brown & Root  
23 in connection with coming up with our baseline cost  
24 estimate and schedule.

25 And Mr. Ferguson's memo merely documented



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1 some of the things that we wanted to see improvements  
2 from in the Brown & Root area.

3 Q So you feel that there were not any things  
4 in there that you would like to take issue with, as  
5 being incorrect or stated too harshly?

6 BY WITNESS BARKER:

7 A No, not at all.

8 Q Do you feel that the response to them was  
9 reasonable -- by Brown & Root?

10 BY WITNESS BARKER:

11 A As I said earlier, their letter back to  
12 me -- Henry Kirkland's letter back to myself, I think  
13 in general addressed the points that were outlined in  
14 the letter.

15 As I said earlier also, I was more in-  
16 terested in seeing the implementation of effective,  
17 more productive construction management techniques  
18 utilized at the job site.

19 And I think this is an ongoing situation on  
20 any large project of this nature, especially a nuclear  
21 power plant.

22 JUDGE HILL: Thank you. That's all I  
23 have.

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## BOARD EXAMINATION

1  
2 BY JUDGE BECHHOEFER:

3 Q Mr. Barker, I think yesterday -- or Satur-  
4 day, we had testimony to the effect that the August  
5 22nd response from Brown & Root to you was written to  
6 you because that was the usual channel of communication  
7 between Brown & Root and Houston. Is that correct?

8 BY WITNESS BARKER:

9 A That is correct.

10 Q If that's so, why did you write the August  
11 13th letter?

12 BY WITNESS BARKER:

13 A Mr. Ferguson at that time was the acting  
14 site manager. Most of the activities that he was  
15 addressing in his memo to Dodd were addressed relative  
16 to construction activities at the job site.

17 Mr. Kirkland, as project manager -- this is  
18 to the best of my recollection -- felt like that he  
19 wanted to respond directly to my office, feeling like  
20 that he wanted to speak from an overall single-project  
21 management standpoint of his desires to remedy some of  
22 the conditions that Mr. Ferguson had outlined in his  
23 memo.

24 Q Had there been consideration for you to  
25 write the memo, rather than Mr. Ferguson -- the August

13 memo?

1  
2 BY WITNESS BARKER:

3 A No. Mr. Ferguson, as I recall, did not  
4 consult me relative to the memo before he sent it.  
5 However, even at this instance, I don't take issue  
6 with the fact that he did send the memo.

7 As I said earlier, he was documenting a  
8 lot of the discussions that had transpired between  
9 Brown & Root and HL&P in prior meetings relative to our  
10 baseline effort.

11 Q I think you testified earlier that you did  
12 not disagree with the memo?

13 BY WITNESS BARKER:

14 A Right.

15 Q Turning to the Staff I&E Report 81-11, I  
16 take it -- First, you were at the -- You were  
17 specifically interviewed. Were you at the exit inter-  
18 view on that?

19 BY WITNESS BARKER:

20 A Yes, I did -- On April 10th I attended  
21 the exit interview for Mr. Goldberg in his absence.

22 Q When you were -- Were you informed about  
23 the charges that a Brown & Root foreman intimidates  
24 employees who talk to HL&P personnel?

25 ///

BY WITNESS BARKER:

1  
2 A The only time that I became aware of that  
3 was on the April 10th exit interview.

4 Q When you -- Were you informed that that  
5 actually was the case, or that the NRC believed that  
6 was the case at that time?

7 BY WITNESS BARKER:

8 A I think, as I recall, Dick Herr, the NRC  
9 inspector, had reported that there was that feeling  
10 by the workers, that they should not talk with the  
11 NRC, or with HL&P.

12 Q I'm referring to HL&P at the moment. Did  
13 you -- When informed of that, did you do anything  
14 about that?

15 BY WITNESS BARKER:

16 A At that particular time, Mr. Grote and my-  
17 self -- Mr. Grote attended the exit interview -- we  
18 reviewed the results of the exit interview; and Mr.  
19 Grote informed me that he would undertake personal  
20 steps to lead an investigation the following Monday  
21 and physically go to the job site to find out the de-  
22 tails.

23 And I was waiting for the results of that  
24 particular investigation.

25 Q I take it you would not want a situation

21-6

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1 where Brown & Root people would not wish to come to  
2 HL&P, if they found a problem?

3 BY WITNESS BARKER:

4 A That's correct. I would want Brown & Root  
5 to identify -- primarily, I'd like for them to identify  
6 to their own management. If they feel like they can't  
7 identify to their own management, then our doors are  
8 wide open.

9 Q The last statement -- it's on Page 5 of  
10 the investigative report, but I don't know that you'll  
11 need to refer to it.

12 But it states, "Most of these individuals  
13 believes -- they did not know they had the  
14 responsibility to write discrepancy reports. Some were  
15 unsure as to how to write discrepancy reports and/or  
16 three-part memos."

17 Did you discuss that with Mr. Grote -- that  
18 aspect of it?

19 BY WITNESS BARKER:

20 A At the time that Steve Grote and I did  
21 discuss it, we did not know the relationship -- he and  
22 I personally did not know the relationship between the  
23 work that was being conducted from the termination  
24 shack.

25 I can only say that the work at that time, as

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Mr. Frazar has stated, was not safety-related work; and some of the discrepancy-type reporting systems that we have on the job site, therefore, did not necessarily apply.

And so whether these people were given instructions to use these procedures, it may be simply from the fact that these procedures did not apply for the work that they were conducting.

Q I see. But you and Mr. Grote agreed that at least -- Brown & Root -- or Mr. Grote would follow up on that and find out if that was the case?

BY WITNESS BARKER:

A That's correct. And Mr. Grote started his investigation -- it took several weeks to complete. I think it was documented the last part of May.

- - -



1 BY JUDGE BECHHOEFER:

2 Q The portion of that investigation that  
3 dealt with removal of those suitcases from the  
4 termination shack, did you -- Mr. Barker, did you take  
5 any action with respect to that, or have any dis-  
6 cussion with Mr. Grote concerning that?

7 BY WITNESS BARKER:

8 A I took no action personally relative to  
9 the particular suitcases. The information that was  
10 given to me at the exit interview, I guess I had  
11 several questions in my mind as to ... you know, what  
12 is the meaning of all of this.

13 And, again, I was waiting for Mr. Grote  
14 to complete his investigation and get the facts, since  
15 primarily this dealt with the Brown & Root organization.

16 And when I did receive the written report --  
17 a copy of the written report, then I had a little bit  
18 more information relative to the events that transpired  
19 around it.

20 Even prior to receiving the written report,  
21 Mr. Grote had given me a couple of verbal reports  
22 relative to information that he had found out, which is  
23 documented within the report.

24 Q After you received that report, did you take  
25 any further steps?

1 BY WITNESS BARKER:

2 A No. I felt like that the report was com-  
3 plete. The action that was identified within the report  
4 was reasonable and responsive to the situation.

5 BOARD EXAMINATION

6 BY JUDGE LAMB:

7 Q I neglected to ask you, Mr. Goldberg, if  
8 you could share with us your view of what impact, if  
9 any, these several changes in management of B&R at  
10 the site might have had on the project. How important  
11 do you view these, in retrospect?

12 BY WITNESS GOLDBERG:

13 A I view them as very significant. I think  
14 the two gentlemen that Brown & Root has acquired --  
15 Mr. Thompson and Mr. Smith -- bring to the project some  
16 very seasoned leadership in two very important areas.

17 And I believe, as I have stated previously  
18 in other testimony, that for both Brown & Root, as well  
19 as HL&P, an important element to the success of this  
20 project is going to be the application of very  
21 experienced people.

22 Q How about the relatively large number of  
23 changes in those positions in years past?

24 BY WITNESS GOLDBERG:

25 A Well, there's no question in my mind that

41-10

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1 it's certainly indicative that they were not able to  
2 find the right people.

3 I would have hoped that had a Mr. Thompson  
4 and a Mr. Smith surfaced earlier -- at least speaking  
5 for Mr. Thompson -- that there would have been no need  
6 for further changes in the leadership of that site.

7 Q You feel they reasonably could have had a  
8 significant impact on the operation of that job --  
9 those changes?

10 BY WITNESS GOLDBERG:

11 A I think the turnover does create a great  
12 deal of wasted effort. Each person who's in a position  
13 of responsibility has a certain style.

14 And as you change these people and change  
15 the style, then everyone else in the operation has kind  
16 of got to get in step again.

17 So I do believe that it's a most in-  
18 efficient and time-consuming process.

19 Now, for those people that may have left  
20 Brown & Root voluntarily, that might have been capable  
21 people, to that end, I think Brown & Root has recognized  
22 the importance of providing incentives to keep good  
23 people.

24 And earlier we had testified -- or I had  
25 testified to the fact that HL&P and Brown & Root

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1 management have developed a plan -- a series of features,  
2 if you will, to acquire good people, to reward them for  
3 their good performance, and to provide a financial  
4 incentive to want to stay until this project is com-  
5 pleted.

6 Now, perhaps if some of that had been  
7 applied earlier, that might have discouraged some of the  
8 good people from leaving; and it might have encouraged  
9 some of the good people to join up sooner.

10 That's only speculation. I really don't  
11 know.

12 JUDGE LAMB: Thank you.

13 JUDGE BECHHOEFER: I have one further  
14 question.

15 BOARD EXAMINATION

16 BY JUDGE BECHHOEFER:

17 Q Do you have a copy of Investigative Report  
18 81-11 in front of you?

19 BY WITNESS BARKER:

20 A No, I don't.

21 (Document handed to Witness Barker.)

22 BY WITNESS BARKER:

23 A Okay, I do now.

24 Q Turn to Page 5, Item 2.

25 ///

1 BY WITNESS BARKER:

2 A Yes.

3 Q I would like to know if you can positively --  
4 positively now -- identify individual "T". If you  
5 can't, just say so.

6 And if you can, I would like you to do  
7 so. Perhaps from the termination interview -- or the  
8 exit interview, you were informed of that.

9 BY WITNESS BARKER:

10 A To be honest with you, I think I could, if  
11 I could refer to my notes.

12 Q As far as I'm concerned, you can refer to  
13 your notes.

14 BY WITNESS BARKER:

15 A I don't have them here.

16 Q Oh.

17 BY WITNESS BARKER:

18 A I can only speculate. I think I know who  
19 Individual "T" is. But ... you know, I'd have to write  
20 names by these before I could get it straight in my  
21 mind.

22 Q Would you name the individual who you think  
23 it is, and then after checking your notes, if you find  
24 you're wrong, you could advise us or inform us.

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BY WITNESS BARKER:

A I'm guessing that Individual "T" is Mr. Frankum.

Q Thank you.

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2 1 1 BY JUDGE BECHHOEFER:

2 Q If your notes show otherwise, please, let us  
3 know.

4 BY WITNESS BARKER:

5 A Yes, sir.

6 JUDGE BECHHOEFER: That's all the Board has  
7 at this time.

8 Mr. Newman or Axelrad, do you have anything?

9 MR. NEWMAN: Could we have a few minutes?

10 JUDGE BECHHOEFER: Yes.

11 Why don't we take about a five-minute break.

12 (A short recess was taken.)

13 JUDGE BECHHOEFER: Back on the record.

14 Mr. Newman.

15 MR. NEWMAN: I just have one question.

16 REDIRECT EXAMINATION

17 BY MR. NEWMAN:

18 Q Mr. Barker, you indicated earlier that you  
19 thought you could identify Individual T in Inspection  
20 Report 81-11 as Mr. Frankum.

21 Can you in fact make that positive  
22 identification?

23 BY WITNESS BARKER:

24 A No. I cannot.

25 MR. NEWMAN: That's my only question, sir.

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JUDGE BECHHOEFER: Could you from your notes?

WITNESS BARKER: No. I could not.

MR. NEWMAN: I'll ask a further question.

BY MR. NEWMAN:

Q Did you have an opportunity to consult your notes in order to determine whether or not it was Mr. Frankum?

BY WITNESS BARKER:

A Yes. I did.

JUDGE BECHHOEFER: Okay. Thank you.

Mr. Sinkin or Mr. Jordan, recross?

RECCROSS-EXAMINATION

BY MR. SINKIN:

Q Mr. Barker, from your notes can you identify any of the people in 81-11?

BY WITNESS BARKER:

A No. I cannot.

Q Referring you to Page 5 of 81-11. There was a question about the fact that employees had not written three-part memos and/or discrepancy about any problem areas in the electrical department.

JUDGE BECHHOEFER: Could you speak up. I couldn't hear you.

MR. SINKIN: I'm sorry.

2 3

1 BY MR. SINKIN:

2 Q On Page 5 of 81-11, there was a question  
3 about the fact that employees, with the exception of one  
4 employee, had not written three-part memos and/or  
5 discrepancy reports about any problem areas in the  
6 electrical department.

7 And I believe your testimony was that those  
8 particular documents might not be applicable to the  
9 electrical department since there was not safety-related  
10 work going on.

11 I wanted to double check that. Were there  
12 documents that were used in the electrical termination  
13 shack? I think Mr. Frazar wishes to answer that  
14 question.

15 BY MR. FRAZAR:

16 A Well, Mr. Sinkin, I think I can clear this  
17 up. I think what Mr. Barker was referring to there is  
18 that we have procedures for documenting non-conformance  
19 on the job. That's something I testified to at some  
20 length on Saturday.

21 And the three-part memos and discrepancy  
22 reports that are referred to in that part of the 81-11  
23 report are not part of that formal system for documenting  
24 non-conforming conditions. Those are, I believe, internal  
25 administrative practices of the electrical department for

2 4 1 communicating back and forth between parts of the  
2 electrical department.

3 A three-part memo, for example, is like an  
4 AVO form. It's Avoid Verbal Order. That's a document  
5 that no carbon is required and you simply just write a  
6 message on the left-hand side, and somebody uses the  
7 right-hand side of it to reply, and it is just a means  
8 of communicating back and forth relative to matters in  
9 the department, and I think that is what Mr. Barker  
10 intended it.

11 Those kinds of things are not part of the  
12 formal non-conformance reporting system that we have in  
13 the Quality Assurance Program.

14 Q But the three-part memo and the discrepancy  
15 reports are documents which are used by the electrical  
16 termination shack?

17 BY WITNESS FRAZAR:

18 A Yes. I think that is correct. They are  
19 used by the people in the electrical department to  
20 communicate problems back and forth.

21 Q Mr. Barker, at this time what is your under-  
22 standing of the function of the electrical termination  
23 shack, today?

24 BY WITNESS BARKER:

25 A At this time, I still understand that the

2 5 1 electrical termination shack is supporting maintenance-  
2 type activities around the construction site, itself.

3 Q Do you know when they will begin safety-  
4 related work?

5 BY WITNESS BARKER:

6 A I would have to consult a detailed schedule  
7 before I could answer that.

8 BY WITNESS FRAZAR:

9 A Mr. Sinkin, I had my staff check out that  
10 question a few weeks ago. The report that they gave me  
11 was that we were at least a year away from safety-related  
12 electrical work involving the termination shack, and I  
13 believe that's according to the current project schedule.  
14 That may change, depending on what the schedule does between  
15 now and that time.

16 Q Mr. Barker, you testified that in response  
17 to the Ferguson memorandum that Mr. Kirkland wanted to  
18 respond to that memorandum.

19 BY WITNESS BARKER:

20 A To the best of my recollection.

21 Q And I believe you gave as a reason that he  
22 wanted to be the high point of the response, sort of the  
23 central focus of the response?

24 BY WITNESS BARKER:

25 A That is correct.

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1 MR. SINKIN: That concludes my questions,  
2 Your Honor.

3 JUDGE BECHHOEFER: Mr. Jordan?

4 MR. JORDAN: Yes, sir.

5 RE-CROSS-EXAMINATION

6 BY MR. JORDAN:

7 Q Mr. Frazar, in discussing -- excuse me a  
8 moment.

9 Mr. Goldberg, just to be clear this man  
10 Thompson who has now come in for Brown & Root, is he in  
11 the same position that U. D. Douglas and Dodd, and that  
12 group of people were in? Am I in the right place?

13 BY WITNESS GOLDBERG:

14 A I think so. His predecessor was Mr. Leasburg,  
15 and I believe his official title is deputy project manager,  
16 and he is in charge of construction.

17 Q Mr. Barker, referring to Mr. English now,  
18 his position, he was -- you took his predecessor back to  
19 November of '78 with a position of site supervisor in  
20 which there was someone named Alford.

21 Can you tell us who had the position  
22 comparable to Mr. English from November 1978 back to  
23 January 1977?

24 BY WITNESS BARKER:

25 A There was not a comparable position. I might



27 7 1 repeat what I stated earlier.

2 At the time I took over the project in 1978  
3 we did not have a site manager. Mr. Dick Alford assumed  
4 that responsibility, I'd say, within 30 to 45 days from  
5 November 1st.

6 Prior to November 1978 we had a construction  
7 supervisor at the jobsite. Simply what happened in 1978  
8 was that we strengthened the site organization.

9 Q So I guess the functions of what became the  
10 site manager were then split somehow between the  
11 construction supervisor who was somewhat less than that,  
12 and the project manager who was what you are now. Is  
13 that accurate?

14 BY WITNESS BARKER:

15 A That's correct. We went to a stronger project  
16 management role, what we refer to as matrix management,  
17 where we discipline departments from construction, from  
18 engineering, from accounting, with matrix the required  
19 resources to the project management staff, and we would  
20 function as a project team.

21 Q Well, that being the case, could you tell me  
22 who was in the project manager and construction supervisor  
23 slots from January '77 to November '78?

24 BY WITNESS BARKER:

25 A I cannot give you the exact dates, but Mr. Key

2 8

1 was the project manager prior to November of 1978.

2 Mr. Asbeck was the construction supervisor  
3 from the beginning of construction activities in December  
4 of '75 through November of '78.

5 ///

6 ///

7 ///

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27 1  
1 BY MR. JORDAN:

2 Q Now, that being the case, Mr. Alford who was  
3 made site supervisor, what was his previous position?

4 BY WITNESS BARKER:

5 A Mr. Alford, he was made site manager.

6 Dick Alford's previous position was as project  
7 construction manager, fossil projects.

8 Q And that was at HL&P?

9 BY WITNESS BARKER:

10 A That was at HL&P; that is correct.

11 Q Mr. English, was he with HL&P when you moved  
12 him into the position, or did you take him from -- did you  
13 recruit him from outside?

14 A We recruited him from EBASCO.

15 MR. JORDAN: That's all I have.

16 JUDGE BECHHOEFER: Mr. Reis?

17 MR. REIS: Two questions.

18 RE-CROSS-EXAMINATION

19 BY MR. REIS:

20 Q On the Aguirre Project, and the development  
21 of the Quality Assurance Manual, was that manual approved  
22 by the NRC or the AEC?

23 BY WITNESS BARKER:

24 A To the best of my recollection the AEC Manual  
25 was reviewed by an AEC Team that came to San Antonio in

2 2 1 1971 and reviewed the AEC Manual.

2 If you want to characterize that as any kind  
3 of approval process, I have never seen the AEC or the  
4 current NRC approve anybody's QA Manual.

5 Q Was there a formal QA Program in AEC procedures  
6 at that time?

7 BY WITNESS BARKER:

8 A Yes. There was. The AEC Manual was written  
9 after the ASME QA Manual was written. A lot of the elements  
10 that were contained with the ASME QA Manual were also  
11 contained in the AEC QA Manual.

12 And, as I stated earlier there was a team who  
13 came to San Antonio and reviewed that document and gave  
14 the Zachry Company comments.

15 Q You talked about the AEC QA Manual. Did you  
16 mean the manual for this project, or an AEC manual. Was  
17 it an AEC generated document?

18 BY WITNESS BARKER:

19 A Let me clarify that. It's part of the  
20 nomenclature problem.

21 During that particular time ASME required a  
22 separate QA Manual in order to be surveyed by ASME and  
23 successfully pass their survey the industry found best  
24 to write an ASME QA Manual that dealt specifically with  
25 ASME activities.

2 3  
1 The survey team from the ASME did not care  
2 about seeing other activities addressed within that manual  
3 which would confuse their survey team, such as electrical  
4 activities, concrete activities, things that did not  
5 require their review.

6 So, therefore, it became necessary to write a  
7 separate, what we called AEC Manual to deal with the AEC,  
8 and that is characterized as being an AEC Manual.

9 Q Appendix B to Part 50 was not in effect then?

10 BY WITNESS BARKER:

11 A It was in effect.

12 Q In 1970?

13 BY WITNESS BARKER:

14 A It was issued, as I recall, in June 1970.  
15 The draft was issued in 1969.

16 Q In your testimony you talked about giving  
17 information to the owners of the project in September,  
18 October and November of 1979.

19 You meant your own employers, didn't you?

20 BY WITNESS BARKER:

21 A No. My own employer's, in addition to the  
22 other project owners, CPSB, City of Austin, and Central  
23 Power & Light.

24 Q Did you have anything to do with responding  
25 to Notice of Investigation 9-19?

2 4  
1 BY WITNESS BARKER:

2 A Yes, I participated in support of the answers  
3 that were contained in the response to the Show Cause  
4 Order.

5 Q How about the Notices of Violation them-  
6 selves?

7 BY WITNESS BARKER:

8 A Yes. I participated and supported that  
9 response as well.

10 Q How about the first Notice of Violation  
11 which deals with harassment and intimidation?

12 BY WITNESS BARKER:

13 A I was aware of the findings of the NRC in  
14 the Show Cause Order relative to that particular subject.

15 Q Did you participate in the answers -- in  
16 preparing the answers to that subject?

17 BY WITNESS BARKER:

18 A Not directly.

19 MR. REIS: Thank you. That's all.

20 JUDGE BECHHOEFER: I have one further question  
21 which I want to ask Mr. Frazar, because Mr. Barker  
22 apparently couldn't do it positively.

23 Mr. Frazar, I'm not sure if I've asked you  
24 this before or not, but can you identify positively  
25 Individual T in Inspection Report 81-11? That's Page 5.



23-5

1 WITNESS FRAZAR: Judge Bechhoefer, this  
2 report, I've not really deal thoroughly with the  
3 individuals involved from the construction department  
4 and that investigation, and never even met any of the  
5 individuals involved from a construction standpoint, and  
6 I could not identify Individual T.

7 JUDGE BECHHOEFER: Well, I only asked you  
8 because you were the other person there at the -- or who  
9 was interviewed by the Staff specifically.

10 WITNESS FRAZAR: Judge Bechhoefer, there may  
11 be a little confusion about the exit interview. That's  
12 not actually an interview of us by the NRC.

13 That's a nomenclature that applies to an exit  
14 meeting that is held by the NRC in which they explain the  
15 investigation and what they did and what the results of  
16 the investigation was.

17 JUDGE BECHHOEFER: I take it they don't name  
18 names, necessarily.

19 WITNESS FRAZAR: I don't recall any names  
20 being named at that particular meeting.

21 JUDGE BECHHOEFER: I see.

22 Okay. Thank you.

23 That's all the questions the Board has.

24 Mr. Newman, do you need any further --

25 MR. NEWMAN: I think I need about one minute

1 to clarify something, because I'm not sure that their  
2 record is quite accurate on something.

3 JUDGE BECHHOEFER: Okay. Go ahead.

4 (Counsel conferring with witnesses.)

5 MR. JORDAN: Mr. Chairman, I would like to  
6 object to what's going on at this moment, and perhaps I'm  
7 too late, but I'll certainly run this objection by again  
8 if it happens again.

9 There's something about going to witnesses  
10 to get to clarify the record -- you do that by asking them  
11 questions on examination, and that's the way the process  
12 works.

13 The idea of going over and sort of saying,  
14 "Hey, weren't you quite wrong? It really was this guy,  
15 wasn't it?"

16 MR. NEWMAN: No, that's not what I was asking.

17 MR. JORDAN: I don't know about that.

18 MR. NEWMAN: I'll state for the record just  
19 exactly what I was talking about with the witnesses.

20 It's my understanding that from time to time  
21 the NRC does identify people by name at exit interviews.

22 When Mr. Frazar indicated that he did not  
23 recollect any names being named, that concerned me because  
24 I did notice at some point the NRC did name names, and so  
25 I asked Mr. Barker, based on his recollection of the exit

1 interview whether names were named, and indeed Mr. Barker  
2 indicated to me that names were in fact identified, and  
3 that's the whole beginning and end of the discussion.

4 MR. JORDAN: It sounds to me exactly like the  
5 kind of discussion that should have been had on the record.  
6 I don't see the reason for a private conference on that  
7 point.

8 JUDGE BECHHOEFER: Well, I had asked the  
9 questions only to determine if the two witnesses who the  
10 report indicates were contacted by NRC could remember  
11 names.

12 There's a particular name I was interested in,  
13 and they couldn't. As far as my question was concerned,  
14 that was all I --

15 MR. AXELRAD: Well, you had not asked that  
16 question of Mr. Barker. You asked the question only of  
17 Mr. Frazar.

18 We asked Mr. Barker because Mr. Barker said  
19 they had named names and we were going to so inform the  
20 Board so that you could ask Mr. Barker.

21 JUDGE BECHHOEFER: Well, I asked Mr. Barker  
22 earlier.

23 MR. AXELRAD: Whether the NRC named names in  
24 the exit interview?

25 JUDGE BECHHOEFER: About a particular name

1 that I was interested in.

2 MR. REIS: Mr. Chairman, can I ask that the  
3 questions now be asked on the record and we can get it  
4 from the witnesses?

5 We now have a statement of counsel, and I  
6 think it appropriate that we have this matter cleared up.

7 MR. NEWMAN: Okay. I'll just put a quick  
8 question to Mr. Barker.

9 JUDGE BECHHOEFER: Right.

10 FURTHER REDIRECT EXAMINATION

11 BY MR. NEWMAN:

12 Q Mr. Barker, I just want to determine from you,  
13 you were present at the exit interview.

14 BY WITNESS BARKER:

15 A That's correct.

16 Q Did the NRC identify particular names during  
17 the interview?

18 BY MR. BARKER:

19 A Yes, they did.

20 Q Did they attempt to tie numerical or  
21 alphabetical designations to particular names?

22 BY WITNESS BARKER:

23 A No, they did not.

24 MR. NEWMAN: That's the end of my examination.

25 JUDGE BECHHOEFER: Are there further questions

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1 which the Intervenors or Staff wish to ask about from the  
2 latest go-round?

3 MR. JORDAN: I'd like to have Mr. Barker  
4 answer a question.

5 FURTHER RECROSS-EXAMINATION

6 BY MR. JORDAN:

7 Q Mr. Barker, if you would tell us, how the  
8 Staff identified names. Was that a thing that the NRC  
9 investigators, I guess -- how did they identify names and  
10 whom did they identify, whose names did they identify?  
11 What was the context? I'll make it a little clearer.

12 BY MR. BARKER:

13 A As I stated earlier, I attended the exit  
14 interview with the NRC. The participants from the NRC  
15 were John Collins, Dick Herr and I think it was Dick  
16 Herr's supervisor, a gentleman by the name of Gagliardo,  
17 I believe, and when Dick Herr began his exit interview  
18 he indicated that it's nor normal for the NRC to name  
19 names, but that was the only way he could successfully  
20 communicate to us the circumstances involved.

21 And in that case he identified, as I recall,  
22 four names. Those names are: Frankum, Hawkins, Kay, and  
23 Stewart, and that's it.

24 BY MR. FRAZAR:

25 A I might supplement the answer now that



23-10

1 Mr. Barker has refreshed my memory that I do recall that  
2 now. I did not recall it earlier when Judge Bechhoefer  
3 asked me the question.

4 BY MR. JORDAN:

5 Q What did he tell you about them? Did he  
6 just say, "Here are four names," or did he do something  
7 more than that?

8 BY WITNESS FRAZAR:

9 A No, I think that he reported the circum-  
10 stances associated with the termination shack, about the  
11 suitcases being moved, the discussion about the so-called  
12 three-part memos, some of the feelings of the people,  
13 the 95 documents; the various things that were contained  
14 in his report. I find his report as being generally the  
15 same things that he reviewed with us in the exit interview.

16 MR. JORDAN: That's all.

17 MR. REIS: The Staff has no questions.

18 JUDGE BECHHOEFER: Mr. Sinkin?

19 MR. SINKIN: No questions.

20 JUDGE BECHHOEFER: The Board has no further  
21 questions.

22 MR. NEWMAN: May the witnesses be excused?

23 JUDGE BECHHOEFER: The witnesses may be  
24 excused on this panel.

25 (Whereupon, the witnesses were excused.)



23-11

1 MR. AXELRAD: We would like to call the  
2 backfill panel at this point, Mr. Chairman.

3 JUDGE BECHHOEFER: The Board does not want to  
4 start the next panel today, so as far as we're concerned  
5 we may adjourn.

6 Is there anything that any party -- adjourn  
7 except for the limited appearances, which will follow at  
8 7:30.

9 Is there anything any party would like to  
10 raise before we do so?

11 MR. AXELRAD: Well, could we just take a few  
12 minutes and perhaps get the direct testimony into the  
13 record so that we can start cross-examination tomorrow?

14 MR. REIS: The Staff would think that's  
15 appropriate.

16 JUDGE BECHHOEFER: Pardon?

17 MR. REIS: The Staff thinks that's appropriate.

18 MR. JORDAN: We don't get to agree with them  
19 very often; we'll do it now.

20 JUDGE BECHHOEFER: Okay. We can do that, but  
21 we do not want to begin the cross-examination tonight.

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MR. GUTTERMAN: Mr. Chairman, at this time Applicants would like to call to the stand Mr. C. Bernt Pettersson, Mr. Timothy K. Logan, Mr. Charles S. Hedges and Mr. W. Stephen McKay.

JUDGE BECHHOEFER: Could you identify which is which?

MR. GUTTERMAN: Certainly. I should point out that none of the witnesses have been sworn.

JUDGE BECHHOEFER: Yes. Before I swear them, I'd like to know who I'm swearing.

MR. GUTTERMAN: Mr. Hedges is on the far right; Mr. Pettersson is on his left -- to Mr. Hedges' right; to his right is Mr. Logan and on the extreme end is Mr. McKay, closest to the Board.

Whereupon,

C. BERNT PETERSSON,  
TIMOTHY K. LOGAN,  
CHARLES S. HEDGES and  
W. STEPHEN MCKAY

were called as witnesses and, having been first duly sworn, were examined and testified as follows:

DIRECT EXAMINATION

BY MR. GUTTERMAN:

Q Gentlemen, please state your names and your current employment for the record. Start with Mr.

24-2

1 Hedges.

2 BY WITNESS HEDGES:

3 A I'm Charles Hedges, employed by Woodward-  
4 Clyde Consultants.

5 BY WITNESS PETERSSON:

6 A I'm Bernt Pettersson employed by Brown &  
7 Root.

8 BY WITNESS LOGAN:

9 A I'm Timothy Logan employed by Houston  
10 Lighting & Power.

11 BY WITNESS MCKAY:

12 A I'm Stephen McKay employed by Pittsburgh  
13 Testing Laboratory.

14 Q Do each of you have in front of you a 32-  
15 page document, plus cover, entitled "Testimony on  
16 Behalf of Houston Lighting & Power Company, et al. of Mr.  
17 C. Bernt Pettersson, Mr. Timothy K. Logan, Mr.  
18 Charles S. Hedges, Mr. W. Stephen McKay, on the  
19 Structural Backfill Program at STP"?

20 BY WITNESS HEDGES:

21 A Yes.

22 BY WITNESS PETERSSON:

23 A Yes.

24 BY WITNESS LOGAN:

25 A Yes.

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1 BY WITNESS MCKAY:

2 A Yes.

3 Q Are there any corrections that need to be  
4 made?

5 BY WITNESS PETERSSON:

6 A Yes, sir, there are four corrections.

7 Q Give us the first one, please.

8 BY WITNESS PETERSSON:

9 A On Page 4, the first line, "1968" should  
10 be "1969."

11 Page 5, Line 31, between the words "Bachelors"  
12 and "degree," insert "of Science," so the sentence  
13 reads: "I have a Bachelors of Science degree ...."

14 On Page 14, Line 16, there's a misspelled  
15 word. It now reads t-h-t. Insert "a", which will be  
16 "that."

17 JUDGE BECHHOEFER: Where is that?

18 WITNESS PETERSSON: That is Page 14, Line  
19 16, the fourth word from the end of the line should be  
20 "that."

21 The last change is on Page 18 in the first  
22 line, after the word "Surveillance," insert the  
23 following: "of the field and laboratory activities,"  
24 so the sentence would read, "Surveillance of the field  
25 and laboratory activities using the checklists," et

24-4

1 cetera.

2 Those are all of the corrections.

3 BY MR. GUTTERMAN:

4 Q The whole panel: With those corrections,  
5 are the contents of the document entitled "Testimony  
6 on Behalf of Houston Lighting & Power Company, et al.  
7 of Mr. C. Bernt Pettersson, Mr. Timothy K. Logan, Mr.  
8 Charles S. Hedges, Mr. W. Stephen McKay on the  
9 Structural Backfill Program at STP" true and correct  
10 to the best of your knowledge and belief?

11 BY WITNESS PETERSSON:

12 A Yes, it is.

13 BY WITNESS LOGAN:

14 A Yes.

15 BY WITNESS HEDGES:

16 A Yes, it is.

17 BY WITNESS MCKAY:

18 A Yes.

19 MR. GUTTERMAN: Judge Bechhoefer, I move  
20 that the document entitled "Testimony on Behalf of  
21 Houston Lighting & Power Company, et al. of Mr.  
22 C. Bernt Pettersson, Mr. Timothy K. Logan, Mr. Charles S.  
23 Hedges, Mr. W. Stephen McKay on the Structural Backfill  
24 Program at STP" be admitted into evidence and bound into  
25 the transcript as if read.

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JUDGE BECHHOEFER: Any objection?

MR. JORDAN: I'm not so sure about this ...  
I think for the second time in five minutes I'll agree  
with him. No objection.

MR. SINKIN: No objections, Your Honor.

JUDGE BECHHOEFER: The Staff?

MR. GUTIERREZ: The Staff has no  
objections, Your Honor.

JUDGE BECHHOEFER: Without objection, the  
testimony will be admitted into the record.

(See attached pages.)

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4 UNITED STATES OF AMERICA  
5 NUCLEAR REGULATORY COMMISSION  
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7 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD  
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10 In the Matter of:

11  
12 HOUSTON LIGHTING & POWER  
13 COMPANY, ET AL.

14  
15 (South Texas Project,  
16 Units 1 & 2)  
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Docket Nos. 50-498OL  
50-499OL

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20 TESTIMONY ON BEHALF OF HOUSTON LIGHTING & POWER COMPANY, ET AL.  
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26 MR. C. BERNT PETTERSSON  
27 MR. TIMOTHY K. LOGAN  
28 MR. CHARLES S. HEDGES  
29 MR. W. STEPHEN MCKAY  
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31 ON THE

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34 STRUCTURAL BACKFILL PROGRAM  
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3 UNITED STATES OF AMERICA  
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7 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD  
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10 In the Matter of: §  
11 §  
12 HOUSTON LIGHTING & POWER § Docket Nos. 50-4980L  
13 COMPANY, ET AL. § 50-4990L  
14 §  
15 (South Texas Project, §  
16 Units 1 & 2) §  
17 §  
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19 TESTIMONY OF C. BERNT PETTERSSON, TIMOTHY K. LOGAN, CHARLES S.  
20 HEDGES and W. STEPHEN MCKAY ON THE STRUCTURAL BACKFILL PROGRAM  
21 AT STP  
22

23 Q. 1 Please state your names.

24  
25 A. 1 C. Bernt Pettersson, Timothy K. Logan, Charles S.  
26 Hedges, and W. Stephen McKay.

27  
28 Q. 2 Mr. Petterson, Mr. Hedges, Mr. McKay and Mr.  
29 Logan, by whom are you each employed?  
30

31  
32 A. 2 (CBP): I am employed by Brown & Root, Inc. (B&R)

33 (TKL): I am employed by Houston Lighting & Power Company  
34 (HL&P).  
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37 (CSH): I am employed by Woodward-Clyde Consultants  
38 (WCC), a consulting firm specializing in geotechnical en-  
39 gineering.  
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42 (WSM): I am employed by Pittsburgh Testing Laboratory  
43 (PTL), an independent testing agent which performs earthwork  
44 inspection and testing and other services at nuclear power  
45 plants.  
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3 Q. 3 What is your position and what are your current  
4 responsibilities?  
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7 A. 3 (CBP): I am Assistant Discipline Project Engineer  
8 (Civil Structural Discipline) for the South Texas Project  
9 (STP). Since 1974, I have been group leader for geotechnical  
10 engineering. My responsibilities include development of B&R  
11 specifications for selection of structural backfill materials,  
12 and for backfill placement, compaction, inspection and  
13 testing. I report directly to the Structural Discipline  
14 Project Engineer for STP.  
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21 (TKL): I am Project QA Supervisor for HL&P's W.A.  
22 Parish Unit #8 Project, a 650 MWe coal fired generating unit  
23 under construction at Thompsons, Texas. I have primary  
24 responsibility for the implementation of the QA program on  
25 the project.  
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30 (CSH): I am Project Manager for WCC's work at STP. I  
31 have been Project Manager at STP for the past 5½ years, and  
32 for 2-¼ years prior to that I was periodically involved in  
33 the site studies and preparation of the STP PSAR documents.  
34 As Project Manager for WCC, I supervise other task leaders  
35 and staff engineers working at STP. I also perform engineer-  
36 ing work related to STP geotechnical activities.  
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43 (WSM): I am the Corporate Manager for Quality Assurance  
44 (QA) at PTL. I am responsible for the development and  
45 implementation of PTL's QA programs at several nuclear  
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3 plants. I have worked for STP since March 1976, when I  
4 became PTL's Site Manager. In July 1976, I left the STP  
5 site, but have remained involved with the Project by perform-  
6 ing regular QA audits of PTL activities at STP, selecting  
7 PTL personnel for STP, and reviewing all of PTL's correspon-  
8 dence between the site to the home office.  
9

10 Q. 4 Please summarize your professional qualifications.  
11

12 A. 4 (CBP): I have a degree in civil engineering from  
13 the Technical Gymnasium in Norrkoping Sweden, and degrees in  
14 geology with geotechnique and business administration from  
15 Stockholm University. I am a Registered Professional Engineer  
16 in Texas, and am a member of the American Society of Civil  
17 Engineers (ASCE), the Geological Society of America (GSA)  
18 and the Swedish Geological Society. Prior to joining B&R in  
19 1974, I spent approximately eleven years as a geologist, and  
20 as a civil and geotechnical engineer in the United States  
21 and Sweden.  
22

23 (TKL): I have a Bachelor of Science degree from the  
24 University of Houston (1972) and have taken post-baccalaureate  
25 courses at the same university, specializing in structural  
26 and geotechnical engineering. I am a registered Professional  
27 Engineer in Texas and a past member of the Texas Society of  
28 Professional Engineers and the American Society of Civil  
29 Engineers.  
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From <sup>1969</sup>~~1968~~ until 1973 I was employed by HL&P in the engineering department, where I performed civil/structural design work involving foundations and structures for transmission, distribution, and substation facilities. From 1973 until 1976 I was employed by Raymond Technical Facilities, Inc., an engineering consulting firm, as a designer and design engineer, performing civil and structural design for industrial facilities.

I rejoined HL&P in June of 1976 as a Senior Engineer in the QA department assigned to STP. I was responsible for performing QA surveillance of all civil related activities, including backfill placement and PTL activities. In June, 1977 I was promoted to Lead Engineer. In this capacity, I supervised the two to three HL&P personnel who performed QA surveillance of all civil related activities at the site. I served in this capacity until June, 1978. From January to July, 1980, I returned to STP to serve on various task forces and audit teams as a technical advisor, HL&P QA representative, and Group Leader.

(CSH): I have a Bachelors degree and a Master of Science degree in Civil Engineering from Georgia Institute of Technology, with specialization in geotechnical engineering. I am a registered Professional Engineer in Illinois, Georgia, Florida and Louisiana. I am a member of the American Society of Civil Engineers (ASCE), the American Society for



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3 Testing and Materials (ASTM), the Louisiana Engineering  
4 Society, the American Council of Engineering Consultants the  
5 Sigma XI Research Fraternity, and the American Nuclear  
6 Society. I am a past member of the ASCE Nuclear Structures  
7 Subcommittee for which I helped draft industry guidelines  
8 and standards relating to geotechnical engineering for  
9 nuclear power plants.  
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15 I have twenty-four years of experience in geotechnical  
16 engineering and civil construction, including sixteen years  
17 experience in the geotechnical engineering aspects of nuclear  
18 power plants. This experience includes preparation of site  
19 selection studies starting with Florida Power & Light's  
20 Turkey Point Nuclear Power Plant, and preparation of licens-  
21 ing studies, geotechnical engineering designs and operating  
22 procedures.  
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30 (WSM): I have a Bachelors <sup>of Science</sup> degree in civil engineering  
31 from the Carnegie Institute of Technology, and am a Registered  
32 Professional Engineer in Virginia and South Carolina. I am  
33 a former member of the ASCE and a present member of the  
34 American Concrete Institute (ACI) and the American Society  
35 for Quality Control (ASQC). I am a Certified Level III  
36 Inspection Engineer under the American Society of Mechanical  
37 Engineering (ASME) Code and under the American National  
38 Standards Institute (ANSI) criteria. I am also a certified  
39 lead auditor under ANSI standards.  
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3 I have nineteen years of inspection and testing experi-  
4 ence including four years in PTL's soil mechanics department,  
5 seven years as its District Manager in Roanoke, Virginia,  
6 and eight years associated with PTL contracts for nuclear  
7 power plant construction services.  
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12 Q. 5 Mr. Hedges, please describe WCC's long-term  
13 relationship with STP.  
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16 A. 5 (CSH): WCC has been a subcontractor to B&R on  
17 STP since early 1973. Following initial STP work relating  
18 to geotechnical exploration techniques, WCC became involved  
19 in site exploration and geotechnical evaluation of the STP  
20 site. This site related work by WCC led to the engineering,  
21 geology and seismology analyses and evaluations for plant  
22 design and PSAR preparation. After the STP Construction  
23 Permits were issued in 1975, WCC continued its involvement  
24 as consultant to B&R during the construction phase of STP  
25 and assisted in the FSAR preparation. WCC has worked with  
26 the B&R geotechnical group in performing studies, analyses  
27 and consultation. At the same time, WCC regularly has made  
28 independent recommendations to B&R based on its own evalua-  
29 tions.  
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42 Q. 6 Panel, what is the purpose of your testimony?  
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44 A. 6 (Panel): The purpose of our testimony is to  
45 describe the respective activities performed by HL&P, B&R,  
46 PTL and WCC in developing and implementing the Category I  
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3 structural backfill program at STP, the Task Force review and  
4 other special evaluations conducted in response to the NRC Show  
5 Cause Order, and the results of all the Show Cause activities.  
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8 Q. 7 Please describe briefly how backfill is placed at  
9 STP.  
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11 A. 7 (Panel): The backfill is placed, compacted, and  
12 accepted in individual layers or lifts. The backfill placed  
13 at one time in a specific area is called a placement and  
14 several placements of backfill are generally required to  
15 complete one lift over an entire building foundation area.  
16 Depending upon the work space requirements for other construc-  
17 tion activities, a lift over an entire building area may not  
18 be completed before an overlying lift is started. In any  
19 event, all placements are compacted before an overlying  
20 placement is made.  
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28 Q. 8 Mr. Pettersson, Mr. Hedges and Mr. Logan, please  
29 describe the development of the requirements and specifica-  
30 tions that govern material selection, placement and compac-  
31 tion of backfill at STP.  
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38 A. 8 (CBP, CSH and TKL): No specific code or standard  
39 governs placement and compaction of Category I structural  
40 backfill for the safety-related structures at STP. The  
41 physical properties of the backfill must be consistent with  
42 the structural design criteria for foundations and embedded  
43 walls of all Category I structures. Regulatory Guide 1.70  
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3 requires that soils supporting nuclear power plant foundations  
4 must be able to withstand certain types of loads without  
5 excessive settlement; i.e., the backfill must have sufficient  
6 density to provide an adequate safety factor against liquefac-  
7 tion.  
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12 To satisfy these general provisions, specification  
13 requirements were developed jointly by B&R and WCC based in  
14 large part on WCC's selection of backfill material and its  
15 testing, evaluation and analysis of the backfill material  
16 ultimately used at STP. HL&P then reviewed and approved all  
17 specifications prior to their implementation. The specifica-  
18 tions have not varied significantly since the beginning of  
19 the Project.  
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28 WCC, in cooperation with B&R, conducted a regional  
29 investigation of possible structural backfill material  
30 sources in 1974. The Eagle Lake Area (Colorado River alluvium),  
31 approximately 55 miles from the STP site, was determined to  
32 be the best source area based on the type and volume of  
33 material available.  
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38 Based on laboratory testing of this material, WCC  
39 recommended that an 80% relative density requirement for  
40 backfill at STP would provide an ample factor of safety  
41 against liquefaction. This requirement was based on the STP  
42 design basis Safe Shutdown Earthquake (SSE) criteria, and  
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was considered conservative in view of geotechnical engineering practice and the low seismicity at STP. This 80% requirement was incorporated into § 2.5.4 of the PSAR, and is the only commitment regarding granular backfill compaction in the construction permit licensing documents.

WCC performed additional analyses and recommended, consistent with the PSAR, that backfill compacted to a minimum relative density of 75% and an average relative density of 80% would provide a more than adequate safety factor against liquefaction. To be conservative, B&R adopted a specification requirement for STP providing for a minimum relative density of 80% and an average relative density of 84%. WCC also recommended gradation limits for the backfill material to be used at STP, and these gradation criteria were incorporated by B&R into the specification. HL&P reviewed and approved the material, gradation and density requirements of the specification.

Based on WCC recommendations, B&R Engineering then developed a construction specification requiring that uncompacted backfill lifts be limited to an 18 inch maximum thickness. Under the specification, uncompacted lifts of 24 inches are permitted to be used at the option of Construction if the adequacy of the backfill compaction is demonstrated by a documented test fill (field test) program.

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3           Based on additional recommendations by WCC, a specifi-  
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5 cation was developed requiring at least one field density  
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7 test for every 20,000 square feet of unrestricted backfill  
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9 lift. The specification criterion was based on the uniform  
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11 gradation of the STP backfill, the planned placement and  
12  
13 compaction operations and the volume of material contained  
14  
15 in each density test area. This testing provides data  
16  
17 demonstrating the relative density of the total volume of  
18  
19 Category I compacted structural backfill.

20           For every fourth field density test, at least one  
21  
22 laboratory maximum-minimum test and one gradation test is to  
23  
24 be performed. The decision to require one test in four was  
25  
26 based on the degree of uniformity of the STP backfill, and  
27  
28 was considered conservative by industry standards. The  
29  
30 purpose of the maximum-minimum laboratory test is to deter-  
31  
32 mine a material's maximum density when well compacted, and  
33  
34 its minimum density when uncompacted in its most loose  
35  
36 state. The actual in-place relative density value is deter-  
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38 mined by a mathematical formula utilizing the laboratory  
39  
40 determined maximum and minimum density values and the in-place  
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42 density value determined by the field density tests. The  
43  
44 actual relative density value is then compared to the 80%  
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46 acceptance criteria. The purpose of the gradation test is  
47  
48 to determine the particle size distribution in backfill  
49  
50 material. The results of this test must meet applicable  
specification requirements.



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3 Q. 9 Mr. Pettersson and Mr. Hedges, please describe  
4  
5 the development of the construction procedures governing  
6  
7 backfill at STP.

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9 A. 9 (CBP, CSH): Construction procedures were de-  
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11 veloped in 1976 based on the STP specification requirements  
12  
13 and on standard industry practice. It has always been  
14  
15 understood by Construction that these are "end product"  
16  
17 procedures requiring backfill to be compacted until the  
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19 proper density is achieved. It is the result of testing  
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21 that we rely upon to assure adequate density has been achieved,  
22  
23 not the number of passes of the compaction equipment.  
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25 Except for minor editorial variations, the procedures origi-  
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27 nally developed were the same as those in effect at the time  
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29 of the NRC Order to Show Cause.

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31 A 10-ton steel drum vibratory roller was selected to  
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33 ensure effective compaction of 18-inch lifts. The decision  
34  
35 was made to limit the lifts to 18 inches, thereby rejecting  
36  
37 the option of using 24-inch lifts.

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39 Although the specification does not require use of a  
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41 formal test fill program to verify the acceptability of  
42  
43 compaction of 18-inch lifts prior to placement in Category I  
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45 areas, Construction decided to conduct an informal, voluntary  
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47 test fill program to confirm the adequacy of the compaction  
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49 methods. This test fill program was conducted in 1976 by  
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51 placing several lifts and compacting them with the roller



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3 planned to be used in actual construction of the fill. The  
4 number of roller passes on each lift was varied on different  
5 portions of the lift. Density tests were then taken at  
6 several depths to determine the density achieved by the  
7 different compaction efforts.  
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12 B&R's Site Geotechnical Engineering representative  
13 evaluated the results of this program and conservatively  
14 recommended that a minimum of 12 roller passes be incorpo-  
15 rated into the construction procedures. Construction, in  
16 developing the construction procedures, concluded that a  
17 minimum of 12 passes would be necessary only on the surface  
18 lift, which would not receive further densification by  
19 compaction of overlying lifts, and that a minimum of 8  
20 passes would be acceptable for the lower lifts. Of course,  
21 if the 8 or 12 passes did not compact the structural backfill  
22 to the required density, additional passes were required  
23 until a minimum of 80% relative density and an 84% average  
24 relative density had been achieved.  
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29 After 8 or 12 passes, it would be appropriate to begin  
30 in-place density testing to evaluate the adequacy of compac-  
31 tion. The first twenty field density tests made in unre-  
32 stricted Category I areas verified the adequacy of the  
33 relative density achieved by this procedure.  
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38 Q. 10 Mr. Pettersson, Mr. Logan and Mr. McKay, please  
39 describe how the backfill program at STP was monitored to  
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3 assure compliance with applicable specifications and proce-  
4 dures.  
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7 A. 10 (CBP, TKL, WSM): An Earthwork Inspection and  
8 Testing Specification was developed and was to be imple-  
9 mented by PTL. This specification was developed to provide  
10 general criteria for quality control of the backfill place-  
11 ment and compaction activities, and has not been signifi-  
12 cantly modified since it was first developed. Specifically,  
13 PTL Inspectors are to provide continuous inspection of the  
14 placement of all backfill material, which means that the  
15 Inspectors are required to be present in the general work  
16 area where backfill is being placed or compacted, and are  
17 required to observe the type of material used, lift thick-  
18 nesses and operation of compaction equipment to ensure  
19 compliance with applicable specifications and procedures.  
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31 With B&R review and approval, PTL developed procedures  
32 to implement the specification requirements relating to  
33 inspection and testing of the backfill. In addition, PTL  
34 developed several procedures relating to all 18 criteria of  
35 10 C.F.R. Part 50, Appendix B and other specified codes.  
36 These procedures include provisions for personnel certifica-  
37 tion, equipment control and documentation.  
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43 First, as backfill material was placed in excavated  
44 areas, PTL QC Inspectors determined the actual lift thickness  
45 to assure that it did not exceed 18 inches. If deviations  
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3 were observed, B&R Construction personnel corrected them  
4 before compaction began, and the PTL Inspectors reviewed the  
5 work for final compliance. The Inspectors then recorded  
6 their observations on checklists and on Earthwork Inspection  
7 Reports (EIR's). The latter provide a narrative description  
8 of the entire placement and compaction process. In completing  
9 these checklists, the PTL Inspectors generally marked that  
10 the lift thickness was 18 inches, indicating th<sup>a</sup>t it was 18  
11 inches or less and that it satisfied the applicable B&R  
12 specifications. This procedure subsequently was amended as  
13 a result of the NRC Inspection Report 79-19, which is dis-  
14 cussed later in this testimony.  
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25 . Compaction generally was performed for several hours  
26 depending on the size of the rolled areas. Before this  
27 process was started, PTL QC Inspectors checked the equipment  
28 to be used, and before the process was completed, the Inspectors  
29 checked to be sure that the minimum required number of  
30 roller passes had been made and that the compaction process  
31 was uniform. Again, all observations were recorded on  
32 checklists and in the EIR's, and deviations were corrected  
33 and reviewed before the next backfill placement could begin.  
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42 PTL Inspectors remained in the area where compaction  
43 was taking place until the process was completed. However,  
44 because the B&R procedure requires only a minimum number of  
45 roller passes, the Inspectors only observed the actual  
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3 performance of the roller passes long enough to assure  
4 themselves that this minimum number had been achieved.  
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6 After that time, consistent with their understanding of the  
7 continuous inspection requirement, they generally observed  
8 the compaction efforts but did not necessarily observe each  
9 and every pass. When compaction was completed and they were  
10 satisfied, they indicated on the checklist that the compac-  
11 tion effort was "acceptable" under the applicable construc-  
12 tion procedure. This procedure was amended as a result of  
13 NRC Inspection Report 79-19.  
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21 To determine the density of each lift after compaction,  
22 PTL Inspectors generally performed at least one field density  
23 test in accordance with the specification requirements.  
24 Although there originally was no specified test depth, the  
25 Inspectors generally tested at the top of the immediately  
26 underlying lift. If the tests revealed a relative density  
27 of less than 80% or less than an 84% average, additional  
28 rolling had to be performed until acceptable test results  
29 were achieved. As a result of NRC Inspection Report 79-19,  
30 B&R amended its specification to provide for specified test  
31 depths, and PTL amended its procedures accordingly.  
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41 Inspectors indicated on the checklist, in the EIR, and  
42 in separate Density Test Reports whether the test confirmed  
43 that the compaction had been successful; i.e., whether the  
44 required relative density had been achieved. They also  
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3 obtained backfill field samples for the laboratory tests.  
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5 To verify that the backfill met the 80% relative density  
6 requirement, PTL QC Inspectors established field acceptance  
7 criteria by averaging twenty maximum-m. mum laboratory  
8 tests. The twenty-test sample, which was based on considera-  
9 tion of the gradation uniformity of the STP backfill material,  
10 provided a sufficient data base from which to derive represen-  
11 tative field acceptance criteria.  
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17 The results of the laboratory tests were recorded  
18 in separate Laboratory Test Reports. Although it was not  
19 required, the Inspectors generally kept informal, Field  
20 Density Test Log Books which list all the tests by number  
21 and indicate which test locations have been used to obtain  
22 samples for laboratory testing.  
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28 Completed EIR's, checklists, Density Test Reports and  
29 Laboratory Test Reports were provided to the PTL STP Site  
30 Manager for his review. They were then transmitted to the  
31 B&R QA/QC Supervisor in charge of PTL activities for his  
32 review and signature. Finally, these reports were transmitted  
33 to B&R Construction and Engineering Supervisors for their  
34 information and to the STP QA vault for filing as Project QA  
35 records.  
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43 Since August 1976, the B&R QA/QC Supervisor has been  
44 located in the PTL facilities at the STP site where he has  
45 had daily contact with the PTL site manager and other PTL  
46 personnel. Accordingly, B&R QA/QC has additionally monitored  
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3 PTL activities and has improved the QA program implementation  
4 through daily discussions with PTL personnel at the site.  
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7 In addition to this daily monitoring activity, B&R QA  
8 personnel have performed regular surveillance of PTL's  
9 inspection and testing activities, and B&R's Audit Group has  
10 performed audits of the STP backfill program at least annually.  
11 PTL also has an internal audit program, and has audited its  
12 own activities at least annually. The results of these  
13 audits have been transmitted to B&R.  
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19 Q. 11 Mr. Logan, please describe the surveillance  
20 performed by HL&P QA on the Category I structural backfill  
21 program at STP?  
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25 A. 11 (TKL): Backfill material qualification, placement,  
26 inspection and testing were monitored by HL&P QA personnel  
27 through the use of prepared surveillance checklists. The  
28 checklists consisted of specific questions regarding require-  
29 ments from the B&R specifications and B&R and PTL procedures.  
30 There were two checklists which covered all the major aspects  
31 described above. One of these checklists dealt with field  
32 activities; i.e., material placement, compaction, inspection,  
33 and in-place density testing. The other QA checklist covered  
34 laboratory analysis; i.e., material qualification testing,  
35 compaction testing, and B&R QA surveillance of PTL. Another  
36 checklist that also affected the backfill area covered  
37 calibration of laboratory equipment as a part of all measuring  
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3 and test equipment. Surveillance<sup>of field and laboratory activities</sup> using the checklists was  
4 performed a minimum of once per month.

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7 Between March 1976 and September 1980, HL&P utilized  
8 the checklists to perform surveillance on the PTL laboratory  
9 57 times. Between May 1976 and September 1980, surveillance  
10 of field activities utilizing the checklists was performed  
11 53 times.

12  
13  
14 In addition to the formal, documented surveillance  
15 described above, HL&P QA personnel performed random daily  
16 informal monitoring of project activities. Findings from  
17 the informal monitoring activities were generally transmitted  
18 orally to the proper B&R or PTL personnel. Any resulting  
19 documentation was generated by the affected organization.

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22 Q. 12 Mr. Pettersson and Mr. Hedges, were backfill  
23 placement and compaction methods other than those described  
24 in the previous answer ever used? If so, explain these  
25 methods.

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28 A. 12 (CBP, CSH): In areas close to plant structures  
29 or otherwise too confined to permit use of the vibratory  
30 rollers, backfill was placed using hand operated compaction  
31 equipment. Specific procedures describe how the placements  
32 should be made and tested in these restricted areas.

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35 In isolated areas, methods other than the ones pre-  
36 viously described were used to densify the structural backfill  
37 or to provide adequate foundation support. The methods  
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3 employed were vibroflotation, static rolling and grouting --  
4 all three of which are common construction industry practices.

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6 Vibroflotation is a field procedure identified in the  
7  
8 Structural Backfill specification which may be used when  
9 approved by Engineering. The vibroflotation procedure  
10 employs mechanical vibration and simultaneous water-jetting  
11 to densify a soil mass. This process was used to densify  
12 Category I backfill loosely placed in an exploratory trench  
13 approximately 10 feet deep which was dug to evaluate the  
14 extent of suspected contaminated backfill; i.e., backfill  
15 containing soil types different from the granular material.  
16 Use of 18-inch lifts compacted by a vibratory roller was not  
17 feasible in this instance because of the depth, small area  
18 and moisture conditions in and around the trench. Following  
19 the vibroflotation treatment, ten borings including Standard  
20 Penetration Tests (SPT) were made. The results of the tests  
21 verified that a satisfactory density had been achieved for  
22 the vibrofloated backfill material.

23  
24 Static Rolling refers to the use of the 10-ton vibratory  
25 roller with the vibrator shut off. The first lift placed  
26 over natural subgrade was statically rolled when necessary  
27 to prevent subgrade pumping, and the first lift placed over  
28 concrete mudseals was statically rolled when necessary to  
29 prevent damage to those items. In some cases, static rolling  
30 was employed along with water saturation to densify the  
31 final backfill surface more thoroughly.  
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3 To verify that the reported statically rolled lifts  
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5 received adequate compaction, WCC conducted an evaluation of  
6  
7 the incidents of static rolling, and confirmed that the  
8  
9 vibratory rolling of succeeding lifts had taken place until  
10  
11 the statically rolled lift satisfied the density requirements.

12 Grouting refers to placement of a cement-sand-water  
13  
14 shrink mix into small voids which are otherwise inaccessible  
15  
16 for backfill placement and compaction. This method was used  
17  
18 at STP to fill surface voids which had developed under the  
19  
20 edges of previously poured concrete slabs due to erosion  
21  
22 from rainwater runoff. The grout in these small areas is  
23  
24 inherently stronger than the backfill it has replaced and is  
25  
26 therefore considered to be acceptable.

27  
28 As discussed below and in the testimony of Mr. Stanley D.  
29  
30 Wilson and Mr. Thomas Kirkland, these backfill placement  
31  
32 methods were reviewed in response to the NRC Show Cause  
33  
34 Order by an HL&P/B&R Task Force and an independent Expert  
35  
36 Committee. The Expert Committee composed of Mr. Wilson and  
37  
38 Drs. H. Bolton Seed and A. J. Hendron reviewed the use of  
39  
40 these methods and found them to be appropriate in all  
41  
42 instances.

43 Q. 13 Mr McKay and Mr. Logan, were there problems  
44  
45 identified by Project personnel regarding QA activities  
46  
47 prior to the NRC's Order to Show Cause? If so, what were  
48  
49 those problems and how were they resolved?  
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A. 13 (WSM, TKL): Both B&R Audit Group personnel and HL&P QA personnel identified procedural and hardware problems regarding the QA program. For example, a Stop Work Order was issued in 1976 when B&R's QA auditors discovered that PTL had not correctly calibrated their sand cones used for in-place density tests. Consequently, several density tests previously accepted by PTL were found not to meet the acceptance criteria established when the sand cones were recalibrated, and the tests were dispositioned as nonconformances. After B&R reviewed the situation and found the tests to be acceptable, the nonconformances were closed out. To prevent a recurrence of such problems, PTL increased the frequency of its internal audits and provided additional home office support to STP.

In 1976, pursuant to a different B&R audit of PTL activities, the B&R-QA Department found several procedural discrepancies in PTL's inspection and testing program. Equipment was identified incorrectly, forms were not completed and equipment was not always calibrated with sufficient frequency. As a result of these problems, PTL clarified its procedures for ease of understanding, improved its overall management control, increased its on-site technical support, and implemented a training program. In addition, the B&R QA/QC Department became more closely involved in the daily management and surveillance of PTL's on-site work.



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HL&P surveillance also discovered a few problems with respect to the B&R QA and PTL activities. The problems, which had no effect on the quality of the backfill, generally concerned minor errors in completing, reviewing and filing forms. These discrepancies all were corrected.

Q. 14 Mr. Logan and Mr. McKay, what did the NRC audits reveal about the STP backfill program prior to late 1979?

A. 14 (TKL, WSM) The NRC audited the backfill program at STP several times between 1976 and late 1979. Generally, these audits found the activities at STP to be in compliance with specifications and procedures concerning placement and compaction of backfill. For example, in Inspection Report 76-07 dated December 21, 1976, the NRC reviewed the STP sieve analyses, the relationship between laboratory and field testing, and backfill placement and compaction activities. The backfill quality and construction activities were found to meet applicable specifications and procedures. In Inspection Report 77-06 dated May 16, 1977, the NRC found that the STP in-place density tests were in compliance with applicable specifications. In Inspection Report 78-10 dated June 20, 1978, the in-place density tests, laboratory maximum-minimum tests and gradation tests were found satisfactory. In addition, B&R QA surveillance of PTL activities was found to comply with applicable procedures. In Inspection Report 79-18 dated January 16, 1980, the NRC found backfill compaction and in-place density testing to be satisfactory.

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3 Inspection Report 77-06 dated May 16, 1977 did note  
4 noncompliances regarding the QA program in that B&R surveil-  
5 lance of PTL activities was not conducted frequently  
6 enough, improper personnel were reviewing the surveillance  
7 reports, and those reports were not filed and retained  
8 as required. These noncompliances were resolved and closed  
9 out in the subsequent NRC Inspection Report 77-09, dated  
10 October 12, 1977.  
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18 Q. 15 Panel, what actions were taken as a result of  
19 findings regarding the STP backfill program contained in the  
20 NRC Inspection Report 79-19 dated April 28, 1980?  
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23 A. 15 (Panel): The NRC reported six items of noncom-  
24 pliance regarding the STP backfill program in Inspection  
25 Report 79-19: (1) PTL's procedures did not provide instruc-  
26 tions for depth of in-place density testing; (2) B&R construc-  
27 tion procedures failed to set forth an identified and docu-  
28 mented basis for the acceptability of the required minimum  
29 of 8 roller passes for embedded lifts; (3) PTL did not  
30 record the actual number of roller passes or the actual lift  
31 thicknesses in the EIR's; (4) the PTL relative density test  
32 apparatus was broken for a period between November 1979 and  
33 January 1980, and backfill placement proceeded although the  
34 required laboratory tests could not be performed; (5) WCC  
35 used a nonconforming hammer for Standard Penetration Tests  
36 of the backfill from January 28, 1980 to February 4, 1980;  
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3 and (6) WCC used a nonconforming split spoon for its Standard  
4 Penetration Testing. All of these items have been satisfac-  
5 torily closed out by the NRC in Investigation Reports 80-17  
6 and 80-19, dated July 16, 1980 and August 8, 1980, respectively.  
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10 First, B&R, with HL&P review and approval, amended its  
11 backfill specification to provide criteria for the density  
12 testing depth of embedded and surface lifts. Out of every  
13 ten tests, six tests must be taken near the top of the  
14 underlying lift, two tests near the center of the underlying  
15 lift and two tests near the bottom of the surface lift.  
16 Tests near the bottom of surface lifts must always be ac-  
17 companied by tests in the underlying lift to ensure that all  
18 lifts are actually tested. Density tests of surface lifts  
19 located immediately below foundations must be taken at a  
20 depth of six to twelve inches. PTL subsequently amended its  
21 procedures to conform to the revised specification.  
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32 Second, the NRC examined the results of the 1976 and  
33 1980 test fill programs and concluded that B&R did in fact  
34 have an adequate basis for its procedural requirement that a  
35 minimum of eight roller passes be made for 18-inch embedded  
36 lifts. The density test results obtained from these programs  
37 verified that the incremental gain in density rapidly dimin-  
38 ishes for each roller pass beyond eight and that the overall  
39 density in an embedded lift is greatly increased after 8  
40 passes on the overlying lift. Therefore, B&R's procedure  
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3 requiring at least eight passes before beginning in-place  
4 density testing was found to be appropriate.  
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7 Third, B&R, with HL&P review and approval, amended its  
8 Earthwork Construction Specification in June 1980 to require  
9 that the PTL Inspectors determine and record the actual  
10 number of roller passes and the actual uncompacted lift  
11 thicknesses. The number of roller passes must be determined  
12 either by actually counting the passes or by inspection to  
13 ensure adherence to a specific roller pattern defined in the  
14 newly amended backfill specification and in construction  
15 procedures.  
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23 Fourth, PTL replaced its defective equipment used for  
24 maximum density determination and obtained back-up equipment.  
25 The untested backfill samples which had been collected  
26 during the period when the equipment was not functioning  
27 were subsequently tested and accepted.  
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32 Finally, the two nonconforming pieces of equipment used  
33 in several of WCC's Standard Penetration Tests were replaced  
34 with conforming equipment. The WCC test procedures were  
35 modified to include dimension and weight tolerances. WCC  
36 also evaluated the tests performed with those nonconforming  
37 items and found that the test results were not significantly  
38 affected by the nonconformances.  
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45 As a result of NRC's description of these findings at  
46 the exit interview on January 26, 1980, B&R and HL&P asked  
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3 WCC in January 1980 to begin a soil test boring program to  
4 evaluate the overall backfill quality at STP. The results  
5 of this program indicated that all of the backfill in the  
6  
7 Unit 1 area had relative densities equal to or greater than  
8  
9 80%, but that there were four small areas in the vicinity of  
10  
11 Unit 2 with a relative density less than 80%. Further tests  
12  
13 of the four questionable areas were made by B&R and WCC with  
14  
15 the assistance of Dr. H. B. Seed, a noted authority on the  
16  
17 behavior of soils. These tests indicated that the backfill  
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19 in the four areas was sufficiently dense to provide a sub-  
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21 stantial degree of safety against liquefaction, and that no  
22  
23 further testing or remedial work was necessary.

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25 Q. 16 Mr. Pettersson, as a result of Inspection Report  
26  
27 79-19, were any additional changes made to B&R's surveillance  
28  
29 program regarding STP backfill?

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31 A. 16 (CBP): Yes. Effective June 20, 1980, B&R  
32  
33 Resident Engineering personnel are required to review on a  
34  
35 daily basis PTL's inspection and testing activities and to  
36  
37 review PTL's documentation prior to issuance. These personnel  
38  
39 also are required to note all observations in reports and  
40  
41 document any deficiencies and subsequent corrective actions.

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43 Q. 17 Mr. Pettersson, Mr. Logan and Mr. Hedges, please  
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45 describe the actions taken with respect to the STP backfill  
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47 program in response to the Show Cause Order.  
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3 A. 17 (CBP, TKL, CSH): Immediately after the NRC  
4 issued its Order to Show Cause, a joint B&R/HL&P Task Force  
5 was set up to respond to the specific items in the Order  
6 regarding the backfill program. This Task Force subsequently  
7 spent approximately seven months reviewing thousands of  
8 quality control documents to verify the overall adequacy of  
9 the backfill material and the backfill placement, compaction,  
10 testing and inspection. In addition to the Task Force, an  
11 independent Expert Committee of acknowledged leaders within  
12 the geotechnical profession was retained to review the  
13 backfill placement and compaction program at STP and to  
14 determine the overall engineering adequacy of the in-place  
15 backfill. Finally, WCC performed additional special studies  
16 necessary for the Show Cause effort, including a comprehen-  
17 sive statistical analysis of the Category I structural  
18 backfill field density results.

19 The following activities were conducted with respect to  
20 Category I structural backfill placement in response to the  
21 Show Cause Order:  
22

23 (1) A test fill program was established to confirm the  
24 adequacy of the construction methods used during the Category I  
25 structural backfill placements;  
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27 (2) The backfill material tested for the design studies  
28 was compared to the material actually placed for the Category I  
29 structures;  
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3 (3) Cross-sectional drawings were developed to show  
4 the sequence of backfill placements and lift thicknesses and  
5 to show the locations of the in-place density tests and  
6 results;  
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10 (4) EIR's were reviewed to determine whether the reported  
11 work demonstrated compliance with the backfill specifications  
12 and the construction procedures;  
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16 (5) The field density tests were analyzed to determine  
17 the density distribution and the representativeness of the  
18 tests;  
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21 (6) The relative density requirements of the backfill  
22 were evaluated to determine the effect of localized areas  
23 with relative densities of less than 80%;  
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27 (7) The density distributions within the surface lift  
28 immediately below structural foundations were analyzed;  
29

30 (8) WCC's previously-performed boring programs were  
31 reexamined to obtain additional data on the engineering  
32 adequacy of the backfill;  
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36 (9) The maximum/minimum laboratory density test results  
37 were verified by a different laboratory from the on-site QC  
38 Soils Laboratory; and  
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41 (10) Data concerning generic or specific problems with  
42 the backfill construction and QC procedures was evaluated,  
43 and corrective actions were developed as required.  
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3 Q. 18 What were the results of the Show Cause verifica-  
4 tion activities?  
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7 A. 18 (CBP, TKL and CSH) The results of these Show  
8 Cause verification activities demonstrate that the structural  
9 backfill at STP has a relative density which exceeds the  
10 design requirements, that the frequency of backfill testing  
11 has exceeded the specification requirement, and that the  
12 construction procedures utilized have been adequate to  
13 ensure that the quality of the in-place backfill satisfies  
14 applicable specifications.  
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21 In-place Category I structural backfill material at STP  
22 was confirmed to be from the same geologic formation and to  
23 have the same gradation and particle shape as the material  
24 tested for the STP design studies. Minor changes which have  
25 occurred during the last four years in the gradation and  
26 uniformity of the backfill have slightly changed the minimum  
27 and maximum dry density of the backfill, but the liquefaction  
28 analysis performed for the STP design and presented in the  
29 FSAR was still found to be valid.  
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38 The results of B&R's June 1980 test fill program confirm  
39 that: (a) the STP vibratory rollers are capable of compacting  
40 the specified lift thicknesses to the required densities;  
41 (b) the compaction throughout the backfill is uniform; and  
42 (c) eight roller passes on underlying lifts and twelve  
43 roller passes on surface lifts provide satisfactory minimum  
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compaction criteria to ensure safety. The Expert Committee confirmed these conclusions.

The Expert Committee's findings as to the quality of the STP backfill are presented in a separate piece of testimony.

The Task Force found that relative density tests were not performed on the backfill placed for the Essential Cooling Water (ECW) system piping trench as a result of a PTL and B&R QA misinterpretation of the STP specification requirements. This backfill material, however, was the same as the material placed concurrently in the STP plant area, where samples were obtained and subjected to relative density testing. The tests from the plant area were then used by PTL for acceptance of the ECW system piping backfill.

Because PTL used acceptance criteria from the plant area, and because the backfill used at STP is especially uniform, the deviation with respect to testing on the ECW area was of no great concern. Nevertheless, pursuant to a program to reexamine welds in the buried ECW pipe, the backfill in the ECW trench is being removed to uncover the pipe. Backfill below the pipe will be tested and relative density tests will be performed during replacement of the backfill in the trench.

Q. 19 Mr. Pettersson, Mr. McKay and Mr. Logan, were any programmatic changes made in the STP backfill QA/QC

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3 program as a result of the Show Cause verification activities?  
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5 If so, please explain those changes.  
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9 A. 19 (CBP, WSM, TKL): Included in the B&R/HL&P Task  
10 Force studies was a review of the PTL EIR's to determine  
11 whether the inspection activities meet applicable specifi-  
12 cations and procedures. While the sequence of backfill  
13 construction could be established from these records, the  
14 Task Force uncovered several deficiencies in the EIR's  
15 including inconsistent or missing test numbers, test  
16 locations and dates, and a failure to document certain  
17 completed lifts, compaction efforts, and retests.  
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23 The Expert Committee concluded that the foregoing  
24 deficiencies are of no technical significance. Nevertheless,  
25 B&R issued Corrective Action Requests (CAR's) on these matters  
26 to assure that the quality control records for future backfill  
27 construction will provide self-supporting evidence of the  
28 adequacy of the backfill. Specific corrective actions to be  
29 implemented include amplified reporting for work in progress,  
30 logs for tracking work requiring remedial action, systematic  
31 verification of location descriptions, advance inspection  
32 schedules and control of reporting, and indoctrination of  
33 PTL Inspectors regarding the necessity of filling out accurate  
34 and complete reports.  
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45 Q. 20 Mr. Hedges, what is your professional opinion of  
46 the testing and overall quality of the in-place backfill at  
47 STP?  
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3 A. 20 (CSH): The in-place backfill at STP is generally  
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5 of equal or higher quality, has a more consistent gradation  
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7 and is more highly compacted than backfill I have evaluated  
8  
9 at other nuclear power plants. In addition, the high density  
10  
11 achieved gives the STP backfill a factor of safety well  
12  
13 beyond the design requirements.

14 The STP backfill testing and inspection program has  
15  
16 been well-planned from its inception, and provides for more  
17  
18 frequent and systematic field and laboratory tests than  
19  
20 programs I have observed at other nuclear power plants.

21 Q. 21 Mr. Pettersson and Mr. Logan, what is the present  
22  
23 status of the backfill program at STP?  
24

25 A. 21 (CBP and TKL): The backfill construction activi-  
26  
27 ties at STP have continued uninterrupted. Backfill placement  
28  
29 and compaction for Category I areas, including the ECW  
30  
31 system piping, is 75% completed. Approximately 560,000  
32  
33 yards of backfill have been placed for the Units 1 and 2  
34  
35 Reactor Containment, Fuel Handling, Mechanical-Electrical  
36  
37 Auxiliary and Diesel Generator Buildings. Approximately  
38  
39 20,000 cubic yards remain to be placed in the main plant  
40  
41 area, and 120,000 cubic yards remain to be placed around the  
42  
43 ECW system piping. All future backfill activities will be  
44  
45 performed in accordance with the amended specifications and  
46  
47 procedures, and will be monitored closely pursuant to B&R's  
48  
49 QA program to ensure compliance with applicable specifications.  
50  
51 These activities also will be audited by B&R and HL&P.

1 TH:10:E

1 MR. GUTTERMAN: Applicants have no further  
2 questions of the witnesses.

3 JUDGE BECHHOEFER: The Board does not want  
4 to get into cross-examination tonight. So we propose  
5 to adjourn, absent any objection. Do we hear an  
6 objection?

7 MR. REIS: No objection.

8 MR. JORDAN: No objection.

9 JUDGE BECHHOEFER: We'll adjourn the  
10 evidentiary session until nine o'clock tomorrow  
11 morning. At 7:30 we will take limited appearances.

12 MR. AXELRAD: Mr. Chairman, just to make  
13 sure that I did not confuse anyone before, after this  
14 panel is completed, we would then plan to take the  
15 testimony of Mr. Pettersson and Mr. White on the FSAR  
16 statement, and then take the testimony of Mr. McKay  
17 and Logan on the allegations of document falsification.  
18 That is the sequence that we presently contemplate.

19 JUDGE BECHHOEFER: Fine. We're adjourned.

20 (Whereupon, at 5:29 p.m. the hearing was  
21 recessed, to reconvene at 7:30 p.m. of the same  
22 day.)

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EVENING SESSION

7:30 P.M.

JUDGE BECHHOEFER: On the record.

Good evening, ladies and gentlemen. We are here to take limited appearance statements from members of the public concerning the operation of the South Texas Nuclear Project plants.

To reintroduce the Board for the benefit of people that's weren't here earlier, to my left is Mr. Ernest Hill, who is a nuclear engineer, regularly employed at Livermore Laboratory in California.

To my right is Dr. James Lamb, an environmental scientist from the University of North Carolina.

My name is Charles Bechhoefer. I am an attorney with the Atomic Safety and Licensing Board panel of the Nuclear Regulatory Commission.

Limited appearances are not evidence as such, but the Board can take into account matters stated, and if there are particular issues which we feel need to be resolved, we can ask that they be resolved by the parties, or dealt with by the parties in the context of the proceeding.

We ask that the statements be limited to approximately five minutes each. If you go much beyond, we will let you know that you are doing so. This is

25-2 1 mainly so everyone will have an opportunity to be heard.

2 Limited appearance statements may be  
3 supplemented by written material of any length, which  
4 can be given to the reporter.

5 When you come up to make your statement,  
6 identify yourself, your name, and at least the general  
7 area in which you live, or an organization which you  
8 represent if that's the case.

9 I will start with the list that I had this  
10 morning. I have several lists here, and I'm not sure in  
11 what order, but I will start with the list I had this  
12 morning, and work on down.

13 Is there an Amy Donovan?

14 William Donovan? Come on up, either you or  
15 your wife, or both. I assume Amy is your wife.

16 MR. DONOVAN: Amy is my daughter.

17 JUDGE BECHHOEFER: Oh, your daughter.

18 MR. DONOVAN: She got stuck out at the  
19 university tonight.

20 JUDGE BECHHOEFER: Very well.

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STATEMENT  
of  
DR. WILLIAM DONOVAN

DR. DONOVAN: I am Dr. William Donovan. I am a member of the San Antonio Chapter of the Physicians For Social Responsibility.

I would like to welcome this Board to San Antonio.

I would like to express the concern of our organization for the health and safety not only of those in this area, but in the country, and I think now the world, with the international physicians group.

It is hard to alarm people about an enemy that is unseen. I think Simmelweiss tried to do this with streptococci in women who had peripheral sepsis, who had infections following delivery, by physicians who looked cleaned. They didn't have dirty hands, but they have streptococci on their hands, and these got into the wombs of the women that they delivered, and resulted in infections.

I think that generally we have been clean about atomic energy since the test ban, and we haven't had a lot of people who have had readily identifiable illness result, like radiation sickness. We haven't had an awful lot of those since Hiroshima and Nagasaki.

2 4  
1 I think if we did that we would be more  
2 concerned about radiation affects. I am concerned about  
3 the unseen affects that take quite a while to develop.  
4 The leukemias that take four to five years to develop,  
5 and the solid tumors that result from low-level radiation  
6 that appear after 20 to 40 years. This is, I think, the  
7 concern of physicians who are alarmed about the public  
8 health aspects.

9 I think here specifically in this area we  
10 are concerned about the competence of an organization  
11 such as Houston Lighting & Power, and Brown & Root, under  
12 whose guidance a plant was built that should be very  
13 safely be containing this dangerous material, and to allow  
14 construction to go on for months, as I understand it,  
15 without real inspection resulting in latent defects in  
16 the plant.

17 We are concerned about nuclear fission. I  
18 know some of us have been excited lately about the  
19 possibility of fusion-generated energy, and the  
20 possibility that this might be a cleaner safer source.

21 What we have heard about the GE Mark III is  
22 that it is not a very clean system of generating, and  
23 results in obligatory leaks of radiation.

24 The other concerns have been the placement  
25 of the plant on earthquake faults, on land that allows

25-5

1 sinking of the buildings in an area in which there are  
2 possible hurricane damage. The winds, of course, come  
3 up from the Gulf to San Antonio, and this is a source of  
4 concern, where there is obligatory leakage. We are  
5 concerned about leakage.

6 We are concerned about the storage of not  
7 only low level but high-level waste, and where is that  
8 waste going to go. Is it going to be crossing our  
9 highways, or someone's highways, and the necessity of  
10 having when you make so many trips, the statistical  
11 necessity of there being a certain number of accidents,  
12 and what happens to these fuel rods, and so on.

13 The increased mining that will have to take  
14 place, and this is only 50 miles south of us where the  
15 uranium mines, the danger to the miners in handling the  
16 alpha emitters, and the production of pulmonary fibrosis  
17 and later cancer of the lung from these operations.

18 The contamination of the aquifers from chemical  
19 extraction mining.

20 The statistics I have in respect to the  
21 increase in infant mortality rate around Harrisburg  
22 increasing by 280 percent-- of course, the developing  
23 fetus is extremely sensitive to radioactivity -- is an  
24 alarming figure.

25 Sternglass' work on the Millstone Reactor and

2 6 1 the increasing leukemia rates out four to five years, as  
2 one approaches the site of the nuclear plant is also  
3 alarming.

4 Of course, the possibility of a disaster such  
5 as meltdown is with all of us, and not sure with the --  
6 I'll be stopping in a minute -- construction defects  
7 whether this might not be a greater possibility in the  
8 plant that we have here, even greater than Three Mile  
9 Island, I understand that came rather close.

10 The possibility of sabotage with the poor  
11 security in the plant would be another concern.

12 What I think the major concern is, is that  
13 we are building a plant that will only be good for 30  
14 years, but the effects of the plant will be lasting for  
15 hundreds of thousands of years. The effect of radioactive  
16 material may be felt for hundreds of thousands of years,  
17 and the plant, itself, because of induced radiation would  
18 not be approachable for one and one-half million years.

19 So I think what you are deciding, the job  
20 that you have -- we have had jobs as physicians in making  
21 decisions, but I don't envy you, the types of decisions  
22 that you are making, because these may affect the human  
23 race for eons.

24 Thank you.

25 ///

6-1

JUDGE BECHHOEFER: Jason Osmond.

## STATEMENT

BY

JASON DONOVAN

MR. DONOVAN: My name is Jason Donovan. I'm a junior at Clark High School. I'm concerned with the problems of nuclear power; namely, the medical implications, such as birth defects, cancers, sterility, congenital defects.

I have recently been increasingly concerned with these potential dangers -- or realistic dangers; and I have taken it upon myself to make those around me -- my peers and people with whom I associate -- aware also of the possible and potential dangers of nuclear power.

I've seen Helen Caldicott, M.D.'s tape concerning this issue -- the medical implications of nuclear energy; and I've shown it to several classes -- history ... world history classes at school and have collected a number of responses.

I would like to quote from 11 students: Tracy, Pam, David, Carol, Sarah, Juska, Laura, Joe, Melinda, John, Ann, Robin, Laura and Joel. These are the students to whom I showed the film.

Many of them responded to the effect -- I



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1 quote: "Radioactive waste in atomic warfare could kill  
2 every organism on earth."

3 A lot of them found this to be very shocking.  
4 And I found it unusual -- not unusual ... that this  
5 should occur because I myself was shocked to hear this  
6 originally.

7 Another response, when they -- upon hearing  
8 of the dangers was that the students became aware that  
9 it could cause genetic disease and cancer. A lot of  
10 them weren't aware of this, and this was new to them.

11 And many of them felt it was hard to face  
12 the truth, and the implications are staggering. And  
13 the general consensus was unless a safer way can be  
14 found, we should stop production.

15 Some decided that something should be  
16 done before the government lets us all die. That was  
17 one response.

18 Another was that we should inform people;  
19 we should slow down and think. We should strive to  
20 make it safer.

21 These are all direct quotes.

22 I think that these responses are rather  
23 typical among people of my age and all kinds of students  
24 and not only my age, but a lot of people who aren't  
25 aware of what's going on.



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And I think it's important not only to slow down production and stop and think. I think that really says that we should just stop and think about what's going on and inform people.

I hope that this can be taken into account before further action is taken.

And to the Board of the Nuclear Regulatory Commission, I think this is especially important.

Thank you.

JUDGE BECHHOEFER: Jeana Hamilton.

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## STATEMENT

BY

JEANA HAMILTON

MS. HAMILTON: My name is Jeana Hamilton, and I'm from San Antonio.

One of the major concerns about nuclear power is the disposal of radioactive waste. No safe and permanent method of managing the waste has been developed.

Methods of disposal being considered presently include burial in salt caverns, sub-seabed disposal and even firing off the waste in rockets to the sun.

Any of these methods would be costly. The proposal that any of these disposal methods would be permanently safe is creating a new science fiction. I would like to focus now on findings concerning seabed disposal of waste.

Nearly 50,000 barrels of radioactive waste currently lie off the Ferraland Islands, 23 miles from San Francisco's Golden Gate.

Fifty-five gallon drums crushed by a tremendous pressure at 3000 feet are leaking waste into the ocean environment. Divers of the Project TEKTITE, a non-profit marine specialist group, found other barrels rusting

1 away in only 155 feet of water. No one knows what  
2 effect the waste is having on fish and plant life in  
3 such areas, but there is strong evidence to show that  
4 radionuclides are beginning to find their way into our  
5 food chain.

6 All marine life is directly or indirectly  
7 linked to the ocean floor. Carcasses and fecal matter  
8 seep to the bottom to be fed upon by animals and  
9 bacteria that are in turn eaten by bottom-feeding fish  
10 and zooplankton, which would then link the food chain  
11 members at higher ocean levels.

12 Strong currents can carry members to higher  
13 ocean levels and strong -- the radionuclides like  
14 Strontium-90, Cobalt-60, Cesium-137 can rise to higher  
15 levels, even to ocean surfaces where they can be  
16 absorbed by plankton, the major food source of all  
17 ocean life.

18 Radionuclides can then be incorporated  
19 into organic compounds in which they are more easily  
20 absorbed by living creatures.

21 When the radionuclides are consumed by  
22 higher life forms, they accumulate in specific organs  
23 or areas. For example, Strontium-90 mimics calcium and  
24 concentrates in the bone.

25 Because of the nature of the food chain,

1 the level of radioactivity can increase geometrically  
2 the higher up the chain one goes.

3 If one tuna eats 500 herring, a hundred of  
4 which have been absorbing 10 ions each of Cesium-137,  
5 the tuna will ingest 1000 ions of Cesium-137. Consider  
6 what will result when we eat such tuna.

7 Jackson Davis, an environmental studies  
8 professor at the University of California, predicts  
9 that with the likelihood that an undamaged barrel will  
10 leak radioactive waste in 40 years and a damaged one  
11 will leak in 20 years, a peak release from the waste  
12 dumped presently in the Pacific seabeds won't occur  
13 until the 1980's and 1990's.

14 To turn to other methods of disposal: The  
15 Energy Research and Development Administration views  
16 burial in salt beds as the preferred method of disposal.  
17 The wastes would be put in a cavity and cooled by  
18 pumped water for several years.

19 Then the cavity's entry shaft would be  
20 plugged. The water would boil away, and in a few  
21 decades, the heat would seal the waste by fusing sur-  
22 rounding rock while the heat keeps water away.

23 It would also melt the burial canisters  
24 so that if anything went wrong, retrieval of the waste  
25 would be difficult or impossible.

1 Battelle researchers have predicted that  
2 geological storage will not be available for 15 to 35  
3 years.

4 All the waste disposal schemes depend on  
5 the earth's cooperation. The earth's crust must not  
6 fold, thrust, quake, lift or break in any area contain-  
7 ing long-lived radioactive wastes.

8 The oceans must abide in their present beds  
9 and large scale climatic aberrations must not be allowed  
10 to occur.

11 Scientists have proposed that burying  
12 wastes in polar ice caps would dissipate the heat and  
13 allegedly keep the waste isolated. What if the materials  
14 melted the ice more quickly than expected, and it  
15 found its way into the oceanic food chain? What if the  
16 polar caps melted from climatic changes?

17 Do we have the right to dissolve our poisons  
18 into oceans or leave them buried in ice, or in the  
19 ground where they might blight the environment for  
20 future generations and disspoil the earth for thousands  
21 of years?

22 JUDGE BECHHOEFER: Thank you.

23 Phil -- it's either H-a-v-e-s, or maybe it  
24 should be "Hayes." I'm not sure.

25 (No response.)



JUDGE BECHHOEFER: Fred Loxsom.

STATEMENT

BY

FRED LOXSOM

MR. LOXSOM: I'd like to make a very simple point. With any energy supply, there are problems. There are trade-offs.

With coal, with gas and oil .... there are problems with pollutants, with energy and economic impacts on society.

With solar energy, although it's a clean fuel, it has problems with reliability and certainly some social impacts. So there are always trade-offs.

We decide to use a particular energy supply because we look at the positive and the negative aspects and say, "This is a good deal; it's a good bargain we have to make."

No energy supply we can think of is going to be a complete winner. Nuclear energy has some very strong aspects.

It has been the promised energy to come since I was a child. It was going to be the energy supply that was going to make the future better for all of us.

1                   And, certainly, it has some potential for  
2 that.

3                   But when we look at the trade-offs with  
4 nuclear energy, it's a different kind of trade-off.  
5 If there's a problem with a solar plant not delivering  
6 what it should have, there will be some impacts -- some  
7 economic loss ... a very real economic loss perhaps,  
8 or some inconvenience.

9                   If we have trouble getting coal and we have  
10 to pay higher prices for coal, it's a disadvantage.  
11 It's something that's difficult for us. But if we have  
12 a real problem with a nuclear plant, if we release  
13 radioactivity into the environment, if we don't have  
14 a proper place to dispose of nuclear wastes, these are  
15 very serious problems which have a very long impact.  
16 So we're looking at something that's qualitatively  
17 very different.

18                   So when we make trade-offs, we need to look  
19 at this. And so what I think this boils down to, if  
20 you're going to look at somebody who is going to install  
21 a solar hot water heater on your house, it's important  
22 that he doesn't do something that's going to catch your  
23 house on fire.

24                   And it's important if someone is going to  
25 operate a nuclear plant in your neighborhood, or in your

1 state, one has to look at him even more carefully.  
2 There has to be ... oh, a very careful inspection that  
3 this person has integrity, has a good record, is cer-  
4 tainly the person or the group of people we want to  
5 be operating a nuclear plant.

6 It's a much bigger decision. It's a much  
7 graver decision. So when we make trade-offs, we have  
8 to always think of not only the good aspects -- and there  
9 are certainly for any energy supply, good aspects -- but  
10 also the negative aspects.

11 And we have to make our balance very care-  
12 fully. And in the case of nuclear power, the people who  
13 are going to run the plant and the ways in which it's  
14 going to be run have to be looked at very carefully.  
15 We have to be absolutely sure.

16 Any mistake we make here will have a much  
17 longer term ... might have a much longer term effect  
18 on all of us.

19 That's really my point. I'm not necessarily  
20 against nuclear energy. I've looked at it carefully.  
21 I'm not necessarily unanimously in favor of all other  
22 forms of energy.

23 I'm not necessarily saying that solar will  
24 solve all our problems. There has to be a mix.

25 But when we look into this mix, we have to

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look very carefully at the price, and the price for nuclear could be very, very high.

JUDGE BECHHOEFER: Could you give your name to the reporter, please?

MR. LOXSOM: My name is Fred Loxsom, L-o-x-s-o-m.

Thank you.

JUDGE BECHHOEFER: John Van Coppenolle.

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STATEMENT  
OF  
JOHN VAN COPPENOLLE

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3 MR. VAN COPPENOLLE: My name is Joh Van  
4 Coppenolle, and I'm a resident of San Antonio.

5 My immediate inclination when I first learned  
6 there would be an opportunity for citizens to speak at  
7 this hearing was to not make a statement.

8 I believed, as I believe now, that the Nuclear  
9 Regulatory Commission, including its panel known as the  
10 Atomic Safety & Licensing Board, has heard it all before  
11 and has never listened. So why should they listen now?

12 I later decided that I would speak after all  
13 and that that very issue would be the basis for my  
14 statement.

15 The Nuclear Regulatory Commission, and its  
16 predecessor, the Atomic Energy Commission, have heard  
17 over and over through the years many of the same argu-  
18 ments against nuclear power: It is unsafe, it is un-  
19 economical.

20 You have also heard more specific arguments:  
21 This plant is being built over an earthquake fault line.  
22 That one is full of holes. Still another has been built  
23 too close to a large population center.

24 You've heard testimony from expert witnesses,  
25 some of whom have even broken away from your own ranks.



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1           You have heard simple, ordinary Americans  
2 speak, trembling as they expressed their fear of what  
3 nuclear power will do to them and to their country, yet  
4 you have collectively remained unmoved.

5           You are as so much stone, hardened to the  
6 point where you no longer care what people think or what  
7 the facts are.

8           You sit in your high seats in judgment, yet  
9 you are not capable of totally judging. You hear only  
10 what is in your own self-interest to hear.

11           For years you've been worrying that nuclear  
12 plants would have serious accidents, that they would be  
13 costly, that they were the wrong way out of our energy  
14 dilemma.

15           Most of the warnings have been verified by  
16 reality. I do not need to recount to you the long history  
17 of nuclear plant accidents that have occurred during the  
18 30 years or so of the Atoms For Peace program.

19           You probably know of some that we the public  
20 have never been apprised of.

21           You know as well as I do that many of these  
22 accidents, not just Three Mile Island, have come so  
23 dangerously close to irreparable consequences, I do not  
24 even want to think about it.

25           Yet you go along your merry way, continuing

27-3

1 to license these plants as if nothing were at stake.

2 You licensed Three Mile Island though you were  
3 warned about it even ten years before it began operating.

4 You were warned by members of your own Staff.

5 In the same unfeeling, criminal way, you are  
6 very likely planning to license the South Texas Nuclear  
7 Project.

8 Nothing I say here, nothing anyone says at  
9 this meeting, will change that.

10 But my reason for making this statement goes  
11 beyond you. I decided to add these few sheets of paper  
12 to the enormous record already amassed against nuclear  
13 power so that the record will some day be absolutely clear  
14 that there were some who knew what could happen and who  
15 opposed it.

16 I want that record to some day indict you.  
17 You will not be able to say you were not warned or that  
18 there was no opposition to your recklessness.

19 And if there is a time when our species no  
20 longer walks this planet, if we are replaced by radiation-  
21 resistant mutants with some intelligence, I hope that they  
22 will dig among the rubble and come across some scraps of  
23 paper, paper that will tell them that some of us cared,  
24 but not all of us sent our species to its end.

25 Thank you.

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(Applause.)

JUDGE BECHHOEFER: Please refrain from  
applause. That's not appropriate for a Federal Court-  
house or for a hearing of this sort.

Terry rns.

- - -

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## STATEMENT

OF

TERRY BURNS

DR. BURNS: My name is Terry Burns,  
B-u-r-n-s.

I'm a physician. I live here in San  
Antonio. I work at the VA Hospital.

I would like to state my opposition to the  
South Texas Nuclear Plant.

My opposition is based both on -- for  
medical reasons and the risks that have already been  
stated here, as well as the entire series of incidents  
particular to this plant that have been recorded in the  
newspapers over the last several years -- incidents  
of faulty construction, cracks in containment walls,  
intimidation and harassment of inspectors and the  
largest fine ever accorded to a managing utility.

As a result, I can only doubt the safety  
and integrity of this plant because of all this series  
of problems that have been recorded with its con-  
struction.

I don't feel that it has been managed  
well. And in reference to an earlier statement a  
few minutes ago, I think that is an important question:  
the question of the integrity and the competence of

28-2

1 the individuals and organizations running such a plant.

2 I think the history that has been reported  
3 in the last several years involving the construction of  
4 this plant brings serious doubts to mind about the  
5 integrity and competence of those individuals and  
6 organizations involved in this project.

7 In addition, with regard to nuclear power  
8 in general, I think, as has been stated, it's very  
9 clear that many people over many years have pointed  
10 out very serious problems involved with nuclear power  
11 and the use of nuclear energy in general.

12 The problem of mining has not been men-  
13 tioned. I know as a physician that nuclear energy and  
14 nuclear mining has very serious medical risks to all  
15 individuals involved in the mining, the shipping, the  
16 handling, the burning and the disposal of nuclear  
17 energy.

18 As a result, I think those risks should be  
19 minimized. I think it's a choice that can be made.  
20 It's not a question that this is the only option avail-  
21 able to people in order to survive and maintain their  
22 current standard of living.

23 I think that's clearly not the case. There  
24 are other alternatives available, even the question of  
25 the economic reliability of nuclear power is very much

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1 in doubt, given the fact that this project, for instance,  
2 as an example, has had cost over-runs now ranging to  
3 three billion dollars -- I guess are the current esti-  
4 mates.

5 The original estimates were \$500 million.

6 As a result, it's clearly a question whether  
7 this is completely economic as well. And it's certainly  
8 not a safe energy alternative.

9 The risks involved in coal and fossil  
10 fuels are very serious medically as well, but they do not  
11 involve thousands of years and entire gene pools in the  
12 society.

13 When we talk about radiation exposure,  
14 we're talking about permanent risk to individuals that  
15 are exposed, that accumulate within their bodies through-  
16 out their lives.

17 There's no safe level. There's only a  
18 tolerable level, which is what we have to bear  
19 naturally. There's no reason to expose ourselves  
20 unnecessarily throughout the country to excess use of  
21 radiation.

22 Even in the medical community, the use of  
23 radioisotopes is declining, rather than increasing.

24 Thank you.

25 JUDGE BECHHOEFER: Before I continue the

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list, is there anyone here who has any pressing reason to be heard early?

There's at least one person with a child over there. Why don't you come and the other person who raised his hand follow? We'll take you somewhat out of order.

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## STATEMENT

BY

CINDY SANTOS

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4 MS. SANTOS: First of all, I'd like to thank  
5 you for letting me speak now so I can take him home.

6 JUDGE BECHHOEFER: Could you identify your-  
7 self for the reporter?

8 MS. SANTOS: My name is Cindy Santos. This  
9 is my son Nicholas, and we're from San Antonio.

10 Really, the only reason I'm here tonight  
11 is to speak to you as a mother. I know maybe a lot of  
12 you have children or grandchildren. And just to stop  
13 and think and look at them and make it a safe place  
14 for them to live and stop nuclear power.

15 That's the first and best way that I can  
16 think of.

17 Thank you.

18 JUDGE BECHHOEFER: Thank you.

19 The gentleman who raised his hand, he  
20 may ...

21 (No response.)

22 JUDGE BECHHOEFER: Loretta Van Coppenolle.

23 I might say, you said you were going to  
24 read another statement into the record. Why don't you  
25 do that at the same time?

## STATEMENT

OF

RITA BURNSIDE

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4 MS. VAN COPPENOLLE: My name is Loretta  
5 Van Coppenolle.

6 I would first like to read a statement to  
7 the Atomic Safety and Licensing Board by Rita Burnside,  
8 who was unable to be here this evening.

9 She writes: "My name is Rita Burnside  
10 and I am a resident of San Antonio. As I am unable to  
11 address you in person, I am writing what would otherwise  
12 have been my statement so that it can be included in  
13 the record for the proceedings on licensing of the South  
14 Texas Nuclear Project.

15 "During the current hearing you are ad-  
16 dressing the issue of Houston Lighting and Power's  
17 character and competence to build and run a nuclear  
18 plant. I think that one aspect of the competence issue  
19 is how Houston Lighting and Power has allowed con-  
20 struction costs for this plant to soar.

21 "The cost of the STNP, because of lack of  
22 planning, erroneous estimates of raw material prices,  
23 inflation, and gross negligence (which by some esti-  
24 mates accounts for 30% of cost overruns) is now four  
25 times what it was expected to be in 1973. Plant

1 partners admit to a current price tag of \$2.7 billion,  
2 which is about 20% higher than similar plants throughout  
3 the United States. Computations done a year ago, however,  
4 based on Rand Corporation projections covering equal  
5 costs of plants completed between 1972 and 1977 plus  
6 formulae provided by Charles Komanoff, showed the plant  
7 would wind up costing \$4.224 billion for construction  
8 alone. An update indicates it would now be more accurate  
9 to say \$4.5 billion. These calculations do not include  
10 an escalation for the modifications likely to be  
11 required as a result of the Three Mile Island accident  
12 or the cost overruns resulting from last year's NRC  
13 order to show cause directed at the STNP.

14 "In addition, a realistic assessment of  
15 the cost for decommissioning has not entered into the  
16 utility calculations. The cost of dismantlement is  
17 usually calculated as a percentage of capital con-  
18 struction costs. The average estimated decommissioning  
19 costs for six other reactors, all smaller than the  
20 STNP, was 11.1%. Since decommissioning costs can be  
21 expected to increase with the size of the plant (and  
22 as you know the STNP is one of the biggest being built  
23 in the world today) a more realistic estimate of  
24 percentage would be at least 20% - nearly \$1 billion.  
25 The estimate the project partners are using is around



1 1.1%, which is totally out of line with real costs.

2 "Houston Lighting and Power's allowing costs'  
3 to so get out of hand is a strong indication of its  
4 inability to manage the construction of the South  
5 Texas Project. This plant, if it is ever completed,  
6 could wind up being the most expensive one of its  
7 kind in the country. Surely this information must  
8 weigh with you in evaluating HL and P's capabilities.

9 "Yours sincerely, Rita Burnside."

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48-8  
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1 STATEMENT  
2 OF  
3 LORETTA VAN COPPENOLLE

4 MS. VAN COPPENOLLE: As I said earlier, I am  
5 Loretta Van Coppenolle, and my name is spelled the same  
6 way as that of my husband.

7 I am a member of Citizens Concerned About  
8 Nuclear Power. I am and have been an opponent of the  
9 South Texas Nuclear Project based on very real evidence  
10 against that plant.

11 I believe that Houston Lighting & Power has  
12 proven it is not capable of constructing this plant and  
13 that this leaves one with no reason to hope it will be  
14 capable of running this plant.

15 There should be no question that the STNP  
16 should be denied a license to operate based on information  
17 that has already been presented.

18 In a sense, continuation of these hearings  
19 should not even be necessary, as it would serve only as  
20 reinforcement of what is already known and already damning.

21 The odds are good that the plant will never  
22 give energy to the cities that have invested in it. If  
23 somehow it is licensed in what I would consider to be a  
24 travesty of these proceedings, then it will very likely  
25 suffer mishaps that will render it either inefficient or  
totally unusable.

1                   Therefore, we must think now about the  
2 alternatives to the STNP. It will be too late if we  
3 realize only in 1986 or 1990 that we should have planned  
4 ahead, we should not have relied on this lemon.

5                   I would like all of you here to consider  
6 two immediate alternatives to nuclear energy that no one  
7 ever seems to talk about.

8                   These are discussed by Dr. John W. Gofman,  
9 once the head of the Biomedical Division of the Lawrence  
10 Radiation Laboratory of the Atomic Energy Commission, the  
11 then Atomic Energy Commission, in an article, Nuclear  
12 Power: The Need for a Fog-Cutter."

13                   I quote as follows:

14                                 "It is truly insulting to  
15 the intelligence of the American public  
16 for nuclear advocates to state that we  
17 must starve and freeze in the dark if we  
18 reject nuclear power entirely.

19                                 "All authorities, even those  
20 in the Department of Energy, agree that  
21 45 percent of U. S. energy use is sheer  
22 waste. This has nothing to do with our  
23 values, for instance, with our allegedly  
24 'materialistic" life styles. The 45 per-  
25 cent waste is simply a measure of the

29-3

1 inefficiency with which we use energy  
2 to satisfy our values.

3 "No expert denies that the  
4 cheapest, largest source of energy  
5 available to us in the early future is  
6 energy efficiency. Efficiency alone  
7 would permit us almost to double our  
8 effective energy supply. This is not  
9 idle speculation.

10 "In several Western European  
11 countries, our standard of living is  
12 achieved with about half the per capita  
13 consumption of energy.

14 "Carefully researched studies  
15 by the American Institute of Architects  
16 in 1975 conclude that simply energy  
17 efficiency alterations in new building  
18 construction, plus some retro-fitting of  
19 existing buildings, could save enough  
20 energy to substitute for the energy which  
21 would be generated by some 430 giant  
22 1,000 megawatt nuclear plants. Today,  
23 the U. S. has the equivalent of 50 such  
24 plants operable -- sometimes.

25 "There is an additional, huge

1 source of energy which we are presently  
2 throwing away, an energy source which we  
3 once used until the electric utilities  
4 managed to destroy it in order to increase  
5 their own business. That source is called  
6 cogeneration of power.

7 "Innumerable industries  
8 generate vast quantities of steam for  
9 their industrial processes. If turbines  
10 were installed in many of those industries,  
11 they not only would generate their own  
12 electricity, but they could also feed  
13 large quantities of surplus power into  
14 the electric power grid.

15 "The ultimate result would  
16 be the production of power equivalent to  
17 some 200 giant 1,000 megawatt nuclear  
18 plants, according to the studies of  
19 Dr. Robert Williams at Princeton University.

20 "Both of these applications  
21 of energy efficiency, in our buildings  
22 and in cogeneration, would be more reliable  
23 than nuclear power, conserve scarce capital  
24 resources, increase the number of jobs  
25 created per capital dollar invested, and

1 raise our standard of living through  
2 reduced energy costs. Paying for energy  
3 which we throw away is just lowering our  
4 standard of living.

5 "It makes no economic sense  
6 at all to invest in expensive nuclear  
7 power plants just to attain the privilege  
8 of throwing their energy away. Elimination  
9 of nuclear power would be a boon to every  
10 important aspect of our economy, not a  
11 threat.

12 "With the equivalent of 630  
13 giant nuclear power plants available to us  
14 through energy efficiency, it is obvious  
15 there is no energy 'crisis' requiring  
16 nuclear power. The 'need' for nuclear  
17 power plants, which still supply only  
18 three and a half percent of the country's  
19 total energy, is a hoax."

20 End of quote.

21 Remember: It is not too late now to  
22 consider the alternatives.

23 Thank you.

24 JUDGE BECHHOEFER: Ed Joyce.

25 / / /



STATEMENT  
OF  
EDWARD JOYCE

1  
2  
3 MR. JOYCE: My name is Edward Joyce.

4 I'm here representing the Sierra Club. I'm  
5 a member of the Executive Committee of the Lone Star  
6 Chapter of the Sierra Club.

7 The Sierra Club has 740 members, locally,  
8 in the San Antonio area. Statewide, we have approxi-  
9 mately 7,000 members. Nationally, we have more than  
10 200,000 members.

11 It's one of the largest and strongest  
12 conservation organizations in the United States.

13 The Sierra Club policy regarding nuclear  
14 energy is simple. We oppose the licensing, construction  
15 and operation of nuclear power plants.

16 I will discuss some of the problems of nuclear  
17 power and then I will discuss alternatives which we have  
18 here in San Antonio which have not been addressed by our  
19 utility company, City Public Service.

20 The major problems we see are the costs of  
21 nuclear energy.

22 In 1973 our utility company officials told us  
23 that this plant would cost us less than \$1 billion --  
24 San Antonio's share.

25 Today that cost has escalated to approximately

29-7

1 \$3 billion. The end is not in sight.

2 Those are construction costs only. They do  
3 not include the cost of decommissioning the reactor in  
4 30 years.

5 Will our utility bills be increased to pay  
6 for bonds to decommission the reactor? Where is the end?

7 Gentlemen, if someone was building a home  
8 for you, the cost of which has increased 300 percent,  
9 they're not sure when it's going to be finished, they're  
10 not sure how much it's going to cost, wouldn't you think  
11 of other alternatives?

12 Every year nuclear power plants annually  
13 expel wastes; thorium, cesium, iodine, radioactive  
14 isotopes which there is no known way to safely contain,  
15 to shelter them from our environment.

16 Elements such as plutonium, with a half-life  
17 of 24,000 years, the annual discharge from a reactor stays  
18 active for a half a million years. In human terms, that's  
19 an infinite amount of time.

20 How can we safely handle these wastes?

21 Our government is only 200 years old. Ice ages  
22 occur every 10,000 years. There still is no way of  
23 safely handling these wastes.

24 The safety factor of nuclear power plants is  
25 also an area of concern for the Sierra Club. Three Mile

29-8

1 Island, which by some officials of Metropolitan Edison,  
2 was called a relatively minor accident, has incurred costs  
3 of approximately \$1 billion for the clean-up of the  
4 accident and subsequent loss of power.

5 That's one-third the cost of this plant.

6 If that accident occurs, will the citizens  
7 of San Antonio be expected to pay for those clean-up  
8 costs again in higher utility rates?

9 We feel the alternatives to nuclear power  
10 have not been explored.

11 The Harvard Business School estimated that  
12 in 1973 the United States could have got along with 40  
13 percent less energy just by simple use of conservation  
14 measures.

15 Here in San Antonio at Trinity University  
16 Dr. Gene Clark, a physicist, states that with 28 percent  
17 of \$3 billion we could easily retro-fit most homes and  
18 industries in San Antonio and save one-half to one-third  
19 of the present energy required to heat and cool those  
20 buildings.

21 Dr. Clark, by the way, is employed by the  
22 Department of Energy for several research projects.

23 The Tennessee Valley Authority is using a  
24 combination solar conservation program. They estimate  
25 by 1990 that program will be giving them the equivalent

1 output of four to six 1,000 megawatt nuclear power plants  
2 at one-sixth the cost.

3 We feel that our utility company ought to be  
4 looking at those alternatives also.

5 In Portland, a city much further north than  
6 San Antonio, much further away from the Equator, completely  
7 out of the Sun Belt, they find that using conservation,  
8 the Portland Power & Light Company using conservation,  
9 the cost of a kilowatt hour is less than two cents. The  
10 cost of a new plant is more than six cents.

11 Certainly San Antonio, being one of the largest  
12 cities closest to the Equator, can take advantage of these  
13 passive forms of energy.

14 With an annual temperature of 70 degrees, it  
15 seems ironic that we have to go to this extreme to  
16 generate power.

17 Despite City Public Service, the fact that  
18 they are using exotic forms of energy, we have in San  
19 Antonio many good examples of the use of solar energy.

20 The roads which you drove on today, probably  
21 in sweltering heat -- I don't think anyone here would  
22 disagree that San Antonio has an abundance of sunshine --  
23 are partially maintained by solar heated asphalt by the  
24 Texas Highway Department.

25 Sky Harbor Elementary School, a school in the

29-10

1 southwest part of San Antonio, houses 1,000 students,  
2 solar collectors on top of the school generate heat up  
3 to 300 degrees; 90 percent of the electricity and power --  
4 90 percent of the power used for air conditioning is  
5 generated by this solar system.

6 And finally, the Lone Star Brewery will soon  
7 be using solar-generated steam to generate the "National  
8 Beer of Texas." That includes Lone Star Regular and  
9 Lone Star Light.

10 The risks of nuclear power are too great,  
11 the problems too intractable, the cost too steep.

12 We feel that our utility company ought to  
13 be taking the initiative in conservation and in solar  
14 and also judicious use of our non-renewable resources,  
15 such as coal, natural gas and oil, until the time when we  
16 can have a clean renewable base of energy.

17 Thank you. and I'd like to submit a brochure  
18 for the record.

19 JUDGE BECHHOEFER: Give that to the reporter.

20 (The brochure submitted by the Sierra Club  
21 is here inserted in the original transcript only.)

22 - - -  
23  
24  
25



# 1 NUCLEAR & THE POWER SIERRA CLUB

During the 1950's and 1960's many environmentalists looked upon nuclear power as an ally. They believed that using nuclear energy to generate electricity would bring cleaner air, reduce strip-mining for coal and offshore drilling for oil, and end plans to dam more rivers for hydroelectric power. In 1974, however, the Sierra Club's Board of Directors voted to oppose construction of more nuclear power plants. They did so because of growing concern about the long-unsolved problems of safety, waste disposal, nuclear weapons proliferation and theft of nuclear materials. In 1979, after the major reactor accident in Pennsylvania, the Board went still further and called for the phasing out of all existing nuclear power plants.

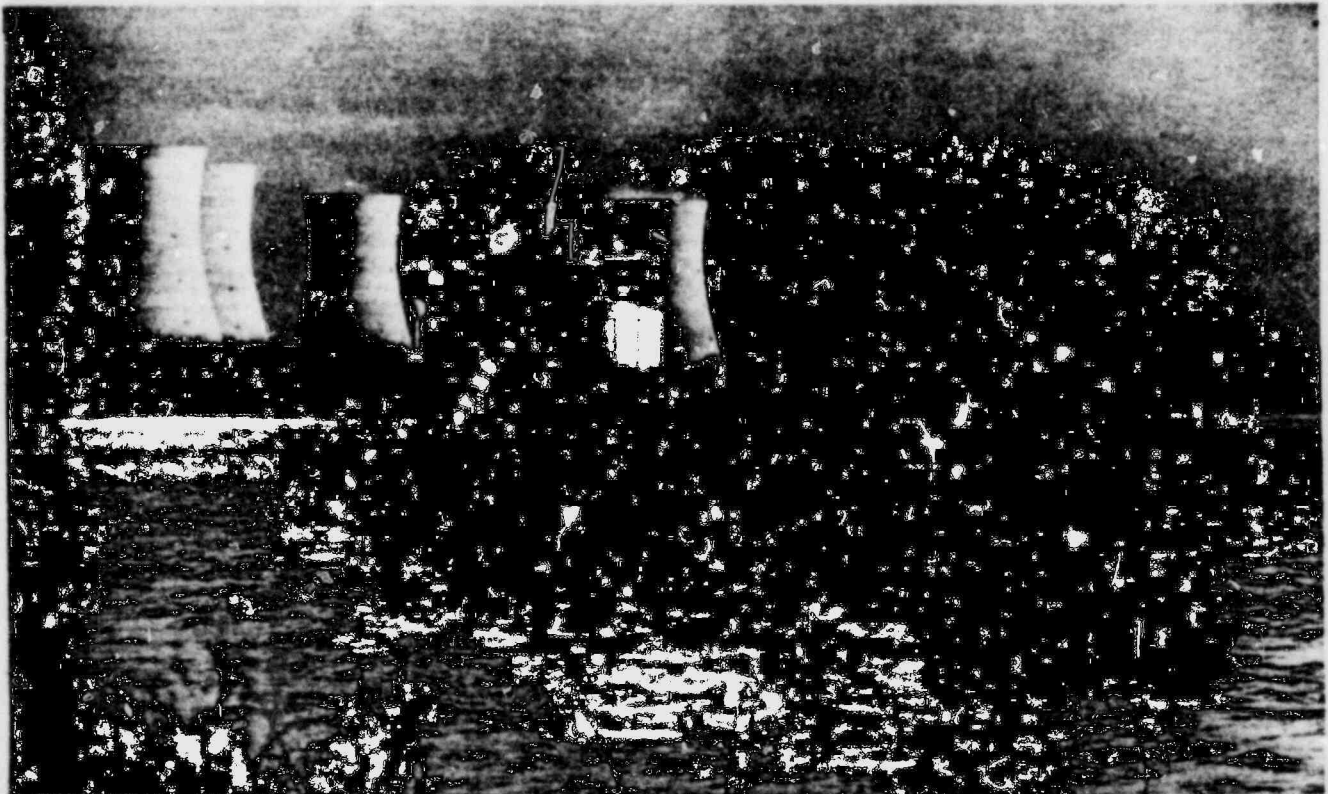
The Club's current policy is as follows:

- The events at the Three Mile Island Nuclear Plant reaffirm our concern about the lack of safety of nuclear plants and demonstrate that the possibility of human error dooms the nuclear fuel cycle to unacceptable risks.

- We oppose the licensing, construction, and operation of new nuclear fission plants.

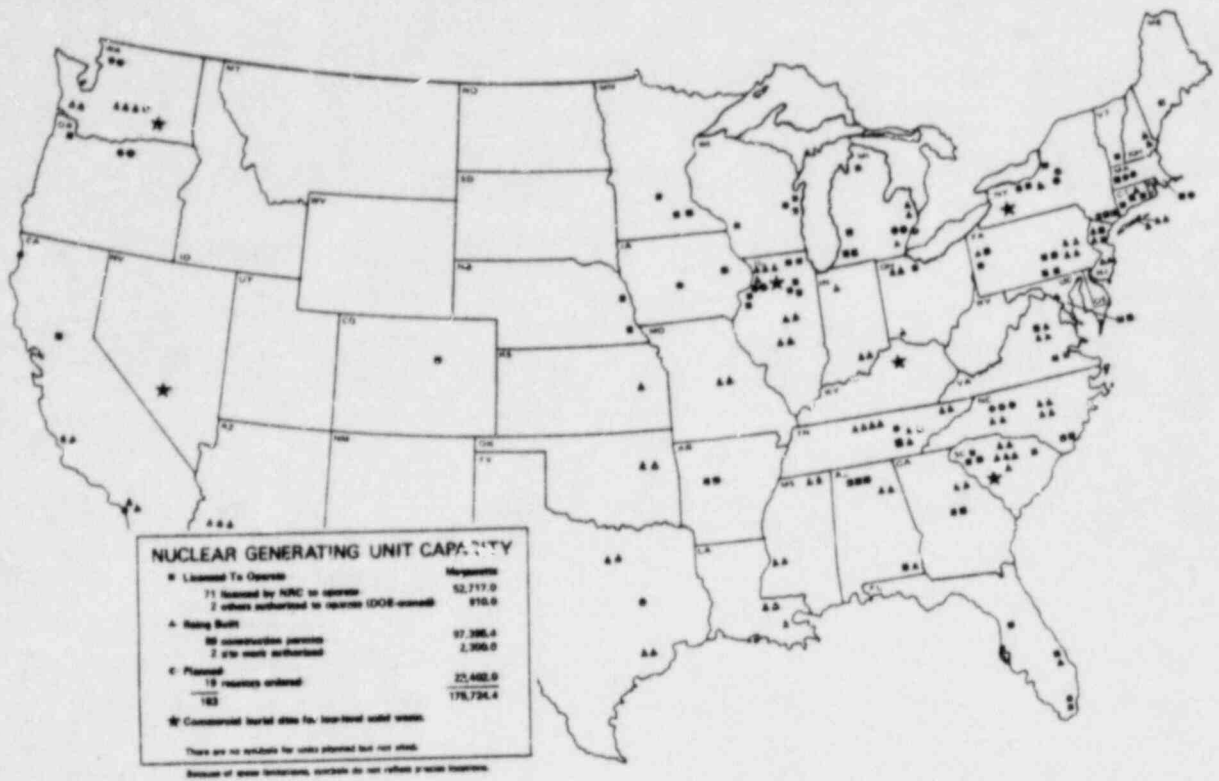
- We support the systematic reduction of society's dependence on nuclear fission as a source of electric power by a phased closure and decommissioning of operating commercial electric power reactors.

- Meanwhile, the power, temperature, and heat transfer rates in large plants should be reduced when necessary to increase plant safety margins.



Three Mile Island Nuclear Power Plant, Pennsylvania, scene of the 1979 reactor accident. (David Graybill)





## RADIATION

To understand the growing concern about nuclear power we need to appreciate the nature and dangers of radiation. Natural or background radiation comes from rocks and soil and from cosmic rays penetrating the earth's atmosphere. Natural radiation has always been with us and cannot be avoided. It is believed to be one of the causes of genetic mutation and variation. In general, the more radiation to which a living thing is exposed, the greater are the chances of mutations and such health problems as cancer.

Various human activities increase radiation exposure. These include air travel, mountain climbing, medical X-rays, and the use of nuclear energy. The first three hazards, however, affect the person who chooses to be exposed, and the added radiation ceases at lower altitudes, or when the X-ray machine is turned off. But the radioactive materials produced by the nuclear industry cannot be turned off, and they are entering the environment in ever increasing amounts.

The federal government has set 5 millirems per year as the permissible level of radiation exposure to the public from a nuclear plant. The actual dose is much less than this. For comparison, the average medical dose received by Americans is 90 millirems per year and the average background radiation is probably about 125 millirems per year.

Thus, under normal operation, nuclear reactors emit only small amounts of radioactive material. But in order to use uranium in reactors, it must first be mined, milled, refined, enriched, and fabricated into fuel elements. And after use, the spent fuel must be transported and stored. Under normal conditions, some radioactive material will

escape to the environment during every step. In the case of a power plant accident or release of spent fuel from its storage place, vast amounts of radioactive material could be discharged.

Accurate data on the consequences of exposure to this additional radiation are virtually impossible to acquire because effects may not appear for 20 years or more; then may not be easily tied to any particular incident.

Many organisms concentrate radioactive elements in amounts greater than those in their surroundings. Animals higher up in a food chain may accumulate radioactivity in increasingly greater concentrations. Being at the top of many food chains, humans will end up with the highest concentrations.

Radioactive isotopes then further concentrate at different places in the body: plutonium in bones, strontium-90 in bones and milk, iodine-131 in the thyroid gland.

In 1974, the U.S. Environmental Protection Agency concluded that:

The only totally risk-free level of radiation exposure is zero; a standard set at any other level must be justified on the basis that the activity producing the radiation exposure provides offsetting benefits.

It should be pointed out that the processes to generate electricity have adverse consequences to public health and welfare. Even coal-fired plants release some radioactivity. The Sierra Club believes the public should be aware of the health effects of all energy systems.

# REACTOR SAFETY

The Sierra Club is concerned about the safety of nuclear power reactors, especially the possibility of a catastrophic release of radioactive material. Mechanical and human failures, a major earthquake, or an act of war or sabotage might threaten thousands of people, cause billions of dollars of property damage, and contaminate large areas for many years.

As of 1980, virtually all the commercial nuclear power stations in the United States are light water reactors. At the heart, or core, of a light water reactor is a massive array of fuel elements, hollow metal rods containing enriched uranium oxide. The interaction of fissioning uranium atoms, circulating water, and moveable control rods allows the controlled release of energy. The water, in addition to its role in the fission process, is heated as it passes over the fuel elements. This hot, high-pressure water flow is used (as coal and oil are in conventional plants) to make steam that drives a turbine-generator to produce electricity.

A leaking valve, a ruptured pipe, a break in a weak weld, a control system failure, or a human error could, in the extreme case, cause the reactor to lose or boil away its cooling water quickly and overheat. This is known as a loss-of-coolant accident. Although the nuclear chain reaction would cease, the already fissioned material in the fuel elements would continue to release energy and heat the fuel elements to their melting point.

If the core melted, its great mass would slump toward the bottom of the steel pressure vessel that houses it. At this stage, existing reactor safety systems would be totally unable to cool it. Large, white-hot chunks could contact water, causing chemical and steam explosions. High pressure and flying pieces might rupture even the thick, reinforced concrete building that houses the reactor, releasing lethal fission products to the environment. (A power reactor builds up within it long-lived radioactivity roughly equal to a thousand times the fallout of Hiroshima.)

It is possible that the radioactive mass would melt not only through its steel pressure vessel but down through the concrete supporting structure into the ground below, a phenomenon known popularly as the "China syndrome."

To prevent a loss-of-coolant accident from becoming a core-melt accident, the federal government requires that all water-cooled nuclear power plants have an "emergency core cooling system." This system must flood the reactor core with new cooling water whenever the original cooling water is lost. It has to act quickly if core damage and meltdown are to be avoided.

Many nuclear experts have doubted, however, whether this safety system is adequate. Very high steam pressure, for example, might temporarily block the flow of water to the reactor core. It was not until 1979 that full-scale tests on the emergency core cooling system were begun, despite its being the major safeguard against disaster.

The consequences of a core-melt accident cannot be accurately predicted. The sequence of events causing the accident, the plant location, the weather conditions, and the rate of evacuation of the surrounding population all would affect the outcome. But several studies of hypothetical accidents show that deaths and serious illnesses numbering in the thousands plus property damage in the billions of dollars are possible.

The safety record of nuclear power reactors is said to be good, in the sense that no complete core melt-downs have ever occurred and no fatalities have been directly attributed to the release of radiation to the environment. Yet, the record of nuclear power technology is causing growing concern. Major equipment breakdowns and operator errors occur frequently and cause an average of ten major shutdowns of each reactor every year. The Nuclear Regulatory Commission files for 1978 show some 2835 "reportable occurrences," with the Crystal River 3 Plant in Florida having the nation's highest level of reportable problems.

The March 1979 accident at Pennsylvania's Three Mile Island Unit 2 Nuclear Station was the most severe commercial nuclear accident in U.S. history and demonstrated the complex interplay between design flaws and operator errors.

Workers were routinely cleaning a water demineralizer in the pipeline that carries condensed steam from the turbine to the boilers. Somehow, the workers triggered automatic valves that blocked the pipeline. A back-up water system for the boilers should have come on, but it had been disabled for a test two days before and not reconnected. So the boilers quickly boiled dry.

The reactor continued to run at full power, and now, without water in the boilers to remove heat, the temperature and pressure of the reactor coolant increased. Automatically, a pressure-relief valve opened and the control rods moved in to shut down the reactor. But as the coolant pressure dropped, the relief valve failed to close.

Reactor coolant streamed through the stuck valve -- a loss-of-coolant accident. Steam pockets began to form in the core. The emergency core cooling system came on automatically. But because the indirect method for gauging the water level in the core led the operators to believe the reactor was full, and because they were still unaware of the stuck relief valve, they turned off the emergency cooling system. The steam pockets grew larger.

When the operators finally discovered the disabled boiler back-up water system and reconnected it, cool water flooded the boiler, the temperature and pressure of the core coolant fell, and the steam pockets swelled. But the core still appeared full to the operators.

Two and a half hours after the valve had stuck it was finally discovered and closed. By

then, however, substantial portions of the core had been exposed. Fuel elements had heated, cracked, and released radioactive materials. The intensely radioactive material had passed with the water through the valve. High pressure in the holding tank collecting them caused it to burst, flooding the reactor building.

Equipment failure and human error transferred some of the "hot" water to a thin-walled auxiliary building, which also flooded, and radioactivity escaped from it to the environment. Hydrogen gas, produced when steam reacted chemically with the hot fuel element tubing, was released within the reactor building where it exploded.

More than a year after this dangerous accident, it was still not possible to enter the damaged reactor, so the basic clean-up had not yet begun. Cost estimates for the accident, subsequent clean-up, and loss of power run up to \$1 billion.

The inadequacy of the insurance arrangement for nuclear power gives further insight into the issue of nuclear safety. Because insurance companies do not insure utility companies against all the possible damages from a nuclear accident, the federal Price-Anderson Act was passed in 1957 to limit the liability to a maximum of \$560 million. A pool of private insurance companies cover only \$110 million of the total, however, and the U.S. government, using taxpayers' money, covers the remainder.

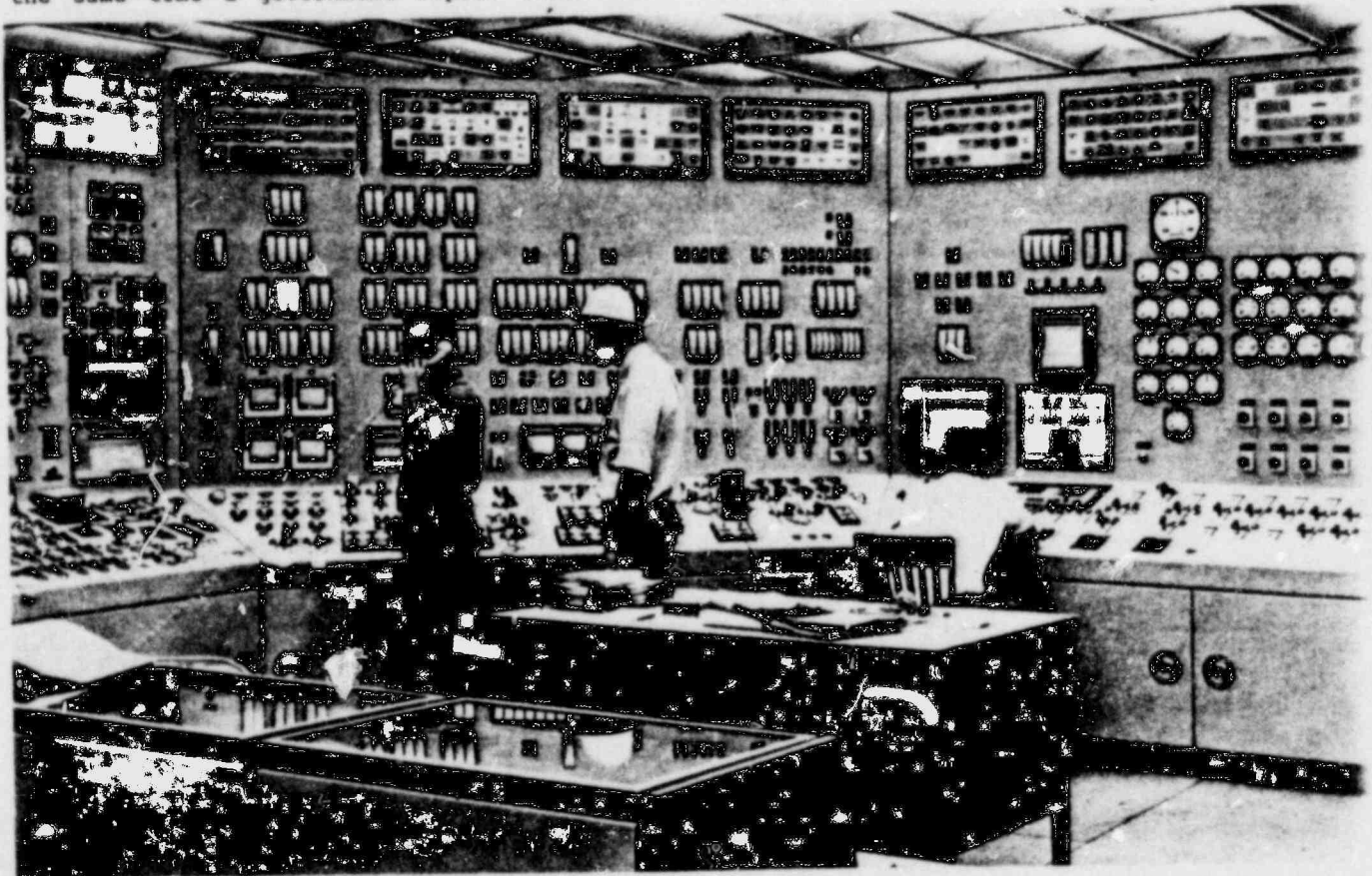
This \$560 million limit was established at the same time a government report (WASH-740)

stated that a nuclear accident could do \$7 billion in property damage, kill 3,400 people, and injure 43,000 more. The act was reapproved in 1965, even though a new government study had increased the "maximum credible" nuclear accident to \$17 billion in damages, 45,000 deaths, and 1,000,000 injuries. Congress again reapproved the act in 1974, just as the government's Rasmussen Report (WASH-1400) assured us that "about 90% of all core-melt accidents would be expected to have damages of less than \$1 billion."

Private insurance companies also will not insure individual citizens' homes, autos, or businesses against a nuclear accident, and include a nuclear exclusion clause in most policies. As a spokesman for the Union of Concerned Scientists told a federal hearing:

By placing a limit on the liability of nuclear power plant owners, the government is continuing to provide a subsidy without which the nuclear program would not continue. It is clear that if...the electric utilities had to bear the full financial risks resulting from operating reactors, they would not build them.

The Sierra Club believes that if nuclear power is safe enough for Americans to risk their lives and property, it certainly should be safe enough for utility and insurance companies to risk their assets.



Control room of the Ginna Nuclear Power Plant, Ontario, New York.



# NUCLEAR WASTES

The Sierra Club is also concerned about how the nation will cope with the dangerous radioactive wastes produced during the nuclear fuel cycle. In only 40 years of nuclear development we have accumulated over 9,480,000 cubic feet of high-level waste, 66.6 million cubic feet of buried low-level waste, 2,530 tons of spent fuel from commercial nuclear power plants, 140 million tons of uranium mill tailings, and nearly 1.5 tons of military wastes. However, we have yet to devise the means to dispose of these wastes in a way that ensures the well-being of the earth and its inhabitants.

The history of the management of these wastes is a national tragedy characterized by a series of accidents, leaks and spills. The situation demands serious attention to two basic questions: First, what changes must be made to handle wastes as safely as possible? And second, should we continue to generate these wastes in the absence of a demonstrated ability to manage them safely?

Nuclear waste is the broad term used to cover materials ranging from the radioactive work gloves from a hospital laboratory to the plutonium-contaminated fuel rods from a nuclear power plant reactor. Wastes are produced at every stage of the nuclear power cycle.

The problem of containing radiation begins at the uranium mine and at its adjacent mill where uranium-bearing rock is crushed and processed. Currently 16 uranium mills in the United States process 10 to 15 million tons of ore annually. Since a ton of ore typically yields only four pounds of uranium, a huge pile of radioactive tailings in powder form are produced at each mine. These tailings are uranium-free -- but not radiation-free.

Tailing dumps cover many acres of ground. Wind whips the dust high into the atmosphere and carries it for long distances. Not until fifteen years ago, when alert public health personnel discovered a higher incidence of cancer in people who lived in houses built with or on mill tailings, was their use in the construction industry and for road-building curtailed. Current disposal practices are inadequate and do not guarantee the long-term isolation required for public safety.

After milling, the natural uranium must be enriched in a process that produces radioactive wastes and atmospheric contamination. Still more waste is generated when the enriched uranium is made into fuel pellets and packed into fuel rods.

During the fissioning of the reactor fuel radioactive waste material is formed that must be carefully removed on a regular basis. This spent fuel is placed in nearby cooling pools to allow some of the radioactivity to decay and the fuel to cool. These pools are designed for short-term storage only.

Among the elements in this spent fuel is plutonium, one of the most toxic substances known. Less than one millionth of an ounce will cause lung cancer if inhaled, and a softball-sized lump is enough to make an atomic

bomb. The half-life (the time it takes for half of a sample of radioactive isotope to disintegrate) is more than 24,000 years. Given the rule of thumb that a toxic radioactive substance must be safely contained for at least 20 half-lives, plutonium must not be allowed to enter the environment for nearly 500,000 years. In human terms, 500,000 years is essentially forever.

At present, the fuel cycle ends with the removal of spent fuel. It is possible to extract plutonium and uranium from spent fuel rods and to reuse these materials in new fuel pellets. However, this reprocessing unavoidably releases radioactive gases and liquids outside the plant. The high-level waste produced in the extraction process is lethal and long-lived.

Primarily because plutonium extracted from spent fuel rods could be used to manufacture atomic explosives, the reprocessing of spent nuclear fuel from civilian nuclear power plants is banned at this time. With reprocessing no longer possible and permanent storage facilities non-existent, many spent fuel pools have reached or are approaching their capacities.

Finally, a major form of waste is the plant itself once its operating life has ended. Government regulators are just now beginning to investigate the disposal options. One proposal, called entombment, would involve encasing the entire structure in concrete.

In addition to these wastes produced in the power cycle of the commercial nuclear reactor, we must deal with the radioactive liquid wastes produced by the U.S. atomic weapons programs. This material is currently condensed and stored at federal facilities. Over the years, 550,000 gallons have leaked at the disposal site in Hanford, Washington.

Safe storage of high-level wastes on the earth's surface for half a million years is an absurdity. The federal government's unofficial policy has been the ultimate disposal of wastes underground in stable geological formations. However, it is very difficult to guarantee the long-term stability of any area near the earth's surface. We simply cannot predict what changes might take place with the accuracy needed.

Changes in climate and drainage patterns could cause a formation that was dry for millions of years to gain a large amount of groundwater. Wastes must not contact water which could corrode containers and disperse the contents. We know that major climatic changes can occur more than once in 500,000 years. The last ice age, for example, was only 10,000 years ago.

Until recently, salt formations have been considered likely prospects for underground disposal because their existence indicates a long-term absence of groundwater. Studies have shown, however, that salt is highly corrosive, and when heated can attract water, and can become plastic.

During the past twenty years, federal agencies have proposed construction of several test repositories for high-level and other radioactive wastes. Probably the most famous of these attempts was the ill-fated Lyons, Kansas, salt bed project of the 1960s which was abandoned when significant water leaks into the salt beds were found.

The administration and Congress are currently working to establish a nuclear waste

management policy and are addressing both the technical and institutional questions of siting procedure, safety standards and licensing. Ultimately, however, the question of "how safe is safe" for long-term storage is a value judgment that must be made by a broad segment of society.

The Sierra Club believes that it is irresponsible to generate more long-lived wastes before we know what we are going to do with those already produced.

## DIVERSION OF NUCLEAR MATERIALS

The Sierra Club further opposes development of nuclear power because reactor materials could be stolen for acts of blackmail or sabotage. Plutonium and highly enriched uranium are not utilized in the commercial reactor program in 1980, but they are the fuels to be used in the next generation of reactors. Either fuel could be fashioned into a crude, but deadly, bomb by terrorists. Present regulations and safeguards are not sufficient to prevent this frightening possibility.

A 1974 analysis of this problem, Nuclear Theft: Risks and Safeguards, by Woolrich and Taylor, concluded that:

Under conceivable circumstances a few persons, possibly even one person, who possessed about ten kilograms of plutonium oxide and a substantial amount of chemical explosive, could,



Mixed uranium - plutonium oxide pellets used as fuel in the liquid metal fast breeder reactor. Each pellet has the energy value equivalent to 566 pounds of coal.

within several weeks, design and build a crude fission bomb...one that would have an excellent chance of exploding, and would probably explode with the power of at least a hundred tons of chemical high explosives. This could be done using materials and equipment purchased at a hardware store and from commercial suppliers of scientific equipment for student laboratories.

According to a federal report on nuclear safeguards released in April, 1974:

Acquisition of special nuclear materials remains the only substantial problem facing groups which desire to have such weapons. The potential harm to the public from the explosion of an illicitly-made nuclear weapon is greater than that from any plausible power plant accident.

This report also stated that, even at the time, because of uncertainties in accounting methods, enough plutonium for a bomb might have been stolen.

The ability of subversive or criminal groups to manufacture atomic bombs is not the only danger, however. Theoretically, only one percent of the long-lived nuclear waste produced annually in a single large nuclear plant, if dispersed, could require evacuation of 500 square miles. Because of plutonium's high toxicity, a threat simply to disperse plutonium-rich dust in the air in any large city could cause the evacuation of hundreds of thousands of people. An extremist or criminal group or even one irrational person making such a threat might be impossible to challenge.

There is general agreement that current shipments of nuclear material could not withstand a determined terrorist attack. The 1974 federal safeguards study found security precautions "entirely inadequate." A national police force, specially trained for safeguarding nuclear materials, has been proposed. But judging by the effectiveness of our social institutions in general, we cannot expect any safeguards to be perfect. If there is anything less than 100% certainty that plutonium will never fall into the hands of those bent on terrorism, the public must be aware of what the risk is, and what the consequences might be.



As more reactors are built, shipments of nuclear materials will dramatically increase, raising the chances of theft. If reprocessing of nuclear wastes to separate plutonium for reuse as fuel becomes standard practice, we will be providing would-be terrorists with even greater opportunities.

The dangers are summed up in a chilling paragraph by Nobel Prize-winning physicist Hannes Alfvén:

Fission energy is safe only if a number of critical devices work as they should; if a number of people in key positions follow all their instructions, if there is no sabotage, no hijacking of the transports, if no reactor fuel processing plant is situated in a region of riots or guerrilla activity, and no revolutions or war -- even a "conventional" one -- take place in these regions. The enormous quantities of extremely dangerous materials must not get into the hands of ignorant people or desperadoes. No acts of God can be permitted.

The Sierra Club opposes the introduction or expanded use of any technology that increases the risk of diversion of fissionable or dangerously radioactive materials or that contributes to the proliferation of nuclear weapons.

It is essential that nuclear fuel reprocessing be banned throughout the world. The Sierra Club urges that U.S. nuclear export policies prevent other nations from using U.S.-supplied materials or technology to produce separated plutonium. Also, these policies should induce other nations to agree to international controls on nuclear activities, including a moratorium on reprocessing spent fuel.

The Sierra Club supports U.S. initiatives to limit exports of nuclear fuels, equipment, and technologies only to countries that have ratified the Nuclear Non-Proliferation Treaty and that agree:

- to prohibit reprocessing of irradiated fuel elements;
- to implement stringent surveillance, reporting, accounting, and physical security measures on nuclear materials and facilities;
- not to develop nuclear explosives;
- to store spent fuel only under strict international control;
- not to produce, stockpile, or export weapons-grade nuclear material;
- to impose sanctions against nations that fail to adhere to these principles; and
- to cooperate in establishing international procedures for recovering nuclear materials in the event of diversion, theft, or sabotage.

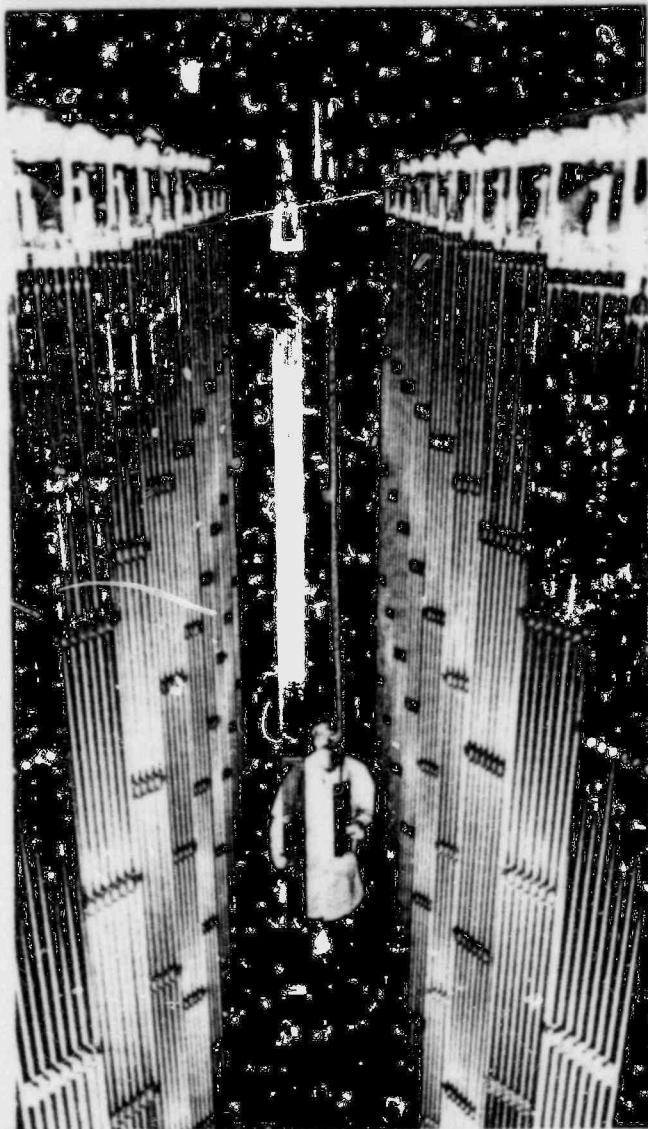
In addition to banning nuclear exports to countries that do not adhere to these principles, the U.S. should persuade nations to enter into such accords by assisting in the development of non-nuclear energy technologies. U.S. foreign aid, military assistance, and loan policies should conform to and complement these initiatives. The U.S. should aggressively seek the cooperation of other nations, particularly nuclear suppliers, in implementing them.

## BREEDER REACTOR—

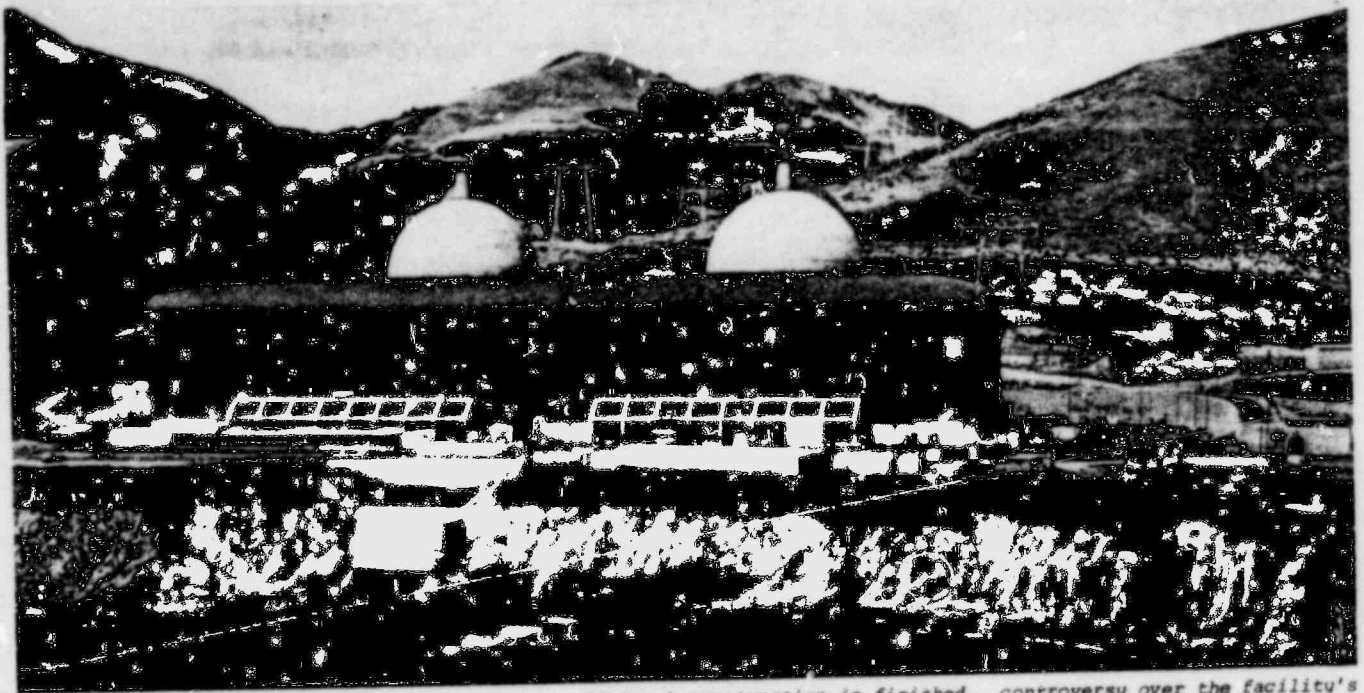
The Liquid Metal Fast Breeder Reactor, the proposed power plant of the future, has a significant advantage over conventional reactors in that it can make more nuclear fuel than it uses. These reactors could be fueled for many years on existing stockpiles of Uranium-238.

However, the breeder does not solve the basic problems of nuclear power -- safety, waste disposal, and diversion. Two of these problems, safety and diversion, would be even greater with the breeder reactor as now designed. More radioactive material would be in the reactor core, allowing less time for safety systems to work, and threatening greater hazards in the case of a core-melt accident. Fuel reprocessing would be extensive, with more potentially harmful material circulating about the country.

The Sierra Club feels that these additional hazards make the breeder unacceptable and that the program should be discontinued.



Nuclear fuel on storage racks in a "fuel bundle forest" awaits shipment to a nuclear power plant.



Diablo Canyon Nuclear Power Plant, California. Although construction is finished, controversy over the facility's ability to withstand a severe earthquake has delayed its licensing.

## NUCLEAR POWER & OUR ENERGY SUPPLY

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If the benefits of increased nuclear electricity were clear-cut, it would be easier to weigh them against its dangers. Instead, there is controversy as to whether nuclear power plants would ease or aggravate energy shortages.

The difficulty is in the timing of a power plant's construction and its energy production. A large investment of energy over five to eight years is required to build a power plant, and it takes two or three years to repay this energy debt. Then the equivalent energy production may be used in building two or three more nuclear plants for the next five to eight years, and so on. Thus a nuclear program may be a "net energy sink" for several years during nuclear plant proliferation. Only when expansion slowed would the new plants' large generating capacity pay off.

The exact timing of the net energy investment and production periods is open to question because of the unpredictability of nuclear power plants. If a power plant operates only 77% of the time and has been downrated to 89% of its original capacity, then it is producing only 68% of its designed capacity. (This is the present average for U.S. nuclear plants. The equivalent figure for fossil fuel plants is about the same.) From this we must subtract the energy needed to separate uranium from its ore and then enrich the concentration of U-235 in order to use it for fuel. New technologies may make enrichment more efficient, but as fuel becomes rarer, lower grade ores will be used that require more processing. We do not yet know the full energy

impacts of nuclear waste storage and decommissioning old nuclear plants once their usefulness has ended. Moreover, data released by the federal government has shown that U.S. nuclear plants reach their peak productivity after four years of operation, after which their output begins to decline. These variables have an important bearing on when a nuclear program begins yielding net energy.

Moreover, nuclear power is not cheap. Between 1971 and 1978, a five-fold expansion of the nuclear sector had produced almost a tripling of nuclear construction costs in constant dollars, as more stringent design requirements and standards were adopted in an effort to reduce the likelihood of accidents.

We must determine if an investment in nuclear capacity will be repaid by a reduction in our use of nonrenewable fossil fuels. The type of energy analysis is important in planning future power generation of any type. Like environmental, social, and safety analyses, however, it raises as many questions concerning nuclear power as it answers.

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Our conclusion, then, is that the risks of nuclear power are too great, the problems intractable, the costs too steep. Rigorous pursuit of energy conservation, renewable resource alternatives, and judicious use of nonrenewable energy resources, such as coal, will provide an adequate transition to energy conservation and renewable energy future.

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ADDRESSES OF AGENCIES AND ORGANIZATIONS MENTIONED IN BIBLIOGRAPHY OR ACTIVE ON NUCLEAR ENERGY ISSUES:

American Physical Society  
335 E. 45th Street  
New York, NY 10017

Environmental Policy Center  
317 Pennsylvania Avenue, SE  
Washington, D.C. 20003

Scientists' Institute  
for Public Information  
355 Lexington Avenue  
New York, NY 10017

Center for the Study of  
Responsive Law  
Box 19367  
Washington, D.C. 20036

Friends of the Earth  
124 Spear Street  
San Francisco, CA 94111

Sierra Club  
530 Bush Street  
San Francisco, CA 94108

Council on Economic Priorities  
84 Fifth Avenue  
New York, NY 10011

Komanoff Energy Associates  
475 Park Avenue, South  
New York, NY 10016

Sierra Club Radioactive  
Waste Campaign  
Box 64, Station C  
Buffalo, NY 14213

Critical Mass  
P.O. Box 1538  
Washington, D.C. 20013

Natural Resources Defense Council  
122 East 42nd Street  
New York, NY 10017

Union of Concerned Scientists  
1384 Massachusetts Avenue  
Cambridge, MA 02238

Environmental Action Foundation  
724 DuPont Circle Building  
Washington, D.C. 20036

Public Citizen  
P.O. Box 19404  
Washington, D.C. 20036

Worldwatch Institute  
1776 Massachusetts Ave., NW  
Washington, D.C. 20036

Government Agencies:

Department of Energy  
Washington, D.C. 20545

General Accounting Office  
P.O. Box 1020  
Washington, D.C. 20013

Nuclear Regulatory Commission  
Washington, D.C. 20555

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The Sierra Club is active on a broad array of energy issues, with renewable sources, conservation, and nuclear waste management among its priorities. For information on how you can get involved in the Club's environmental campaigns, write to the address below for "activist information".

Additional copies of this article are available at 25¢ each from:

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Occupational Hazards of Nuclear Fuel Reprocessing (10¢)  
The Wastepaper (periodical of Sierra Club Radioactive Waste Campaign; sample issue 20¢)

Material in this pamphlet was assembled through the efforts of the following Sierra Club volunteers and staff members: Eugene Coan, Sid Moglewer, Paul Schneider, Rich Sextro, Wade Tilleux, and Victoria Wake.

September 1980

STATEMENT  
of  
C.E. MURPHY

MR. MURPHY: My name is C. E. Murphy. I am here on behalf of the Bexar Chapter of the Texas Society of Professional Engineers.

Although I am here as Chairman of the Energy Committee of the Texar Chapter of the Texas Society of Professional Engineers, which has some 500 members, I feel that I voice the position of the National Society with some 80,000 members in some 535 chapters.

Last Friday I was in attendance at the State Convention of the Texas Society in Beaumont. One of the speakers was chairman of the national society's energy committee. His presentation contained the usual statistical information relative to foreign imports and ever-increasing cost of the various means of obtaining the energy we must have if we are to maintain a way of life, not to mention providing for the future or for our national security.

Throughout his presentation was the underlying thought expressed in a statement from the National Society of professional engineers energy policy, which I quote:

"It is the position of the National Society of Professional Engineers that all economically feasible

3 2 1 domestic energy options must be developed." Nuclear energy  
2 was included among those options.

3 Sometime the Bexar Chapter, which I represent,  
4 passed a resolution to be presented at another hearing  
5 pertaining to the South Texas Project. Among the usual  
6 words and other stilted language that characterizes most  
7 resolutions was a statement of Bexar Chapter stand  
8 relative to the project now being considered on operating  
9 license.

10 Included in the resolution was the following  
11 points: "The Engineers of the Bexar Chapter of TSPEC:

12 "One: Consider federal regulations to be  
13 more than adequate to assure a nuclear power plant,  
14 safety.

15 "Two: Consider that nuclear generating  
16 plants have demonstrated they have a minimum environmental  
17 impact and that, again, federal regulations are adequate  
18 to protect the environment.

19 "Three: Are convinced that the governmental  
20 agencies of specialists and engineers, and all disciplines,  
21 qualify to protect the public from adverse environmental  
22 conditions.

23 "Four: Realize that it is of utmost  
24 importance that we face the fact that the future of  
25 San Antonio and South Texas depends upon the assurance

1 3 1 now that area will have adequate supply of energy."

2 We as engineers are probably more aware than  
3 most people of the state of the art, and the limitations  
4 of some of the means of obtaining energy that are now  
5 getting a good press.

6 We do not decry these methods. Many of them  
7 will probably make sufficient energy contributions in the  
8 future.

9 Again as engineers we are painfully aware of  
10 the long lead time required between original planning and  
11 the completion of a major undertaking such as a power  
12 plant of any kind.

13 Also, we have not been convinced that the  
14 nuclear plant under consideration has been documented,  
15 or be documented as either unsafe or undesirable from an  
16 environmental standpoint.

17 It is our understanding that the Nuclear  
18 Regulatory Commission has made a statement to the effect  
19 that they have found no major deficiencies of any  
20 completed construction in the South Texas Project.

21 Reference was made to the current status of  
22 some of the possible or probable energy sources of the  
23 future. Closely following this was a reference to the  
24 long lead time for sizeable projects.

25 It is to be stressed that in no way would we



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1 be willing to accept an unsafe and environmentally  
2 contaminating situation in the interest of expediency.  
3 Although I may sound corny or square, whatever the current  
4 term may be, we are proud of the information printed on  
5 the back of our NSPE.-- That's the National Society of  
6 Professional Engineers membership cards. The Engineers'  
7 Creed states:

8 "As a professional engineer I dedicate my  
9 professional knowledge and skill to the advancement and  
10 betterment of human welfare."

11 Then in the pledge portion of the Creed, the  
12 Engineer pledges:

13 "To place service before profit. The honor  
14 and standing of the profession before personal advantage.  
15 And the public welfare above all other considerations."

16 Today many references are made to the bottom  
17 line. I suppose the bottom line of this presentation is  
18 that we as professional engineers, keeping in mind the  
19 portions of our Creed just quoted, are of the opinion  
20 that the issuance of the operating license with builtin  
21 operational safeguards is in the best interest of our  
22 city, state, and nation.

23 Thank you for the opportunity to present our  
24 views.

25 JUDGE BECHHOEFER: Louis Stumberg.



3 5  
1 A VOICE: Mr. Strumberg appeared this morning,  
2 sir.

3 JUDGE BECHHOEFER: Yes.

4 A VOICE: I understood this morning we would  
5 be taken in order. The hour is getting late, and I would  
6 like to make my presentation.

7 JUDGE BECHHOEFER: Why don't you come forward  
8 and make your presentation.

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STATEMENT  
of  
IRENE ABREGO

MS. ABREGO: My name is Irene Abrego. I'm a lifetime resident of San Antonio.

I don't have any degrees or credentials to present to you. I am member of the working class, and that is all the qualification I need to stand here tonight.

This morning I sat here and listened to members of the business community stand up and advocate the speedy expedition of licensing of the South Texas Nuclear Project in what sounded like a carefully orchestrated campaign.

They all used the same phrases and the same words. They all stated that they felt nuclear power to be the cheapest form of energy for San Antonio. Well, they don't really have a lot to worry about, since everytime CPS hands down a rate hike due to cost overruns at the STNP the business community passes along that extra cost to the consumer, and that's me.

To Village Square we must carry the facts about atomic energy. From them must come America's voice. Albert Einstein said that.

Nobody ever gave me the chance to say "no" to this project. CPS and the City Council plunged right

1 7 1 into the STNP without consulting the public. Barely  
2 without announcing their attentions of involvement, and  
3 now they expect me to pay for it. I may never even draw  
4 electricity from that plant, in light of the shoddy  
5 construction practices of Brown & Root.

6 However, the money thrown into this bottomless  
7 pit is not my main concern. Compared to the infringements  
8 of civil liberties by an overzealous utility, the health  
9 hazards, the inevitable disaster if this plant is allowed  
10 to operate. The finances mean nothing to me.

11 All those businessmen this morning couldn't  
12 emphasize enough how safe and clean nuclear energy is.  
13 I didn't hear any of them mention that they had found a  
14 safe and effective method for long-term storage of waste.

15 Very carefully they avoided addressing that  
16 point. Not one of them mentioned the continuous release  
17 of radioactivity into the environment by every operating  
18 nuclear plant in the world.

19 By licensing this plant you are in actuality  
20 condemning the people of Bay City and all of South Texas  
21 to an assuredly slow and painful death.

22 The decision is in your hands. Final decision.  
23 The final responsibility rests on your shoulders, and I  
24 will remember you three men.

25 David Lillianthall, the first Chairman of the

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Atomic Energy Commission had this to say:

"Once a bright hope shed by all of mankind, myself included, the rash proliferation of atomic power plants has become one of the ugliest clouds overhanging America."

Thank you.

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1 STATEMENT  
2 of  
3 BEVERLY DORROH

4 MS. DORROH: My name is Beverly Dorroh. I  
5 live here in San Antonio, approximately 150 miles from  
6 the Bay City plant.

7 I would like to make a note, first on the  
8 architect engineers and builders of the STNP, Brown & Root,  
9 Incorporated, and as to why they were chosen -- or not  
10 chosen by competitive bidding but through negotiations.

11 George Brown, senior partner of Brown & Root  
12 is on the Board of Directors of Houston Endowment, the  
13 large shareholder in the Project Manager Houston Lighting  
14 and Power.

15 This explains why Brown & Root got the STNP  
16 job without having to bid for it, despite the fact they  
17 have no experience in design, or construction of a nuclear  
18 plant. And while Houston Lighting and Power has been  
19 continually reluctant to enforce sound construction  
20 practices at the plant, such as several large voids or  
21 open spaces in concrete safety walls, numerous instances  
22 and improper welding, 2000 cadwelds that could not be  
23 documented as to placement or whether they ever had even  
24 been inspected. And a bulge in the steel liner of reactor  
25



30-1 1 containment Unit No. 2. This bulge measured 100 square  
2 feet and pouted out about five inches at its greatest  
3 point.

4 This liner was part of the shield of a nuclear  
5 reactor.

6 These are just a few of the foulups in  
7 construction by Brown & Root.

8 Conditions at the STNP continued without  
9 improvement until November 1979, four years after  
10 construction began, when the NRC sent several inspectors  
11 to Bay City to begin an extensive investigation of wrong-  
12 doing.

13 The investigation was to take four months  
14 and resulted in the largest fine ever levied by NRC  
15 against a nuclear plant under construction. The amount of  
16 the fine, \$100 thousand, was the maximum allowed by law,  
17 though the NRC found violations worthy of \$372 thousand.

18 When Brown & Root started construction with  
19 the STNP in 1975 it was under the assumption they had 60  
20 percent of the plans completed. It was later found they  
21 had only ten percent of the plans completed when they  
22 began construction.

23 This is a direct reason for Brown & Root  
24 being five year's behind schedule in completion of STNP.

25 Another reason for delay may be Brown & Root's

3 11 1 cost-plus contract with project managers or project  
2 partners, allowing Brown & Root to earn more money the  
3 longer it takes to complete the plant.

4 In closing I would like it to be noted that  
5 there was not enough public announcement of these hearings,  
6 and there has not been enough media coverage of Brown &  
7 Root's constant foulup, lack of professionalism, and  
8 concern in completion of this project.

9 I would also like to -- This goes back to  
10 our national defense. The bonding of the Iraqi Nuclear  
11 Reactor has very graphically illustrated the fact that  
12 our own government has been trying to cover up for many  
13 years, that nuclear reactors are a hazard to our national  
14 defense.

15 Fortunately, for Iraqi people the Isreal  
16 government had a good morality and compassion to blow up  
17 nuclear reactor because the fuel was hot and fissioning.

18 Otherwise, as Mr. Begin brought out in a  
19 television interview, many thousands of people would have  
20 died of radiation burns, and many thousands of others  
21 would have eventually died from radiation induced cancer,  
22 and leukemias, and other illnesses.

23 Here in the United States we have over 70 hot  
24 and fissioning nuclear reactors, over ten times the size  
25 of the small Iraqi reactor. A few well placed bombs inside

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1 the reactor of a conventional missile dropped on the  
2 reactor from a plane as Isreal's did would have the  
3 effect of turning each of our nuclear reactors into  
4 nuclear bombs one thousand times as devastating as the  
5 bombs dropped on Hioshima and Nagasaki.

6 No MX missile system, no polarized submarines,  
7 no nuclear aircraft carriers can defend our country against  
8 an attack on our nuclear reactors.

9 The only way we can improve our national  
10 defense is to stop nuclear power and switch to non-nuclear  
11 fuels, such as coal, solar and alcohol fuel.

12 Thank you.

13 JUDGE BECHHOEFER: Is there a Dottie Anderson,  
14 also from this morning's list?

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## STATEMENT

OF

HUGH THOMFORDE

MR. THOMFORDE: I'm Hugh Thomford,  
T-h-o-m-f-o-r-d-e. I'm a junior high school teacher  
at St. Leo's School in San Antonio and an editor  
of the Catholic Diocese Human Development Office.

I'm a little bit nervous tonight. This is  
my first time in speaking in this kind of setting, so  
bear with me, please.

First of all -- Oh, one other thing, yes.  
I have a Bachelor's degree in geology.

I first began to be interested in the issue  
of the South Texas Nuclear Plant when one of my students  
during time for news articles brought in an article  
this spring about ASSI stopping the collecting of  
nuclear wastes from the South Texas Medical Center here  
in San Antonio.

It turned out to be a sensationalist kind  
of story because they -- after a few months decided  
that they would have some solution for dealing with  
these nuclear wastes.

But as you've heard from other speakers  
earlier -- and as I know from experience in the field  
of geology -- we are dealing with waste materials that

1 need to be kept out of harm's way -- kept out of human  
2 contact for many thousands of years. And we as humans  
3 are fallible and we have power over those materials  
4 only as long as our lives continue. And we are passing  
5 then on wastes to many future generations.

6 And, therefore, I see this not only as an  
7 economic and political issue, but a moral one. And I  
8 have a political -- an historical precedent that I'd  
9 like to share with you on a similar type of issue.  
10 That's the issue of slavery, and I'll go back to the  
11 time before the Civil War when among the religious  
12 Society of Friends (of which I'm a member) were slave  
13 owners in the South of the United States.

14 They were rich landowners. And when the  
15 issue of slavery was under discussion, many people  
16 said, "Well, it's economically infeasible not to run  
17 our plantations without the labor intensive methods  
18 that we have with numerous slaves at our disposal.  
19 If we were to do without those slaves, we wouldn't be  
20 able to survive."

21 And this argument was countered by a man  
22 named John Willman in his famous diary -- his journals  
23 that you might be interested in reading, John Willman's  
24 diary.

25 He took on the calling that he felt personally



1-3

1 to visit with the rich Quakers and to try to convince  
2 them, which he in most cases did, that slavery was  
3 unconscionable for a member of the religious Society  
4 of Friends.

5 And so many, many Quakers then, even before  
6 the Civil War in the South, had freed their slaves.  
7 And what this meant for them was that they were no  
8 longer capable of competing against their neighbors in  
9 the same way that they had in the past, and many of them  
10 had to either move to the North or take on another  
11 life style.

12 Well, I don't expect everybody in the United  
13 States or in the world to live on the kind of salary that  
14 I do -- \$3000 a year, including all of the fringe  
15 benefits for working with the Catholic church.

16 But I do believe that there are many ways  
17 that we could simplify voluntarily our life style that  
18 would make energy cuts -- necessary energy cuts more  
19 minimal.

20 Mass transit is something that San Antonio  
21 could very well use. And with the amount of gas that  
22 I expend to drive in my own personal vehicle back and  
23 forth, I'm using energy that could be conserved.

24 We don't need electric can openers and such  
25 items either, I believe. I think that the quality of

1-4

1 life is not affected by certain savings in energy.

2 And I think instead of hurling ourselves  
3 down the highway in metal boxes, we -- and using air  
4 conditioning, which is very comfortable in this room,  
5 but not at all necessary, we could be making in our  
6 conscience a moral -- we could save our feelings of ...  
7 moral ambivalence ... we could come to terms with the  
8 moral issue.

9 I believe it is a moral and a religious  
10 issue. Are not we called by God in a mandate to con-  
11 tinue our race and to make this world better for future  
12 generations?

13 The quality of life is in question when we  
14 consider the lethal wastes that we are leaving for  
15 future generations.

16 That's some of the things you need to con-  
17 sider then when you make your licensing -- or if you  
18 license the South Texas Nuclear Plant.

19 There's one other comment that I forgot to  
20 mention somewhere along here. That is, that solar  
21 energy ought to be considered as a people's energy.

22 Nuclear energy, by necessity, is a kind of  
23 energy that must be run from a central plant. And it  
24 has to be regulated.

25 However, if we would be concerned more

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with the small technologies of solar and other types of energy, the energy then would not be -- as Reagan so often is against -- would not be in the hands of big organizations, but rather in the hands of the people.

Thank you.

JUDGE BECHHOEFER: Edward Conroy.

- - -

1-6

## STATEMENT

OF

EDWARD G. CONROY

1  
2  
3  
4 MR. CONROY: My name is Edward G. Conroy,  
5 C-o-n-r-o-y, Jr. I'm a native of San Antonio. I work  
6 at the Center for Economic Development, College of  
7 Business, University of Texas, San Antonio, as a  
8 research assistant.

9 The South Texas Nuclear Project has become  
10 more than likely perhaps the most colorful political  
11 issue of our particular region in this time of the  
12 year.

13 And it's easy enough to observe that the  
14 level of the controversy is taking place at various  
15 levels.

16 I wish to direct my comments not so much  
17 against nuclear power itself, but rather towards some  
18 kind of reflections about how we are dealing with this  
19 problem itself.

20 I am personally opposed to the South Texas  
21 Nuclear Project. But I think that there are certain  
22 assumptions that we are dealing with. And the way in  
23 which we think about this, and the way in which we have  
24 structured our institutions, politically, socially and  
25 economically, to deal with it, would present us with a

01-7

1 series of paradoxes ... irresolvable problems in the  
2 way in which we think about it.

3 Central to that, I believe, is the  
4 commonly held assumption, which has become, I feel,  
5 fabricated into the very structure of the Nuclear  
6 Regulatory Commission itself, that energy is a science --  
7 physical science problem essentially, and that people  
8 who are outside of the domain of physical science are  
9 concerned not so much with energy, but with the effects  
10 of energy, so that when studies are constructed of  
11 nuclear power, there is a tendency to focus entirely  
12 upon technical issues, and to focus so entirely upon  
13 the nuclear plants themselves that the entire economic  
14 nexus -- the matrix in which nuclear power operates  
15 tends to be ignored.

16 Here in San Antonio in the recent months  
17 there has begun to be a tremendous amount of debate  
18 over whether or not the South Texas Nuclear Project  
19 is economically beneficial to the city. There has  
20 arisen a tremendous amount of opposition from various  
21 citizens groups, particularly those representing the  
22 lower income spectrum.

23 At the same time there has been a  
24 renaissance of support from the business community.  
25 If one simply gleans news from television or from the

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1 popular press, it is easy to come to the unfortunate  
2 impression that people of lower incomes are afraid of  
3 economic progress, and that the business community is  
4 taking wise steps to assure that San Antonio will have  
5 a reasonable amount of energy for the future.

6 I submit that the debate in our community  
7 has become reduced, not so much to whether or not STNP  
8 is a safe, well-built plant, but whether or not it is  
9 economically beneficial to San Antonio.

10 Because of this, I submit that there is  
11 another dimension to what is going on here that is not  
12 being encompassed by the hearings of the Atomic Safety  
13 and Licensing Board, and that is not even being en-  
14 compassed in any way, shape or form intelligently by  
15 our domestic political process.

16 And this is something that I would like you  
17 gentlemen to think about.

18 The implications of your decision, whether  
19 or not to license the plant, will have profound  
20 ramifications for all of us. I work in the field of  
21 developing South Texas' economy through various  
22 means.

23 We know that the South Texas economy is not  
24 a healthy economy. The average per capita income in  
25 South Texas is \$2,666 per year.

01-9

1 I would also submit that the nuclear  
2 industry is not a particularly healthy subset of the  
3 economy either. The introduction of a major dependence  
4 upon a not particularly healthy subsection of the  
5 economy here is, I think, something of a very grave  
6 concern.

7 Anyone who takes a look at the information  
8 that has come out recently in the WALL STREET JOURNAL  
9 and various other economic reviews knows that there are  
10 two major public utilities in the United States:  
11 Washington Public Power and Supply and General Public  
12 Utilities, which are on the verge of bankruptcy, because  
13 of their heavy capital cost commitments to large nuclear  
14 power plants.

15 The irony and paradox of this situation is  
16 that these situations have arisen primarily because of  
17 well-intentioned efforts on the part of regulatory  
18 bodies to insure that safety would be of utmost and  
19 primary importance in the construction of nuclear  
20 power plants.

21 What is occurring though, however, is that  
22 our economic system seems to be displaying an inability  
23 to adjust to the demands which have been made for safety  
24 requirements on nuclear power plants.

25 This is resulting in a situation where those

1-10

1 utilities which have large commitments to nuclear  
2 power plants are experiencing downratings of their  
3 bonds and having to pay higher interest rates for those  
4 bonds ... up to even 17 percent in the case of Vermont  
5 Yankee just a few months ago.

6 Here in San Antonio, our last bond issue  
7 was at almost ten percent, at that time the maximum  
8 usury rate. This is a source of concern to all of us  
9 here because the political situation in San Antonio is  
10 one where we feel ourselves to be on the verge of a  
11 major surge in economic development.

12 And our political leaders have staked  
13 their careers on promising a new surge of prosperity  
14 to San Antonio, a surge of prosperity which we are  
15 all ready for, and certainly eager for and very much  
16 in need of.

17 The problem that confronts us is that with  
18 the continuing escalation of costs at the South Texas  
19 Nuclear Project and the extremely unrealistic manner  
20 in which, I feel, the business community has been  
21 ignoring the extraordinary increase in capital costs,  
22 we are faced with a situation where nobody is really  
23 communicating about it.

24 The utility continues to booster San Antonio  
25 as the best place in which to enjoy the benefits of

51-11

1 nuclear energy.

2 A large number of the citizens have grown  
3 extremely suspicious of it, and the political choice  
4 that awaits us, as the citizens of San Antonio, is to  
5 attempt to find some way to either continue our commit-  
6 ment or to find some way of limiting it so as to  
7 protect our own economic self-interest.

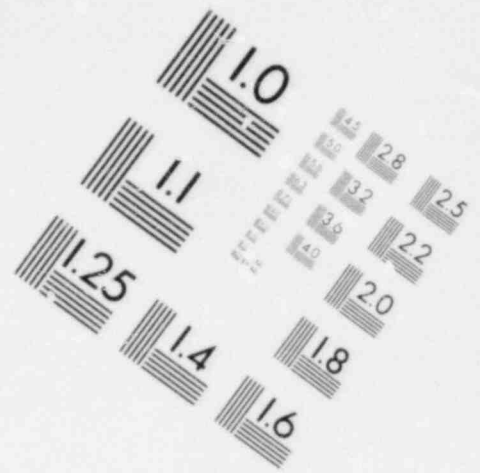
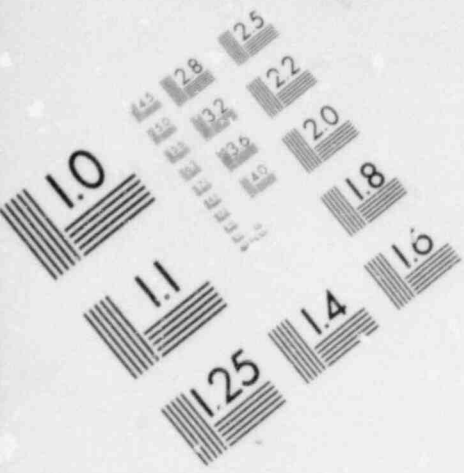
8 But the reality of the situation is that it  
9 would be extremely difficult to sell our share.

10 My point, in summation, is that we are  
11 dealing with a simple question here in this hearing as  
12 to whether or not Houston Lighting & Power displays  
13 the competency and character to safely operate a  
14 nuclear power plant.

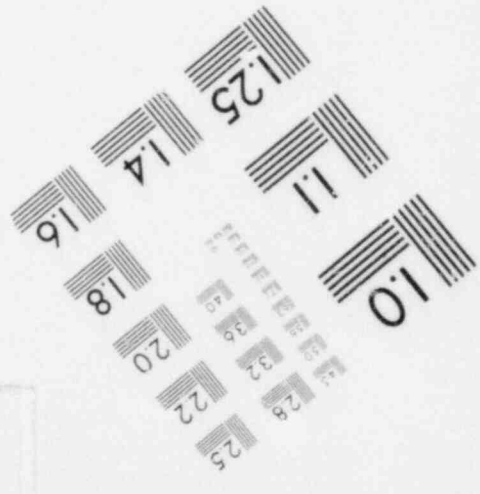
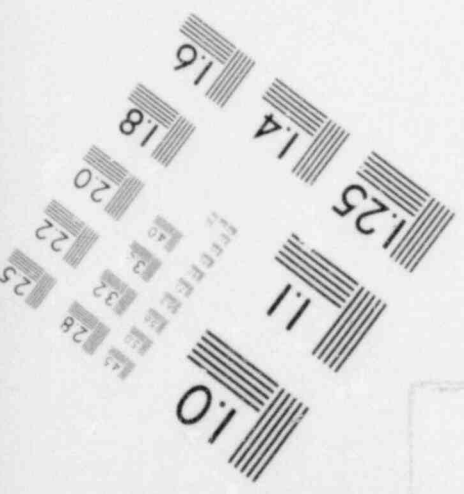
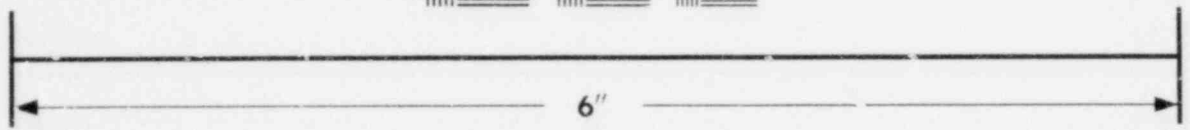
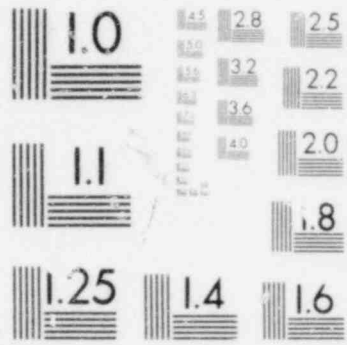
15 If that power plant goes on line, we will  
16 be receiving electricity from it, but it could very well  
17 be an extraordinarily powerful economic liability.

18 And I think that the business community in  
19 this town owes it to itself to take another look at  
20 what is actually going on.

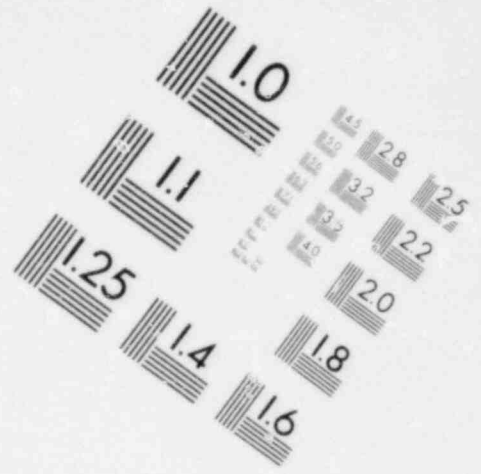
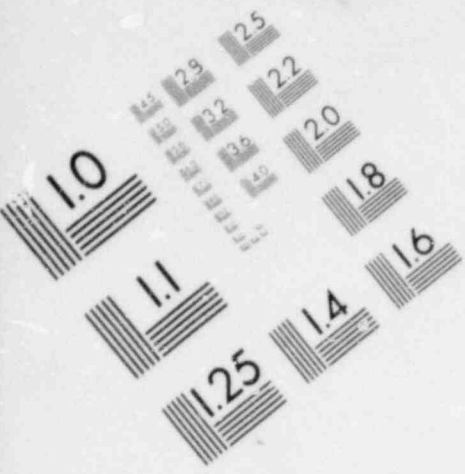
21 In that respect, one final comment: Although  
22 Charles Komanoff is identified as an anti-nuclear  
23 economist, he has produced by far the most intellectually  
24 valid and credible study of nuclear power yet to  
25 date.



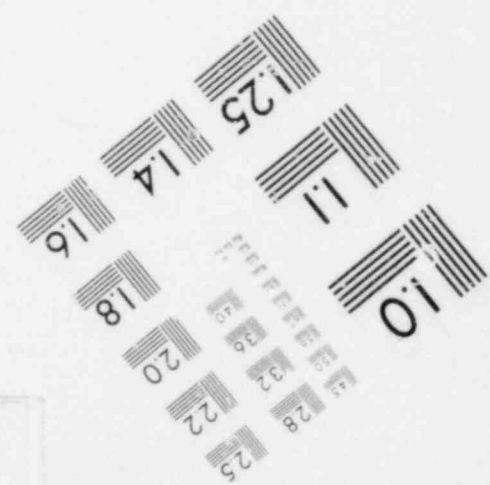
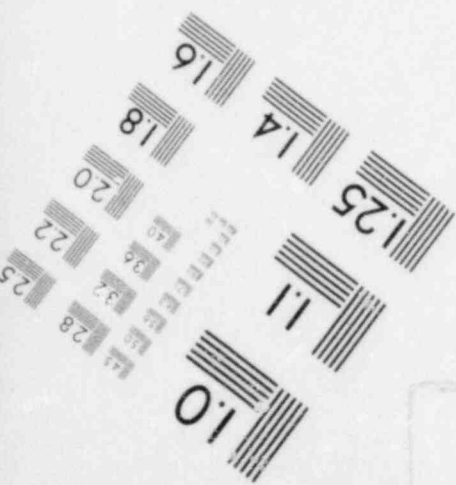
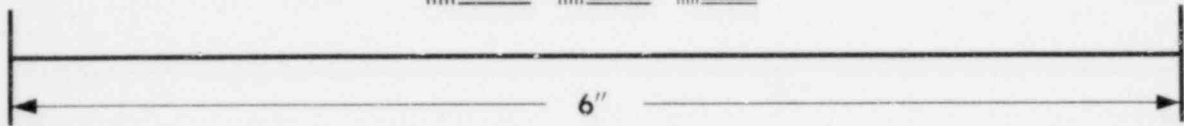
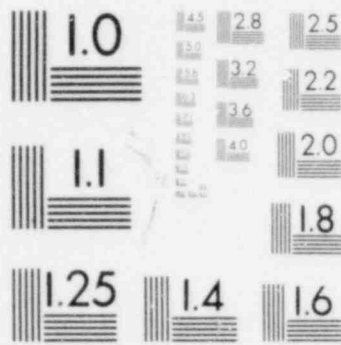
**IMAGE EVALUATION  
TEST TARGET (MT-3)**







**IMAGE EVALUATION  
TEST TARGET (MT-3)**



1 As he points out in his introduction, the  
2 Atomic Energy Forum's last two statements -- major  
3 reports, surveys -- statistical surveys of the compari-  
4 son of nuclear versus coal plants in the United States  
5 omitted 12 out of 14 nuclear reactors that were of the  
6 largest size.

7 And it also omitted simultaneously those  
8 coal plants in the United States which produced the  
9 most power.

10 This selective use of information on the  
11 part of the Atomic Energy Forum has produced an  
12 incredible data base from which to base their  
13 economic projections for the economic viability of  
14 nuclear energy.

15 Komanoff --

16 JUDGE BECHHOEFER: Mr. Conroy, are you  
17 about through, because you're way over your time?

18 MR. CONROY: Okay, thank you.

19 My last point is that Komanoff's point  
20 is that capital costs and increasing operating and  
21 maintenance costs for nuclear power will make it 20 to  
22 25 percent more expensive than coal.

23 Thank you.

24 JUDGE BECHHOEFER: Thank you.

25 ///

1-12

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1 JUDGE BECIHOEFER: Mr. Jimmy Elrod?

2  
3 STATEMENT

4 OF

5 JIMMY ELROD

6 My name is Jimmy Elrod. I am Director and Vice  
7 President of the North San Antonio Chamber of Commerce, and  
8 I have a very brief statement on their behalf.

9 The North San Antonio Chamber of Commerce represents  
10 1400 business and professional firms and has long been supportive  
11 of San Antonio's participation in the South Texas Project.

12 This last week, the Chamber's Board of Directors re-  
13 affirmed that support, and the principle reasons for this posi-  
14 tion are both economic and strategic.

15 The South Texas Project remains less expensive in  
16 the matter of electricity generation than other existing or  
17 proposed options; even the additional construction costs do not  
18 negate the economic advantages of nuclear-generated electrical  
19 power.

20 Strategically, our public service company will be  
21 able to generate more than one-third of its electrical power  
22 needs from the South Texas Project. This will allow for  
23 diversification in the case of disruption of other fuel supplies.  
24 The experience that San Antonians have already had with fuel  
25 shortages and the increasing cost of fuel delivery make this

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a very important consideration.

Therefore, the North San Antonio Chamber urges that the Atomic Safety and Licensing Board carefully examine the real evidence and then approve the licensing of this facility so that San Antonians may receive the benefits from our investment in the South Texas Project.

Thank you, very much.

JUDGE BECHHOEFER: Joseph von Wernich?

---

STATEMENT  
of  
JOSEPH VAN WERNICH

3 ins 1  
2  
3  
4 MR. VAN WERNICH: Good evening. I am Joseph  
5 Van Wernich. I am a citizen of the United States and a  
6 resident of San Antonio.

7 I would like to thank you for the opportunity  
8 to address this public hearing of the Nuclear Regulatory  
9 Commission.

10 On February 19, 1981, San Antonio was  
11 fortunate to have a distinguished visitor, Nobel laureate  
12 Dr. George Wald of Harvard University. A learned and  
13 thoughtful man, he is also an expert on many of the  
14 issues facing us today. One of these issues is nuclear  
15 power.

16 I would like to quote some of the things  
17 Dr. Wald said at the press conference before his speech  
18 at Trinity University. And I quote:

19 "The whole nuclear enterprise represents  
20 a wrong turn for humanity. Nuclear power is life-  
21 threatening in three independent ways:

22 "First: The danger of accidents. One didn't  
23 have to wait for Three Mile Island to know that nuclear  
24 power plants are dangerous. From the very beginning  
25 American insurance companies refused to insure nuclear



3 I-2 1 power plants and so starting in 1957 Congress passed  
2 the Price-Anderson Act.

3 "For ten years that put four-fifths of the  
4 liability in the event of nuclear power accidents on  
5 the taxpayers.

6 "The second life-threatening property of  
7 nuclear power is that ever nuclear power installation  
8 in the world produces plutonium 239 as a byproduct.  
9 That's an artificial element and it is at once probably  
10 the most toxic substance we know....

11 "As for its toxicity, breathing in one  
12 milligram -- that would be ever so much smaller than a  
13 pinpoint -- one would die perhaps within hours of  
14 massive fibrosis of the lungs.

15 "Breathing one-thousandth of that amount  
16 there is a good chance of eventual lung cancer. The  
17 third life-threatening property is the waste disposal  
18 problem.

19 "Nobody, no experts in the world, know what  
20 to do with the nuclear waste. Every year there is an  
21 international meeting of experts. All those meetings  
22 end the same way, in confusion. No one really knows how  
23 to dispose of those wastes safely.

24 "Plutonium has a half-life of 24,400 years.  
25 The whole of human civilization is maybe 10,000 years

32-I-3

1 old. After 24,000 years of storage half that plutonium  
2 is left. Our nation has just celebrated its 200th year  
3 of existence. Where is one to find the political or  
4 geological stability to keep those wastes out of sight  
5 and out of contact? There's no answer to that question.  
6 We have no answer as yet to what to do with the waste."

7 These are Dr. Wald's assessments of the  
8 dangers of nuclear power. But he has also done a study  
9 of the economics of nuclear power. This is what he  
10 found:

11 "The nuclear power business has proved to  
12 be an economic disaster. The Wall Street Journal has  
13 had a number of articles on that very problem. At the  
14 beginning one said for a while that nuclear power would  
15 be so cheap that one wouldn't have to meter the  
16 electricity.

17 "On the contrary, it is proving to be  
18 enormously expensive and some of the bills are not yet  
19 in. Such as the disposal of the wastes which is going  
20 to cost plenty. And such as the so-called decommissioning  
21 of nuclear plants that have died.

22 "The rated life of a nuclear plant, probably  
23 overly optimistic, is 30 to 40 years. People don't  
24 generally realize that as the nuclear plant operates  
25 there is a constant streaming of neutrons and whatever

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3 I-4

1 those neutrons hit turns radioactive, with the result  
2 that after a while it isn't just the fuel rods that are  
3 radioactive, the whole plant is radioactive.

4 "The steel cladding, the concrete of the  
5 plant, all radioactive.

6 "So, what do you do to close a dead nuclear  
7 plant? The present expert answer is your bury it under  
8 a mountain of earth. That's to cost roughly one-fifth  
9 the cost of construction which now is running between  
10 \$2 and \$3 billion per plant.

11 "And then one says, the government stands  
12 guard over it a hundred years. Why do they say a hundred  
13 years? Why not 500 years? Why not a thousand years?  
14 How can it continue under those circumstances? It can  
15 continue only because the government, Congress in bill  
16 after bill is taking over its major costs so that the  
17 people who use nuclear power will not only pay for it  
18 in their electric bills but in their taxes."

19 If the South Texas Nuclear Plant is licensed,  
20 we can anticipate that our energy picture in San Antonio  
21 will look bleak indeed, considering not only what  
22 Dr. Wald has to say, but the immense problems particular  
23 to this plant.

24 Thank you.  
25

1 JUDGE BECHHOEFER: Thank you.

2 John Stone?

3 (No response.)

4 JUDGE BECHHOEFER: Mayor White, I guess you're  
5 next on the list.

6 STATEMENT

7 OF

8 GLEN WHITE

9 Thank you, Mr. Chairman, and members of your panel.  
10 I'm Mayor Glen White, Mayor of the City of Bay City.

11 Firstly, I would like to reiterate the position  
12 of the Chamber of Commerce in our resolution, signed here  
13 by the President, Harley Savage. I'm not going to read it,  
14 in view of the time, but I will give it to your recording  
15 secretary, please, Mr. Chairman.

16  
17 RESOLUTION SUPPORTING THE SOUTH TEXAS  
18 NUCLEAR PROJECT

19 WHEREAS, a public hearing is scheduled before the  
20 Atomic Safety & Licensing Board on May 12th, 1981, for the  
21 purpose of determining the issuance of an Operating License for  
22 the South Texas Nuclear Project, and,

23 WHEREAS, the consequences of the construction, com-  
24 pletion and licensing of the South Texas Nuclear Project  
25 will be more heavily borne by the residents of Bay City and

1 Matagorda County, Texas, and

2 WHEREAS it is the desire of the Board of Directors  
3 of the Bay City Chamber of Commerce, Bay City, Texas, to  
4 advise the Atomic Safety & Licensing Board  
5 of the feelings and sentiment of the Chamber members of  
6 Bay City, Texas, toward the South Texas Nuclear Project,

7 NOW, THEREFORE, BE IT RESOLVED BY THE CHAMBER OF  
8 COMMERCE OF THE CITY OF BAY CITY, TEXAS, that the Bay City  
9 Chamber of Commerce should be placed on record as favoring  
10 and supporting the South Texas Nuclear Project based on  
11 the following considerations:

- 12 (1) The project and the related businesses it  
13 stimulates will continue to provide job oppor-  
14 tunities for our citizens and broaden the economic  
15 base of our community.
- 16 (2) School taxes paid by the project substantially  
17 contribute to provide a quality education for  
18 its children in Matagorda County.
- 19 (3) There is a need to conserve and reduce the use  
20 of our natural resources, especially our oil and  
21 natural gas.
- 22 (4) Reliance on native nuclear power will enable the  
23 United States to lessen its dependence on imported  
24 fuels as an energy source.
- 25 (5) In our opinion, the environmental impact and



1 pollution of nuclear power is better than  
2 alternate power sources.

3 The Bay City Chamber of Commerce will sincerely cooperate  
4 with Brown & Root, Inc., Houston Lighting & Power, Central  
5 Power & Light, and their employees to build and operate a  
6 safe and efficient plant which will be an asset to our community,  
7 the State of Texas, and America.

8 SIGNED, this, the 11th day of May, 1981.

9  
10 /s/ HARLEY SAVAGE, PRESIDENT  
11 BAY CITY CHAMBER OF COMMERCE  
12 BAY CITY, TEXAS

13 As Mayor of the City of Bay City, County Seat of  
14 Matagorda County, where the nuclear plant is being built, I am  
15 a little amazed and I'm a little concerned of what I'm hearing  
16 up here tonight. We live down there and we don't have that  
17 concern. I'd say 99 percent of our people are for it, because  
18 we realize that if we're going to have energy, we're going to  
19 have to have alternate sources.

20 We realize about the bombs, they're going to bomb  
21 the nuclear plants. What's going to happen if the Arabs decide  
22 to shut our oil off? What's going to happen then? War?  
23 So I think some of these arguments are not very valid, and  
24 I would like to reiterate at this time the position of not  
25 only my administration but the previous administration took in

1 supporting the nuclear plant.

2 When this body was seated in Bay City and I  
3 appeared before you, I told you at that time that we had  
4 just broke ground for Continental Oil Company -- City Service.  
5 I always get them mixed up. City Service. And that Conoco  
6 had an option and that we would probably break ground. Since  
7 you have left, we have broken ground. Now, we broke ground  
8 on the site of 2,000 acres. So they're not going to build just  
9 a little. This is going to form employment for a lot of people.  
10 Products for progress. And they wouldn't have located, I feel  
11 sure, if it hadn't been for the close proximity of good,  
12 adequate power.

13 I'm a grandparent. I have grandchildren, and they  
14 live closer to the nuclear plant site than you people here in  
15 San Antone do. I can't understand -- and I again say this.  
16 I can't understand.

17 I have confidence in the Nuclear Regulatory Commission.  
18 I don't think you're going to license a plant that isn't adequate.  
19 I think your people are seeing that it is properly built, will  
20 see that it is built properly, and I think then you are going  
21 to license it because you realize that we do have to have  
22 alternate power.

23 I know they talk about coal mining. You get black  
24 lung in coal mining. What are they going to do about that?  
25 Are they going to shut down all the coal mines?

1                   We have to have energy if we're going to progress.  
2                   So, I'm not going to take a lot more of your time  
3 here. I do want to thank you for giving me the opportunity  
4 to come before you again. Again, I say to you, come back to  
5 Bay City. You'll certainly be welcome.

6                   Any of you other people, if you'd like to come  
7 down, it's really not as dangerous down there as you think it  
8 is. I mean, really I think you're just a little upset about  
9 a lot of things you don't need to be, and I do know that they  
10 had a whole lot of environmental work done before they could  
11 even start to work on that plant. So, again, I say, we in  
12 Bay City -- and I would say the majority of the people in  
13 Matagorda County, I'd say 99 percent, are for the STP project.  
14 We will see it to a successful conclusion and put on stream.  
15 We know we have to have an alternate source of energy. We know  
16 we can't depend on Arab oil forever.

17                   Thank you, very much.

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19                   JUDGE BECHHOEFER: Richard Gusman?

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## 1 STATEMENT

2 OF

3 RICHARD C. GUSMAN

4 Mr. Chairman, Members of the Board, my name is  
5 Richard C. Gusman. I'm Mayor Emeritus and a resident of the  
6 City of Bay City, of which I served 32 years and only retired  
7 two years ago. I'm 76 years old.

8 Before I want to thank you for the extemporaneous  
9 speech that you allowed me to make in Bay City. I'm not backing  
10 up on a statement I made, although some of it wasn't very  
11 clear from the reporting. We corrected some of the mistakes  
12 before this meeting.

13 This time, I'm coming to you to read a resolution  
14 that has been passed by several thousand people at regular  
15 meetings, either by weekly or monthly, which includes the  
16 Rotary Club; the Lions Club; two veteran organizations: The  
17 American Legion, The Veterans of Foreign Wars; the Chamber of  
18 Commerce; the City of Bay City Mayor; and the Woodmen of the  
19 World.

20 I'm going to read one resolution in its  
21 entirety and I will read a short four-line resolve clause and  
22 give the man who signed it, the organization, you see. That  
23 will save you a lot of time.

24 The resolution I will read will be American  
25 Legion's Resolution on Nuclear Power. If you remember, I

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1 stated that the national, which is over 2,000,000 members  
 2 okayed this in Houston two years ago. But I'm reading it.  
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"AMERICAN LEGION RESOLUTION ON NUCLEAR POWER

"WHEREAS America needs additional sources of energy to maintain and strengthen her, and

"WHEREAS continued dependence on foreign nations for a large part of our energy needs is undesirable and a threat to national security, and

"WHEREAS the contributions nuclear power make to industry, national security, and the quality of life of all Americans, and

"WHEREAS U.S. nuclear plants recently surpassed oil in their contribution to America's electricity supply,

BE IT RESOLVED

"THAT Commercial nuclear power was developed principally by America,

"THAT The contributions nuclear power can make to industry, national security, and the quality of life of all Americans should be recognized.

"THAT Barriers to the safe and efficient construction and operation of nuclear plants should be removed and

"THAT Nuclear power must be allowed to make a greater contribution to American's needs for the benefit of all people.

BE IT THEREFORE RESOLVED

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37 '2

1 "THAT The AMERICAN LEGION go on record as strongly  
2 supporting the South Texas Project as an important  
3 element in the building of our area's energy and  
4 economic independence and our nation's security.

5 "American Legion Post 11, Bay City, Clyde  
6 McKinney, Commander."

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1 "VETERANS OF FOREIGN WARS RESOLUTION ON NUCLEAR POWER

2 "WHEREAS America needs additional sources of energy to  
3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a  
5 large part of our energy needs is undesirable and  
6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,  
8 national security, and the quality of life of all  
9 Americans, and

10 "WHEREAS U.S. nuclear plants recently surpassed oil in  
11 their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT Commercial nuclear power was developed principally  
14 by America,

15 "THAT The contributions nuclear power can make to industry,  
16 national security, and the quality of life of all  
17 Americans should be recognized,

18 "THAT Barriers to the safe and efficient construction  
19 and operation of nuclear plants should be removed  
20 and

21 "THAT Nuclear power must be allowed to make a greater  
22 contribution to America's needs for the benefit  
23 of all people.

24 BE IT THEREFORE RESOLVED

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"THAT THE VETERANS OF FOREIGN WARS goes on record as strongl  
supporting the South Texas Project as an important  
element in the building of our area's energy  
and economic independence and our nation's security.

"SIGNED, Wayne Hedge, Judge Advocate, Bay City Post. 22436."

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1 " THE ROTARY CLUB RESOLUTION ON NUCLEAR POWER

2 "WHEREAS America needs additional sources of energy to  
3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a  
5 large part of our energy needs is undesirable and  
6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,  
8 national security, and the quality of life of all  
9 Americans, and

10 "WHEREAS U.S. nuclear plants recently surpassed oil in  
11 their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT Commercial nuclear power was developed principally  
14 by America,

15 "THAT The contributions nuclear power can make to industry,  
16 national security, and the quality of life of all  
17 Americans should be recognized,

18 "THAT Barriers to the safe and efficient construction  
19 and operation of nuclear plants should be removed  
20 and

21 "THAT Nuclear power must be allowed to make a greater  
22 contribution to America's needs for the benefit  
23 of all people.

24 BE IT THEREFORE RESOLVED

25



1 " THE ROTARY CLUB goes on record as strongly  
2 supporting the South Texas Project as an important  
3 element in the building of our area's energy,  
4 economical independence and national security.  
5 "SIGNED, Doug Mathis, President, and Donald M. Bell,  
6 the secretary."

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9 And these were all done at weekly or monthly  
10 meetings by 100 percent vote, no people voted against it.  
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1 " THE LIONS CLUB RESOLUTION ON NUCLEAR POWER

2 "WHEREAS America needs additional sources of energy to  
3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a  
5 large part of our energy needs is undesirable and  
6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,  
8 national security, and the quality of life of all  
9 Americans and

10 "WHEREAS U. S. nuclear plants recently surpassed oil in  
11 their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT commercial nuclear power was developed principally  
14 by America,

15 "THAT the contributions nuclear power can make to industry,  
16 national security, and the quality of life of all  
17 Americans should be recognized,

18 "THAT barriers to the safe and efficient construction  
19 and operation of nuclear plants should be removed  
20 and

21 "THAT nuclear power must be allowed to make a greater  
22 contribution to America's needs for the benefit  
23 of all people.

24 BE IT THEREFORE RESOLVED

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" THE BAY CITY LIONS CLUB goes on record as strongly  
supporting the South Texas Project as an important  
element in the building of our area's energy,  
economic independence and national security.  
"SIGNED, Vernon A. Lysner, President."

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1 "THE KIWANIS CLUB RESOLUTION ON NUCLEAR POWER:

2 "WHEREAS America needs additional sources of energy to  
3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a  
5 large part of our energy needs is undesirable and  
6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,  
8 national security, and the quality of life of all  
9 Americans, and

10 "WHEREAS U. S. nuclear plants recently surpassed oil  
11 in their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT commercial nuclear power was developed principally  
14 by America,

15 "THAT the contributions nuclear power can make to industry,  
16 national security, and the quality of life of all  
17 Americans should be recognized,

18 "THAT barriers to the safe and efficient construction  
19 and operations of nuclear plants should be removed  
20 and

21 "THAT nuclear power must be allowed to make a greater  
22 contribution to America's needs for the benefit  
23 of all people.

24 BE IT THEREFORE RESOLVED

25

1 "THE KIWANIS CLUB goes on record as strongly supporting the  
2 South Texas Project as an important element in the  
3 building of our area's energy, economical independence  
4 and national security.

5 "SIGNED by Eugene Kurchfield, President."  
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1 "THE WOODMEN OF THE WORLD, LODGE 168, RESOLUTION ON NUCLEAR POWER

2 "WHEREAS America needs additional sources of energy to

3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a

5 large part of our energy needs is undesirable and

6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,

8 national security, and the quality of life of all

9 Americans, and

10 "WHEREAS U.S. nuclear plants recently surpassed oil in

11 their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT Commercial nuclear power was developed principally

14 by America,

15 "THAT The contributions nuclear power can make to industry,

16 national security, and the quality of life of all

17 Americans should be recognized,

18 "THAT Barriers to the safe and efficient construction

19 and operation of nuclear plants should be removed

20 and

21 "THAT Nuclear power must be allowed to make a greater

22 contribution to America's needs for the benefit

23 of all people.

24 BE IT THEREFORE RESOLVED

25

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1 "THE WOODMEN OF THE WORLD, LODGE 168, goes on record as  
2 strongly supporting the South Texas Project as an  
3 important element in the building of our area's energy,  
4 economical independence, and national security.

5 "SIGNED, Anita Head, President."  
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1 "THE CITY OF BAY CITY RESOLUTION ON NUCLEAR POWER

2 "WHEREAS America needs additional sources of energy to  
3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a  
5 large part of our energy needs is undesirable and  
6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,  
8 national security, and the quality of life of all  
9 Americans, and

10 "WHEREAS U.S. nuclear plants recently surpassed oil in  
11 their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT Commercial nuclear power was developed principally  
14 by America,

15 "THAT The contributions nuclear power can make to industry,  
16 national security, and the quality of life of all  
17 Americans should be recognized,

18 "THAT Barriers to the safe and efficient construction  
19 and operation of nuclear plants should be removed  
20 and

21 "THAT Nuclear power must be allowed to make a greater  
22 contribution to America's needs for the benefit  
23 of all people.

24 BE IT THEREFORE RESOLVED

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"THE CITY OF BAY CITY goes on record as strongly supporting  
the South Texas Project as an important element in  
the building of our area's energy and economic  
independence and our national security.  
"SIGNED, Glen White, President."

---

1 "THE BAY CITY CHAMBER OF COMMERCE RESOLUTION ON NUCLEAR POWER  
2 "WHEREAS America needs additional sources of energy to  
3 maintain and strengthen her, and

4 "WHEREAS continued dependence on foreign nations for a  
5 large part of our energy needs is undesirable and  
6 a threat to national security, and

7 "WHEREAS the contributions nuclear power make to industry,  
8 national security, and the quality of life of all  
9 Americans, and

10 "WHEREAS U.S. nuclear plants recently surpassed oil in  
11 their contribution to America's electricity supply,

12 BE IT RESOLVED

13 "THAT Commercial nuclear power was developed principally  
14 by America,

15 "THAT The contributions nuclear power can make to industry,  
16 national security, and the quality of life of all  
17 Americans should be recognized,

18 "THAT Barriers to the safe and efficient construction  
19 and operation of nuclear plants should be removed  
20 and

21 "THAT Nuclear power must be allowed to make a greater  
22 contribution to America's needs for the benefit  
23 of all people.

24 BE IT THEREFORE RESOLVED  
25



1 "THE BAY CITY CHAMBER OF COMMERCE goes on record as  
2 strongly supporting the South Texas Project as an  
3 important element in the building of our area's  
4 energy and economic independence and our national  
5 security.

6 "SIGNED, James A. Sumpter."  
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1  
2           Gentlemen, I want to file, for the record, so  
3 you will get it correct, one copy of this resolution, and  
4 I want to make one or two more statements.

5           That's the best way I knew of representing these  
6 organizations. We couldn't bring them up here and all that  
7 travel would be too expensive.

8           Now, I want to say this, and I'm not going to  
9 talk offhanded, like I did in Bay City -- and I want to  
10 thank you for giving me all that time, because I was really  
11 steamed up down there in Bay City.

12           Since that time, there have been things. I have  
13 followed you all very closely on my own. I listen four days,  
14 five days, in Bay City. As you know, every week I try to get  
15 up the day you change your panels. I spend eight days, two  
16 to three days a week, in Houston, regularly trying to follow  
17 you all. I did all the reading on your hearings and all that.

18           And I know that this organization is going to  
19 be able to separate the wheat from the chaff. But I want to  
20 say this.

21           There are one or two things that have transpired,  
22 that I'd like to bring you up to date on that I think is  
23 important. You must remember, this is a permit for the  
24 operation by the Houston Power & Lighting Company. They're  
25 going to operate this. It's not a construction permit, it's

1 not a construction permit, it's a permit for operation, which  
2 will be carried on by the Houston Power & Lighting Company.  
3 Now, about 11:00 o'clock today, I called Zion, Illinois.  
4 I checked with the City first to find out, in the past ten  
5 years, those two Westinghouse electricians had given them any  
6 trouble, and they said no.

7 I then called the Westinghouse Nuclear Technical  
8 School, and they informed me that they had seven people from  
9 Houston Power & Lighting attending their school up there  
10 which is a fine school on how to operate a Westinghouse  
11 Electric. And I'm glad we have that school to where we can  
12 train these people for this situation.

13 Now, I want to make one other statement and that's  
14 it. There's an increased interest after listening to the  
15 officials of Houston Power & Lighting. I believe that they're  
16 doing everything in their power to raise the quality and  
17 supervision of the construction of the plant that we have  
18 down there.

19 I also believe this: I believe and I know that  
20 the personnel in the plant now is much more interested since  
21 our hearings, and let me tell you what Thomas Jones has done:

22 Thomas Jones is a citizen of Bay City. He's a  
23 good citizen. Thomas Jones is an instructor and a welder  
24 at the South Texas working for Brown & Root. Thomas, on his  
25 own, without Brown & Root, has gotten seventy welders to

1 volunteer their time on Saturday morning and take a twelve-  
2 week course from 8:00 to 12:00 o'clock on advance welding,  
3 and those seventy people have volunteered their own time  
4 with no pressure from Brown & Root. The only thing Brown &  
5 Root does is furnish them buses to go to this school at  
6 Brazos Port in Lake Jackson, to take this advanced instruction.

7 We have several other courses that have taken  
8 advance instruction, and I think the attitude of the  
9 employees of Bay City --

10 I mean, I'm going to sit down here. You're  
11 looking at you're watch and I know I'm running over five,  
12 but, after all, you've had forty some-odd people and you've  
13 only had about two or three for it and about forty some are  
14 against it. So let me take one or two minutes. I won't  
15 tee off on you.

16 Let me see, now, I forgot what I wanted to see.

17 But, anyway, that's the way the ball bounces.  
18 I think I'd better sit down, because if I get started, you  
19 know how I can talk.

20 I would say one thing about you all I've been  
21 impressed about. I certainly like the freedom of speech,  
22 but I want to admire this organization because I'll say you  
23 sure have allowed the Intervenors the most freedom of speech  
24 of any demonstration that I've ever seen in the world.  
25 I think they've had the most freedom of speech and they

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certainly can't criticize, and I have confidence that this thing is going to turn out all right when it's all over with.

Thank you, very much.

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3-1

1 JUDGE BECHHOEFER: Harris Connell.

## 2 STATEMENT

3 BY

4 HARRIS CONNELL

5 MR. CONNELL: Sir, I am Harris Connell; and  
6 I am the president of the Greater San Antonio Builders  
7 Association. I reside here in San Antonio.

8 Our membership for our Builders Association  
9 is 1213 people. This past year -- fiscal year of build-  
10 ing in San Antonio, we constructed 7114 houses and  
11 requested from City Public Service electric meters for  
12 all of those.

13 As builders we need the electric meters to  
14 be placed on those houses in order to serve those  
15 houses with energy.

16 As the home-buying public, they need City  
17 Public Service Board to install the electric meters  
18 and service them and provide energy through the electric  
19 meters.

20 We have been on record for supporting our  
21 City Public Service Board in our South Texas Nuclear  
22 Plant. This was back when we first started.

23 And, again, we would like to state tonight  
24 that we also support now our City Public Service Board's  
25 involvement in the South Texas Nuclear Plant.

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We recognize the need for conserving energy  
 and we recognize the need for energy. Therefore, we  
 recognize the need for involvement in all aspects of  
 development of all energy, and that includes the  
 nuclear plant in South Texas.

Thank you.

JUDGE BECHHOEFER: David Mumm.

- - -

## 1 STATEMENT

2 BY

3 DAVID MUMM

4 MR. MUMM: My name is David Mumm,  
5 M-u-m-m. I'm a free-lance journalist here in San  
6 Antonio and a member of the Institute for Design of  
7 Environmental Alternatives.

8 I would like to talk about alternatives.  
9 I would like to ask the question -- since we're talking  
10 about the responsibility of Houston Power & Light --  
11 I would like to know if they have really investigated  
12 the alternatives.

13 We've heard a lot of damning testimony of  
14 the nuclear plant. None of it has really been answered.  
15 Nobody has really answered the problems that have  
16 been addressed here tonight.

17 And I would like to know if the utility  
18 companies have stopped to take a look at the alterna-  
19 tives, because I know that there are a lot. And I  
20 feel that it's the responsibility of the utility com-  
21 panies to the community to not only provide energy, but  
22 also to contribute to the economic health and well-  
23 being of the community.

24 And I have serious doubts as to whether the  
25 nuclear plant can actually provide economic health and

33-4

1 well-being.

2 And what do we do in 30 years is another  
3 question. I mean that's fine ... you know, let's say  
4 everything works out just hunky-dory, and there's no  
5 accidents, and the nuclear plants works just fine, and  
6 they decommission it in 30 years. Well, then what do  
7 we do?

8 I'm still going to be alive. I'm going to  
9 want to sit around in 30 years on my front porch, and  
10 I'm not going to have any electricity to do it because  
11 all of the plants that we build today are going to be  
12 decommissioned.

13 There will be no electricity because we  
14 haven't provided for the future. All we're doing is  
15 providing a very short-term solution.

16 I keep up with the literature ... a lot of  
17 literature and appropriate technology. And I'm  
18 amazed by the scientific breakthroughs that are re-  
19 ported monthly.

20 There's higher efficiency and lower costs  
21 on photovoltaic cells. There are advances with cadmium  
22 zinc and sulfide batteries for the storage of energy.  
23 There are new phase-change materials that are capable  
24 of storing heat over long periods of time.

25 There are new methods for cost-effective

33-5

1 production of hydrogen gas, inventive applications of  
2 solar energy for cooling and heating, for burning our  
3 waste garbage, for recycling our garbage.

4 One of our science fiction writers once  
5 said that garbage is just natural resources that we're  
6 too stupid to use. And I kind of agree with that.

7 MIT has recently discovered a bacteria that  
8 can convert any agricultural waste into ethanol from  
9 corn. From corn stalks alone we could gain some 14  
10 billion gallons of fuel, according to their study.  
11 That's quite a bit.

12 Here in San Antonio we ought to look at  
13 that because our economy, according to the Chamber of  
14 Commerce, is 40 percent agricultural-based. There has  
15 got to be a lot of leftover agricultural material that  
16 could be turned into fuel, that could be used.

17 Out in California they've made a lot of  
18 progress with alternative technologies. In fact, they  
19 have abandoned several large projects, including the  
20 \$5 billion Allen Warner Valley Energy System, which was  
21 a coal system.

22 They abandoned it based on information  
23 that was brought together by the Environmental Defense  
24 Fund. They spent five years of work putting together a  
25 program for a method of analysis for forecasting for

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1 utilities potential uses for energy conservation and  
2 alternative technologies.

3 Based on this, the two biggest electric  
4 utilities -- Southern California Edison and Pacific  
5 Gas and Electric abandoned their plans and decided to  
6 go with the alternatives because they were cleaner  
7 and cheaper.

8 This included cogeneration, better end use  
9 efficiency. It would include weatherization and just  
10 conservation.

11 Solar heating, wind and geothermal energy.  
12 In fact, Southern California Edison has recently  
13 pledged to get one-third of their generating power  
14 from solar technologies.

15 This is the fifth -- you know, this isn't  
16 just a little old podunk company. This is the fifth  
17 largest utility company in the United States, and they  
18 have taken a serious look at it.

19 And I think our utility company should look  
20 at that, too. and at least come up with a serious study  
21 and say, "Well, no, these alternatives won't work for  
22 this reason, this reason and that."

23 But I haven't heard that. And I think we're  
24 looking at a classic case of putting all of our eggs  
25 in one basket with the nuclear plant because we don't

33-7

1 have any -- if the nuclear plant goes out, well, then  
2 what do we do?

3 As far as -- I would like to bring to  
4 your attention a book that was published -- or a report  
5 that was put together by the Department of Energy, our  
6 own DOE.

7 It's called the "Nuclear Prosperity:  
8 Building a Sustainable Energy Future." This book was  
9 put together under the Carter Administration; the  
10 Reagan Administration has seen fit not to publish  
11 that study.

12 But it has been published by another com-  
13 pany.

14 A quote from that study says that "A strategy  
15 built around energy efficiency and widespread use of  
16 renewable energy resources could result in the virtual  
17 elimination of all oil imports by the end of the  
18 century without relying on unforeseen technological  
19 development. A practical and economically attractive  
20 sequence of events that would allow the productivity  
21 of the average American worker to increase as fast  
22 as it has in the past 20 years and achieve a full employ-  
23 ment economy, -while at the same time reducing national  
24 consumption by nearly 25 percent."

25 This is from the Department of Energy.

33-8

1 A study by the --

2 JUDGE BECHHOEFER: Mr. Mumm, are you  
3 pretty nearly through, because there's a lot of  
4 people. We have to get out of here. You're way over  
5 your five minutes.

6 MR. MUMM: Okay. Excuse me.

7 I will just end by saying that other  
8 utility companies have made studies and found that  
9 within their own systems that they can save energy  
10 through conservation and alternative programs, and  
11 they have done away with the need for building  
12 additional plants.

13 And I would hope that our utility companies  
14 at least would take the responsibility to at least  
15 investigate these possibilities, which don't have such  
16 damning consequences.

17 Thank you.

18 JUDGE BECHHOEFER: Terry Goerler --

19 I might say, I have a number of people on  
20 the list from this morning; who may or may not be here.  
21 It might be easier for those who wish to make statements  
22 just to come up, so I won't read all of the names.

23 You can raise your hands or ...

24 Those who wish to make statements, just  
25 come up.

33-9

1                    There's an awful lot of names, and I don't  
2                    want to read a lot of names of people who aren't here.

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## STATEMENT

OF

PHILLIP HAVES

DR. HAVES: I apologize for the delay. I saw Ms. Goerler in the audience, and I thought maybe she wanted to talk.

Mr. Chairman and Members of the Board, my name is Phillip Haves. I'm a resident of San Antonio. I have a Ph.D. in physics and am currently employed as a research scientist working in the area of heat transfer in buildings.

I would first like to make several assertions which I won't, unfortunately, have time to defend now, but I will be most happy to do so later if anybody is interested.

Then what I would like to do is relate those assertions to the scope of the hearing that has been going on in Houston, and now in San Antonio.

Firstly, concerning the need for the South Texas Nuclear Project, people have already made the point that we are very wasteful in our use of electricity, especially for cooling buildings, both nationally and locally.

For instance, take the residential case. It's approximately four times more cost effective to



3-11

1 reduce cooling loads by shading of windows, better  
2 insulation, weather stripping, et cetera, than to pro-  
3 vide generating facilities to provide electricity to  
4 run air conditioners.

5 Also, that course of action -- the load  
6 management/load reduction techniques are very much  
7 more productive of jobs than the construction of large  
8 generating facilities.

9 Secondly, nuclear power is only one of a  
10 number of ways to generate electricity.

11 Thirdly, the energy needs -- the electricity  
12 needs in particular of South Texas could be met safely  
13 and economically by a combination of load management  
14 and other methods of generation both now and in the  
15 future.

16 And so the conclusion I draw from that is  
17 that nuclear power in general, and the South Texas  
18 plant in particular, is not an imperative economic  
19 and social necessity. It is at best one alternative  
20 way to produce electricity.

21 Therefore, I believe that we should not  
22 be coerced into accepting greater risks from the  
23 South Texas Nuclear Plant than we would accept in  
24 other situations.

25 And so I feel it's important to make the

33-12

1 point that we don't have to be pushed into nuclear  
2 power for any overriding need, which would make us  
3 neglect our common prudence.

4 I would then go on to say that it seems  
5 likely that the evidence being presented at these  
6 hearings -- not so much now in this public hearing,  
7 but in the main part of the hearings -- will demonstrate  
8 that Houston Lighting & Power does not have the neces-  
9 sary combination of management skills and responsibility  
10 to the public to insure either the safe construction --  
11 but more importantly, the safe operation of this  
12 plant.

13 If the Applicants, Houston Lighting &  
14 Power, cannot demonstrate beyond a reasonable doubt  
15 that this is not so, that in fact they do have the  
16 competence -- if they cannot demonstrate that -- then  
17 we, the residents of South Texas, are relying on you --  
18 you gentlemen ... to deny the license for the plant  
19 for we know, as you know, that the final responsibility  
20 for the health and safety of South Texas lies on  
21 you.

22 Thank you.

23 JUDGE BECHHOEFER: Is there anyone else  
24 who wishes to make a statement?

25 ///

STATEMENT  
of  
BILL OLIVER .

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3 MR. OLIVER: Well, the last time I went to a  
4 hearing on this subject it was about Allens Creek and it  
5 was an NRC hearing and I brought my electric meter along  
6 to give it back, but they didn't want to take it, and I  
7 seem to have that trouble wherever I take my electric  
8 meter.

9 Oh, my name; I'm sorry.

10 JUDGE BECHHOEFER: Yes. Well, I'm not sure  
11 you should play your instrument.

12 MR. OLIVER: Oh, it's not going to be very  
13 loud.

14 JUDGE BECHHOEFER: Well, I don't think it's  
15 appropriate in a courtroom. You can make a statement.

16 MR. OLIVER: There's nothing wrong with  
17 playing an instrument in here. It's just a very mild  
18 form of speaking.

19 JUDGE BECHHOEFER: Okay. Well, you can go  
20 for five minutes, but don't play loud. You can't do that.

21 MR. OLIVER: No problem. I'll keep it down.

22 Thank you very much.

23 JUDGE BECHHOEFER: You better give your name,  
24 too.

25 MR. OLIVER: My name is Bill Oliver. I'm

1 from Austin, and I consider myself a neighbor of Bay City  
2 and I enjoy the city itself. I know some folks down there.

3 I'd like to talk about the rhetoric we were  
4 talking about a little while ago, the freedom of speech  
5 and the tone of speech, the kind of language people use  
6 about this issue, and I remember back in the fifties, when  
7 I was about that tall (indicating), hearing some interesting  
8 kind of speech, rhetoric language statements about nuclear  
9 power, and by the time I got to be up this tall, maybe  
10 sometime in the eighties, electricity was going to be too  
11 cheap to meter, and there was going to be a million and  
12 one chances that something like what happened at  
13 Harrisburg would happen.

14 There were advertisements in Time magazine  
15 about a \$2,000 reward if you can find this reactor with  
16 a Geiger counter.

17 Well, that kind of statements, you don't see  
18 those any more. They're cutting back on that a little.  
19 They're admitting a few things: Well, maybe it's not  
20 quite as absolute as we thought it was, but the results  
21 are still going to be the same.

22 And so when I try to take my electric meter  
23 back to the mayor, or whoever, they don't want it any more.  
24 They say, "Go home, you may need two of those."

25 Yes, siree, so I put it back on the wall.

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(Singing:)

Too cheap to meter, it's a guarantee

Too cheap to meter, why, it's almost free

Too cheap to meter with complete safety

Too cheap to meter is the power to be

I write a letter to the NRC

Why am I leaving with my family

I still remember when the AEC

Promised the people their 'lectricity

Would be:

Too cheap to meter, it's a guarantee

Too cheap to meter, why, it's almost free

Too cheap to meter with complete safety

Too cheap to meter is the power to be

Too cheap to meter say the President

Too cheap to meter he's so confident

Too cheap to meter say the industry

Too cheap to meter make us so happy

They're singing:

Cheap, cheap, cheap, cheap, cheap, cheap,

cheap, cheap-a-dub-a-dub, cheap, cheap,

cheap, cheap, cheap.

Then come the springtime of '79

The Susquehanna Valley almost did shine

All of the businessmen on Three Mile Isle



34-4

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1 Come to the people with a bankrupt smile  
2 They say we're all out of money, our insurance  
3 won't do  
4 We're too cheap to pay it so it's up to you  
5 They keep on cheaping like a little bird  
6 Keep on cheaping while they eat their words

7 Saying:

8 Too cheap to meter, it's a gurantee  
9 Too cheap to meter, why, it's almost free  
10 Too cheap to meter, now we're so sorry  
11 Accidents will happen, now quit hassling me

12 They're singing:

13 Cheap, cheap, cheap, cheap, cheap, cheap,  
14 cheap-a-dub-a, cheap, cheap, cheap, cheap,  
15 cheap, cheap.

16 - - -

17 As far as the construction of that particular  
18 plant is concerned, and whether it should go on or not,  
19 I'd like to point out that Brown & Root has had an awful  
20 lot of experience in construction. They made most of  
21 South Vietnam quite level with air strips and other  
22 facilities, but this is a round project, and I know that  
23 voids really aren't important.

24 I talked to the people up in Madison, Indiana,  
25 about voids. Voids, what's a void or two here and there;

1 just another hole somewhere, but there's a lot more holes  
2 that are in the plant.

3 (Singing:)

4 They got concrete walls that are four  
5 Feet thick, except for holes, except for hole  
6 So if anything leaks it won't leak very quick  
7 Except through the holes, except through  
8 The holes

9 They got a concrete contract we're supposed  
10 To believe, but it's full of holes, it's  
11 Full of holes

12 There ain't nothing too shaky, nothing up  
13 Their sleeve, except for holes, except for holes  
14 They got holes in the walls

15 Where there shouldn't be holes

16 They got holes in the laws

17 Where there ought to be laws

18 Got a whole lot of plans for the future ahead

19 And if it leaks I believe they got holes

20 In their heads, holes in their heads,

21 Holes in their heads, holes, holes, holes --

22 Almost over --

23 When the fuel's dug up it leaves holes in

24 The ground, holes in the ground, holes in

25 The Ground, and uranium tailing

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Scattered around Indian grounds

Indian grounds

And when it's done its work it goes back

In a hole, back in a hole, back in a hole

And when the waste cools off

There ain't nobody knows

Nobody knows, nobody knows

There ain't nobody knows what we can control

Just like nobody knows what the future

Will hold

Ain't nobody knows and it worries my soul

That something so solid should be so

Full of holes, holes, holes, holes, holes.

Thank you very much.

JUDGE BECHHOEFER: Is there anyone else who  
wishes to make a statement?

We have time for about one more.

- - -

34-7

1 STATEMENT  
2 OF  
3 PATSY SHERRER

4 MS. SHERRER: Thank you, sir.

5 My name is Patsy Sherrer. I'm a citizen of  
6 Bay City. I've been there 30 years, and I would like to  
7 make a statement regarding some of the other statements  
8 I've heard here tonight; the lady with the baby that is  
9 afraid of nuclear power, and so forth, in San Antonio.

10 I have eight grandchildren that live within  
11 15 miles of that plant. I feel it is perfectly safe. I  
12 did not feel it necessary to bring them up here and parade  
13 them in front of this group.

14 I have walked that whole plant with a hardhat  
15 on, in the containment buildings, under the reactors. I  
16 have seen it.

17 The people I have talked to her tonight, and  
18 in Bay City, that have never been down on that plantsite,  
19 I would like to invite them to come down there and tour  
20 and see for themselves.

21 As far as the gentleman with the holes in the  
22 containment building, if you will take a piece of concrete  
23 33 stories high, the size of a football field, and then  
24 you will take a 45 cubic foot, a three by three by five  
25 foot piece of concrete, that's what it took to fill the  
holes in the containment wall. I have stuck my finger in

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31-8

1 them.

2 I think maybe some of them who have not been  
3 down there and have not seen it do not know what they are  
4 talking about.

5 I feel it is perfectly safe, the people of  
6 Bay City feel it is safe. My family, which is four  
7 children and eight grandchildren, I feel like it is  
8 perfectly safe for them.

9 Thank you.

10 JUDGE BECHHOEFER: Is there anyone further  
11 who wishes to make a statement?

12 (No response.)

13 JUDGE BECHHOEFER: I think that is all.

14 We thank you all for coming.

15 We will adjourn for the evening.

16 The evidentiary hearings will resume again  
17 9:00 o'clock tomorrow in this room.

18 (Whereupon, at 9:49 p.m., the hearing in  
19 the above-entitled matter was adjourned, to  
20 reconvene at 9:00 a.m., Tuesday, June 23, 1981.)

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This is to certify that the attached proceedings before the  
NUCLEAR REGULATORY COMMISSION

in the matter of: HOUSTON LIGHTING & POWER COMPANY  
SOUTH TEXAS NUCLEAR PROJECT UNITS 1&2

DATE of proceedings: 22 June 1981

DOCKET Number: 50-498 OL; 50-499 OL

PLACE of proceedings: \_\_\_\_\_

were held as herein appears, and that this is the original  
transcript thereof for the file of the Commission.

LaGailda Barnes

Official Reporter (Typed)

*LaGailda Barnes*

Official Reporter (Signature)