UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D. C. 20555

July 18, 1980

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Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. Gustave A. Linenberger
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U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dr. E. Leonard Cheatum
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In the Matter of
Houston Lighting & Power Company
(Allens Creek Nuclear Generating Station, Unit 1)
Docket No. 50-466

Gentlemen:

As you are aware, the Staff, Applicant and those intervenors who chose to attend 1/ participated in a meeting in Houston on July 10, 1980, in order to discuss scheduling matters in the captioned proceeding. In order to accommodate as many intervenors as possible, Applicant and Staff counsel made themselves available from early afternoon until late evening so that the intervenors could come at their convenience during those hours. The Staff proposed a schedule to those present, including dates for the filing of, and responses to, motions for summary disposition. 2/ Further, after previous informal discussions between the Staff and Applicant, the Staff was able to indicate to each intervenor which, if any, of his or her contentions would probably be the subject of motions for summary disposition. This was done to afford those involved with the maximum amount of time possible to consider the support which they have for each contention and to begin to marshal that support. After discussing the proposed schedule, all of the intervenors except Messrs. Scott and Doherty were in basic agreement with it. However, the disagreement with these two parties is so substantial that we believe (given the fact that the large majority of contentions have been proffered by them) that

1/ The individuals who attended were Mr. Lowerre of the Attorney General's Office, Messrs. Baker, Potthoff, Doherty, Scott (TEXPIRG), Dr. Marrack, Ms. McCorkle and Ms. Hinderstein.

2/ The initially proposed schedule is attached to this letter and marked "A." Modifications to the schedule were discussed at the meeting.

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the Board must become involved in order to resolve these matters. It is fair to say that the difficulties in reaching an agreement with Messrs. Scott and Doherty have arisen because a majority of the contentions which may be subject to motion for summary disposition are theirs. 3/ They believe that a far more extensive period of time than that provided in 10 C.F.R. §2.749 is necessary for them to respond to these motions. In turn, they believe that they could not proceed to hearing on a schedule similar to that proposed.

The Staff therefore proposes that a prehearing conference be scheduled by the Board in Houston on August 8, 1980, for the purposes of (1) setting deadlines for filing responses to motions for summary disposition, (2) establishing dates for the filing of testimony and commencement of the first phase of the evidentiary hearing, and (3) discussing a simplification of the text of the many contentions admitted as issues in this proceeding. To that end, we have prepared a revised schedule which we believe, after consideration of the comments made by Messrs. Doherty and Scott, is fair to all parties concerned. It is attached and marked "B," and sets forth a tentative schedule for the environmental phase of the hearing, broken down by subject matter. In addition, the Applicant has made an attempt to redraft the contentions admitted as issues in this proceeding which would retain the essence of the concerns expressed but excise any unnecessary verbiage. This package of redrafted contentions, with which the Staff is in agreement, is attached and marked "C." We wish to emphasize to the Board and all parties that the modifications to the contentions are not intended to preclude the intervenors from raising any matter within the scope of the original contentions. Rather, the purpose is solely procedural; the redrafts will make it far easier to refer to these contentions both orally and in writing.

Finally, we have attached a tentative list of contentions with regard to which either the Staff or the Applicant may be filing motions for summary disposition. It is marked "D." 4/ The Staff hopes and intends that all of the attachments to this letter will establish an organized framework for the prehearing conference, and render the task of preparing for that conference easier for the Board and parties. We believe that since only procedural matters will be discussed at the conference, preparation for the conference should not be a time-consuming

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3/ As Messrs. Scott and Doherty will note, the list of contentions with regard to which the Applicant and Staff now anticipate filing motions for summary disposition has been substantially pared down from the list discussed with them at the July 10 meeting (Attachment D).

4/ The Board will note that the revised schedule calls for the filing of motions for summary disposition on August 4, 1980. This, of course, means that the Applicant and Staff will have filed their motions prior to the date set for the prehearing conference.

task for the parties, and that therefore three weeks is more than enough notice to all parties who wish to participate.

Sincerely,

Stephen M. Sohinki

Stephen M. Sohinki
Counsel for NRC Staff

Enclosures
As Stated

cc w/encl:
J. Gregory Copeland, Esq.
Jack Newman, Esq.
Carro Hinderstein
Richard Lowerre, Esq.
Hon. Jerry Sliva
Hon. John R. Mikeska
Mr. John F. Doherty
Mr. and Mrs. Robert S. Framson
Mr. F. H. Potthoff III
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Docketing and Service Section

Attachment A

NRC Staff's Proposed Schedule

Filing of Motions for Summary Disposition . .	Aug 04
Filing of Responses to Motions.	Aug 29
Prehearing Conference	Sep 16
Filing of Testimony with regard to Environmental Issues	Oct 06
Commencement of Hearing	Oct 21

October 21, 1980

Cooling lake/recreational benefits & dam extension

Cooling lake/radioactivity

Cooling lake/seepage

(break week of November 3)

November 10, 1980

Energy conservation

Solar

Solid waste

Interconnection/purchase of power

(break week of November 24)

December 1, 1980

Natural gas generation

Coal vs. nuclear

Transmission lines/health

Transmission lines/waterfowl

Barge slip

Coastal site

(break week of December 15)

January 5, 1981

Alternative sites

Evidentiary hearings on health and safety issues to begin 15 days after conclusion of hearings on environmental issues; schedule to be developed at a later date.

Attachment B

NRC Staff's Revised Proposed Schedule

August 4, 1980	File motions for summary disposition on both environmental and safety issues
August 29, 1980	Responses due to motions for summary disposition on environmental issues
September 16, 1980	Prehearing conference, if necessary
October 1, 1980	Responses to motions for summary disposition on health and safety issues
October 6, 1980	File testimony on environmental issues
October 21, 1980	Commencement of evidentiary hearing on environmental issues
October 21, 1980	Cooling lake/recreational benefits & dam extension
	Cooling lake/radioactivity
	Cooling lake/seepage
	(break week of November 3)
November 10, 1980	Energy conservation
	Solar
	Solid waste
	Interconnection/purchase of power
	(break week of November 24)
December 1, 1980	Natural gas generation
	Coal vs. nuclear
	Transmission lines/health
	Transmission lines/waterfowl
	Barge slip
	Coastal site
	(break week of December 15)
January 5, 1981	Alternative sites

Attachment C

Allens Creek

I. List of Intervenors and Their Contentions

Party	Contention No.	Subject	Page
Baker	1	Financial qualifications	38
Bishop	1	Population projections	72
	4, 5	Pipeline rupture/24" gas line	69
	6	Pipeline rupture/LPG	68
	7	Pipeline rupture/dam breach	67
	9	Pipeline rupture/non-methane	70
	10	Pipeline rupture/Brazos River	71
	12	Cooling lake/seepage	28
	14	Coal vs. nuclear cost comparison	19
	17	TNT detonation	95
	18	Airplane crash	12
	21	Cooling lake/radioactivity	27
	23(a)	STP 3 vs. AC 1	88
	23(c)	Coastal site	20
Conn	2	STP 3 vs. AC 1	88
Cumings	1	Financial qualifications	38
	4	STP 3 vs. AC 1	88
	6(b)	Solid waste combustion	90
	6(c)	Solar power	85
Doggett	1(a)	Energy conservation	36
	1(b)	Coal vs. nuclear cost comparison	19
	2	STP 3 vs. AC 1	88
	3	Technical qualifications	96
	4	Financial qualifications	38
Doherty	3	Fuel specific enthalpy	47
	5	Suppression pool uplift	94
	6	Recirculation pump overspeed	80
	7	LPCI cold slug	57
	8	ATWS	13
	9	Containment buckling	23
	10	HPCS DG reliability	52
	11	Spent fuel pool accident	92
	12	Rod pattern control system	82
	13	ECCS sumps	34
	14, 25	Fuel failure/MSLRM	44

Party	Contention No.	Subject	Page
McCorkle	2	Cooling lake/recreational benefits	25
	9	Chlorine monitoring	18
	10	Airplane crash	12
	14	Fuel rod hydriding	46
	17	Charcoal adsorber fires and Filtration System Leakage	17, 37
Perrenod	1	Financial qualifications	38
Potthoff	AC 6	Marine biomass farm	59
Rentfro	2	Transmission lines/ health effects	98
TexPirg	1	STP 3 vs. AC 1	88
	AC 1	Barge slip	14
	2, 4	Cooling lake/recreational benefits	25
	5	Solid waste combustion	90
	6	Airplane crash	12
	AC 6	Drywell integrity/Mannings coefficient	33
	7a-c	Energy conservation	36
	7d	Solar power	85
	8	ATWS	13
	AC 8	Natural gas generation	60
	10	IGSCC	53
	11	Flow-induced vibration/ general	42
	12	Cable fires	16
	AC 12	Interconnection/purchase of power	56
	AC 21	Occupational exposure	64
	AC 23	Pipeline rupture/LPG	68
	AC 26	Computer code error	22
	AC 28	Post-accident monitoring	75
	AC 30	Charcoal absorber fires	17
	AC 31	Technical qualifications	96
	AC 32	Financial qualifications	38
	AC 34	H2 monitoring	51
	AC 38	SCRAM discharge volume float switch	83
	AC 39	Generic issue A-11 (fracture toughness)	50
	AC 41	Reactor pressure limits/ relief valves	78
	AC 50	Latching	58

II. List of Contentions

	Contention	Party/No.*/	Text at Page No.
1.	Airplane crash	TexPirg 6 Bishop 18 McCorkle 10	12
2.	ATWS	Doherty 8 TexPirg 8 Board Question 3	13
3.	Barge slip	TexPirg AC 1	14
4.	Blockage of intake canal	Doherty 29	15
5.	Cable fires	TexPirg 12	16
6.	Charcoal adsorber fires	TexPirg AC 30 McCorkle 17	17
7.	Chlorine monitoring	McCorkle 9	18
8.	Coal vs. nuclear cost comparison	Doggett 1(b) Bishop 14	19
9.	Coastal site	Hinderstein 5 Bishop 23(c)	20
10.	Cold shutdown in 24 hours	Doherty 38B	21
11.	Computer code error	TexPirg AC 26	22
12.	Containment buckling	Doherty 9	23
13.	Control rod ejection	Doherty 28	24
14.	Cooling lake/recreational benefits	TexPirg 2 and 4 Griffith 4 McCorkle 2	25
15.	Cooling lake/radioactivity	Bishop 21	27
16.	Cooling lake/seepage	Bishop 12	28

*/ First party listed in each group is lead party.

	Contention	Party/No.	Text at Page No.
17.	Core lateral support	Doherty 45	29
18.	CRD return line	Doherty 48	30
19.	Doppler effect	Doherty 33	32
20.	Drywell integrity/ Mannings coefficient	TexPirg AC 6	33
21.	ECCS sumps	Doherty 13	34
22.	ECCS vaporization rate	Doherty 32	35
23.	Energy conservation	TexPirg 7a-c Doggett 1(a)	36
24.	Filtration system leakage	McCorkle 17	37
25.	Financial qualifications	Baker 1 Cumings 1 TexPirg AC 32 Doggett 4 Perrenod 1	38
26.	Flow-induced vibration/ general	TexPirg 11	42
27.	Flow-induced vibration/ LPRMs	Doherty 31	43
28.	Fuel failure/MSLRM	Doherty 14 and 25 Board Question 14	44
29.	Fuel rod hydriding	McCorkle 14	46
30.	Fuel specific enthalpy	Doherty 3	47
31.	Fuel swelling/rupture	Doherty 39	48
32.	Gap conductance	Doherty 20(a)	49
33.	Generic issue A-11 (fracture toughness)	TexPirg AC 39	50
34.	H2 monitoring	TexPirg AC 34	51

	Contention	Party/No.	Text at Page No.
35.	HPCS DG reliability	Doherty 10	52
36.	IGSCC	TexPirg 10	53
37.	IGSCC pipe crack/ water hammer	Doherty 44	54
38.	Interconnection/grid stability	Doherty 30	55
39.	Interconnection/purchase of power	TexPirg AC 12	56
40.	LPCI cold slug	Doherty 7	57
41.	Latching	TexPirg AC 50	58
42.	Marine biomass farm	Potthoff AC 6	59
43.	Natural gas generation	TexPirg AC 8	60
44.	Noncondensible gases	TexPirg AC 53	63
45.	Occupational exposure	TexPirg AC 21	64
46.	Outside containment sampling	TexPirg AC 52	65
47.	Part 100 releases (TMI)	Doherty 40	66
48.	Pipeline rupture/dam breach	Bishop 7	67
49.	Pipeline rupture/LPG	Bishop 6 TexPirg AC 23 Board Question 13	68
50.	Pipeline rupture/24" gas line	Bishop 4 and 5	69
51.	Pipeline rupture/non-methane	Bishop 9	70
52.	Pipeline rupture/Brazos River	Bishop 10	71

	Contention	Party/No.	Text at Page No.
53.	Population projections	Bishop 1 Lemmer 1	72
54.	Position indication for SRV	Doherty 42	74
55.	Post-accident monitoring	TexPirg AC 28	75
56.	Rapid depressurization/ steam break	TexPirg AC 55	76
57.	Reactor pedestal	Doherty 27	77
58.	Reactor pressure limit/ relief valves	TexPirg AC 41	78
59.	Reactor water level indicators	Doherty 41 TexPirg AC 54	79
60.	Recirculation pump overspeed	Doherty 6	80
61.	Rod drop	Doherty 24	81
62.	Rod pattern control system	Doherty 12	82
63.	SCRAM discharge volume float switch	TexPirg AC 38	83
64.	Short reactor period	Doherty 46	84
65.	Solar power	TexPirg 7d Cumings 6(c)	85
66.	Stainless steel cleaning	Doherty 43	86
67.	SRV reliability	Doherty 17 TexPirg AC 51	87
68.	STP 3 vs. AC 1	TexPirg 1 Bishop 23(a) Conn 2 Cumings 4 Doggett 2 Johnston 5-2/6-2 Lemmer 2	88

Contention	Party/No.	Text at Page No.
69. Solid waste combustion	TexPirg 5 Cumings 6(b)	90
70. Spent fuel pool accident	Doherty 11 Framson 1	92
71. Stud bolt	Doherty 26(a)	93
72 Suppression pool uplift	Doherty 5	94
73. TNT detonation	Bishop 17	95
74. Technical qualifications	TexPirg AC 31 Doggett 3	96
7.5 Transmission lines/ health effects	Rentfro 2 Marrack 2(b)	98
76. Transmission lines/ waterfowl	Marrack 2(c) Board Question 4	99
77. Turbine missiles	Doherty /	100
78. WIGLE computer code	Doherty 15	101
79. Welder training	Doherty 35	103

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III. Text of Contentions

The short title of each of the following contentions is underscored. This title indicates the subject of each contention.

The name of the Intervenor, together with that Intervenor's contention number, follows the short title. Where several intervenors are consolidated on one contention, the name of the leading party, together with that Intervenor's contention number, follows the short title. The names of any other Intervenors and their contention numbers are collected within brackets. Certain relevant Board Questions are also cited in brackets.

The text immediately following the title-intervenor line is, in most cases, the proposed rewording for that contention. The original text of these contentions follows, separated from the reworded text by a short, centered line.

In some cases, however, no rewording is proposed. These cases can be identified by asterisks at the end of the text, referring to footnotes that discuss the lack of rewording.

Airplane crash TexPirg 6 [Bishop 18; McCorkle 10]

The maximum credible accident has not been considered because the present safety and environmental analyses do not consider the effects of a large airplane, such as a Boeing 747, crashing into the containment vessel. Applicant's estimate as to the probability of such a crash is understated because (1) large plane traffic has increased at least 30 percent in the last three years, and will be several hundred percent higher before the plant is closed in about 40 years, and (2) new airports capable of handling such large airplanes have been proposed to be built in the Fort Bend County area much closer than present airports. Accordingly, the plant (1) should be moved much farther away from population centers or (2) the plant containment should be strengthened to withstand the crash of the largest plane that is allowed to fly in the Houston area. This can be done by doubling the thickness of the containment vessel or by burying the plant.*/

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*/ As consolidated by the Board's Order of May 23, 1980.

ATWS Doherty 8 [TexPirg 8; Board Question 3]

Applicant should be required to provide a redundant and diverse automatic shutdown system to mitigate the consequences of Anticipated Transients Without Scram.

The petitioners are not adequately protected against Anticipated Transients Without Scram Accidents (ATWS). New information shows that 20 transients per annum are typical for new reactors with about 6 transients per annum typical after several years. Applicant has only a manually operated SCRAM system as its redundant system.

Barge slip TexPirg AC 1

Applicant has disclosed that it will transport the reactor vessel to the Allens Creek site by barge. It will be necessary to dredge the San Bernard River to allow such barging. This dredging will disrupt marine life, cloud the water, destroy river bottom life, require spoil disposal, and promote increased industrial use of the river, resulting in secondary environmental impacts.

S.4.5.1 (3) on P9 S. 4-14 of the Final Supplement to the Final Environmental Impact Statement (FSFEIS) does not adequately disclose and analyze the alternatives chosen for the transport of construction related components to the site. In particular, the Applicant has not clearly determined whether waterway barge transit will be used for transportation of large reactor components to the site.

Such a transportation scheme would require dredging and channelizing of sections of the San Bernard River or Brazos River. Such activity would disrupt marine life in that river, create excessive turbidity, and clouding of the water, destroy river bottom life, require environmental destruction during spoil disposal and initiate secondary impact in the form of increased industrial uses of the rivers. Petitioner contends that Applicant's commitment to transportation of the reactor vessel should be expressed more specifically and that the Board should either deny the license wholly or require the alternative site action sought by TexPirg in Contention 1 of the "Stipulation between TexPirg and the NRC Staff", if the dredging and channelizing is necessary.

The final EIS does not specify how the reactor vessel will be transported to the construction site and what means have to be taken to effect this transportation. The probability that this transportation will have an environmental impact necessitates its coverage in a final EIS for construction. For example, dredging, widening or otherwise altering the Brazos River to bring the vessel to the site by barge would have an environmental effect.

It is requested that the construction permit not be issued until the reactor vessel transportation is sufficiently addressed.

Blockage of intake canal Doherty 29

There is insufficient assurance that postulated failures of Ultimate Heat Sink structures will not lead to unacceptable blockage of the submerged intake canal.

Intervenor contends there is insufficient assurance that postulated failures would not lead to unacceptable blockage of the submerged intake canal. These insufficiencies present a risk of meltdown of core if residual heat removal system water is insufficient after a core damaging accident.

Cable fires TexPirg 12

Electrical wiring for the ACNGS is susceptible to fast flaming and potential resulting common mode failures in the event of an intense flash fire.

Electrical wiring for the ACNGS is susceptible to fast flaming, and potential resulting common mode failures, in the event of an intense flash fire. A fire protection research test conducted by the Underwriters Laboratory for the Commission, which the Staff forwarded on October 30, 1978 to the Board and to those on the service list, indicated that modifications to certain of the Staff's fire protection criteria may be necessary.

Charcoal adsorber fires TexPirg AC 30 [McCorkle 17]

Applicant should provide water sprays for the charcoal adsorber beds in the off-gas system.

[TexPirg] Applicant's decision not to use water sprays to maintain the charcoal adsorber material below ignition temperature is an unwise shortcut on the safety of petitioner's members health and economic interests. A fire in these filters following a DBA would result in release of radioactive iodine and other dangerous substances. No reason is given for removing a system recommended by a Regulatory Guide, nor is there likely to be any way to enter the containment building and spray these filters following a Design Based Accident or unexpected accident. Other accidents do occur, such as Browns Ferry, 1975, and the retention of this system offers protection against fire, a conceivable situation around a power plant because of high temperatures in various places of the operation continually or randomly.

[McCorkle] Also, the filter absorber may start a fire by auto-ignition, yet there is no water spray to prevent such auto-ignition as required by NRC Regulation Guide 1.52.

Chlorine monitoring McCorkle 9

No plan has been developed to protect the plant operators from poison gases such as chlorine which could come into the control room in sufficient quantities to force evacuation before the plant was brought to a stable, shutdown condition.

No plan has been developed to protect the plant operators from the danger of poisoning from gases such as chlorine which could come into the control room in sufficient quantities to force evacuation before the plant was brought down to low power status. Railroad accidents and on-site storage of gases such as chlorine could be sources for such gases.

Coal vs. nuclear cost comparison Doggett 1(b) [Bishop 14]

The FSFES § 9.1.2.3 is deficient in that (a) the environmental costs of coal were overestimated because these costs were based on a nationwide rather than on a source specific analysis, i.e., on an analysis of the Powder River Basin as the source of coal, using a coal slurry pipeline for delivery, (b) the economic costs of constructing and fueling nuclear plants are escalating more rapidly than costs for constructing and fueling coal plants, and (c) the Staff's coal versus nuclear analysis has not accurately taken into account the rate of escalation of the price of uranium.*/

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*/ As consolidated by the Board's Order of May 23, 1980.

Coastal site Hinderstein 5 [Bishop 23(c)]

Because of increasing demand for freshwater, an alternative site on the Texas coast should be considered for the Allens Creek Nuclear Generating Station, so that seawater can be used as a coolant.

Petitioner alleges that, in light of the increasing demands upon fresh water, the possibility of an alternative site on the Texas Coast to utilize sea water as a coolant should be explored. [New evidence or new information: "Summary Report - Area-Wide Waste Treatment Management Plant for the Greater Houston Area - December, 1977 - Houston-Galveston Area Council" and a "Point Source Analysis, Inventory - Water Demands and Problem Area Identification - July, 1977 - Houston-Galveston Area Council."]

Cold shutdown in 24 hours Doherty 38B

Contrary to NUREG-0578, the ACNGS reactor cannot be brought to cold shutdown in 24 hours.

Contrary to NUREG-0578, the reactor cannot be brought to cold shutdown in 24 hours.

Computer code error TexPirg AC 26

The nuclear piping systems in ACNGS are designed using a computer program with a subroutine containing an algebraic intramodal force combination in one of the steps. Because the time phasing of the horizontal and vertical components of earthquake motions are not known, the subroutine should use an absolute sum combination.

The computer program used to calculate the stresses on the reactor and containment during the design basis and safe shutdown earthquakes is defective because it subtracts forces when they should be added.

Containment buckling Doherty 9

Applicant does not properly account for "buckling" in the design of its steel containment.

Applicant's steel containment shell is not strong enough by design to resist dynamic and static loads which may plausibly occur during the lifetime of the plant.

Control rod ejection Doherty 28

A control rod ejection, produced by containment and SDVT pressures, can result in reactivity addition rates greater than that calculated for the design basis rod drop accident.

Applicant's PSAR does not consider the possibility of a control rod ejection accident adequately. This endangers intervenor's interests with a reactivity insertion accident. Applicant states (P. 15.1-75 of the PSAR) that "In all cases the subsequent withdrawal speeds (that is speeds due to an 'unplanned withdrawal' which are variable) are less than a rod drop accident", inferring the consequences must be less. But, in a control rod ejection, the rod would be forced out by the containment pressure and possibly the pressure in the SCRAM discharge volume tank (SDVT) would be additional, creating a more rapid rod ejection as opposed to rod drop. That such SDVT pressures have occurred is set forth in TexPirg's contention #32 of May 16, 1979. Rapid pulling of a rod, led to a fatal power excursion with the Stationary Low Power Plant S-L-1 reactor in January, 1961. Applicant should be required to show its control rod system is safe for a control rod ejection accident against transients, calculate the effects on a control rod ejection on the public safety and show why a control rod ejection is impossible.

Cooling lake/recreational benefits TexPirg 2 and 4
[Griffith 4; McCorkle 2]

Due to its size and location, the cooling lake for the nuclear power plant at Allens Creek will be useless as a recreational fishery. In particular:

(1) The location fails to include the nearby bluff area as a recreational and fish spawning area. (The dam should be extended north to a point just east of its present northeast corner. This extension will channel more runoff into the lake and will submerge the bluff area.)

(2) Chlorine releases into the lake will kill significant numbers of fish.

(3) Sewage discharges from Wallis, Sealy, and the nuclear power plant will cause excessive algae growth in the lake.

(4) Heavy metals will concentrate in the lake and in the fish, making them inedible.

(5) Thermal shock will kill large numbers of fish when the plant shuts down during the winter.

[TexPirg 2] The smaller cooling lake size and changed location of the lake vis a vis the original proposal will render the lake useless as a viable recreational fishery because:

a. the changed location eliminates the Bluff area as a recreational and fish spawning area;

b. the amount of chlorine which will be released to the lake has more than doubled, which will result in significant fish kills;

c. sewer discharges from Wallis, Sealy and the nuclear plant will cause an excessive algae growth in the lake;

d. the heavy metal concentrations in the lake will result in heavy metals concentrating in the fish and will make them inedible; and

e. thermal shock will kill large numbers of fish during the winter when plant shutdowns occur.

[TexPirg 4] Even if a cooling lake is approved by the Board, the Board should require that it be redesigned to be more of an environmental benefit and less of an environmental burden. Specifically, the dam (levee) should be extended northward to a point just east of its present northeast corner so that the runoff can go into the lake and so that the north bluff area can be a viable fish spawning area.

Cooling lake/radioactivity Bishop 21

The cooling lake at ACNGS will contain radioactive material, and the amount of radioactive material will increase over time, presenting an unac ptable hazard to humans.

I contend that the Applicant is constructing an "attractive hazard" by building the cooling lake. The lake will contain radioactive material and this material will increase over time. Radioactive material is known to be hazardous to humans, particularly children and expectant mothers. I contend that by building a recreational lake the applicant is knowingly providing a facility that is hazardous to people's health and for which the Applicant will be liable. I contend that the Applicant should either not build the lake or should eliminate all public access to it. Children and expectant mothers should be banned from the environs of the lake for their health's sake. I contend that a cooling tower would be a preferable solution to the problem.

Cooling lake/seepage Bishop 12

Water containing radioactive materials will seep out of the cooling lake at Allens Creek and into the Evangeline Aquifer, which supplies drinking water for area residents. Applicant has not accurately estimated the amount of radioactive material that will be ingested by area residents due to this contamination of their drinking water by this seepage.

A significant amount of water will seep out of the cooling lake. Some of this water and the radioactive materials that it carries will eventually get into the Evangeline Acquifer which supplies drinking water to the area residents. Petitioner contends that the Applicant has not adequately estimated the amount of contaminated water and radioactive material that could be ingested by area residents over the indefinite future from the contaminated acquifer. Petitioner contends that the Applicant should not be allowed to construct the ACNP until and unless he can prove that no radioactive material injurious to health will ever reach any area resident.

Core lateral support Doherty 45

The lateral support of the ACNGS reactor core is not sufficient to withstand lateral seismic forces combined with the lateral blowdown force that arises simultaneously during a LOCA transient.

Intervenor contends that the lateral support of the ACNGS reactor core is not sufficient to withstand lateral seismic forces combined with the laterial blowdown force that arises simultaneously during a LOCA transient.

CRD return line Doherty 48

ACNGS should have a control rod drive return line as an alternative source of high pressure injection to the core.

Intervenor contends the ACNGS should be designed with a control rod drive return line (CRD), because this source of high pressure water functions as an additional safeguard against events where there is water loss from the reactor vessel yet pressure remains high.

SUPPORTING STATEMENT

This Contention is supported by the fact on three occasions of major Boiling Water Reactor Events, the CRD return line and pump have functioned as significant systems to keep a safe reactor core inventory, despite this system's not being a "safety" or "safety related" system. These events were:

a. The fire at the Brown's Ferry Unit 1, on March 22, 1975.

b. The drywell overpressurization event at Dresden II, on June 5, 1970.

c. The loss of core inventory at Oyster Creek, on May 2, 1979.

Further evidence the CRD return line system is of safety value is that there will be periods as long as a week where the ACNGS will be permitted to run with pumps to the high pressure core spray system (HPCS) out of service. In the event of occurrences like those listed above, there would be no source of high pressure for maintaining the reactor core inventory or cooling with HPCS out of service. Hence, the CRD return line offers a back-up system in the event of out of service for the HPCS pumps.

This Intervenor would also point out that "CRD movement may be somewhat slow" on the ACNGS "since the exhaust header pressure is higher" according to a letter enclosure from G. G. Sherwood of General Electric to V. Stello of NRC Division of Operating Reactors of May 22, 1979.

Although there is evidently sufficient reason to remove the CRD return because of unexpected nozzle cracking in the reactor, this Intervenor contends that the significance to safety so far shown by having this non-safety system available outweighs the advantage of removing it due to nozzle cracks. In addition, it should be pointed out that a solution to the nozzle cracking problem may be determined in the future, such that cracking would no longer be a problem. However, if Applicant does not build a CRD return line system, retrofitting would be virtually prohibited in an irradiated reactor vessel. Hence, in view of the BWR accidents cited above, it is safer to retain the system and deal with the cracking problem should it occur.

Doppler effect Doherty 33

The negative reactivity effect from Doppler broadening, integrated in Applicant's fuel and reactor control designs, has been overstated because General Electric used experimental results obtained from tests where fuel dispersed into the reactor coolant rather than from tests using a contained, pelletized oxide fuel form.

Applicant's reactivity control system relies excessively on the Doppler effect to mitigate the effects of transient-caused overpower of the system. Applicant's reactor manufacturer, General Electric, relies on experimental data that does not support this reliance as will be shown below. Applicant's referenced publication, NEDO-20,964, "Generation of Void and Doppler Reactivity Feedback for Application to BWR Design" (July, 1975), states: "The basic mathematical model in calculating void reactivity and reactivity coefficient for BWRs has been the same since 1961," (page 15). This mathematical model has been relied upon because it produced data similar to the experimental data produced from experiments using the SPERT-I and SPERT-III reactors. But the experiments from SPERT-I cited in NEDO-20,964, cannot be applied because that reactor used a powdered oxide of uranium which dispersed into the coolant during excursion testing, creating the appearance that Doppler feedback had decreasd the reactivity when it was actually the dispersal of the powder through the failed cladding to the coolant which mitigated the transient effects. SPERT-III, referenced in NEDO-20,964, was an ". . . experimental program limited to nondestructive reactivity accident tests" (IDO-17281, March, 1969, page 79), which did not include investigation into the mechanical behavior of the fuel (pellets of uranium dioxide). The National Reactor Testing Station planned and sought support for investigations with SPERT-III which would not be limited to nondestructive reactivity accident tests in an internal report, PTR-815 (see pp. 17-9 and 30), but the tests were not performed.

Intervenor contends that since ACNGS is the most powerful BWR attempted (and has a higher power core density than any licensed BWR) that miscalculation of the Doppler reactivity feedback effect will produce greater consequences to his health and safety interests.

Drywell integrity/Mannings coefficient TexPirg AC 6

The drywell planned for ACNGS will not withstand the pressure generated in a LOCA because the water within the weir annulus will not clear the first row of vents before the differential pressure exceeds 28 psi. This is due to a failure to properly account for the Mannings roughness factor within the weir annulus and the vent pipe.

Petitioner contends that the drywell planned for Allens Creek Unit 1 will not withstand the pressure generated in a LOCA. The water within the weir wall will not clear the first row of vents before the differential pressure exceeds 28 psi. This is due to failure to properly account for the Mannings roughness factor within the weir wall and the vent pipe. By delaying the time to clear the first row of vents by only 0.5 second the drywell will be damaged allowing the escape of high pressure steam into the containment without being condensed. This will lead to the containment vessel pressure exceeding 15 psig so that it will crack allowing the escape of radioactive gases above the limits allowed by 10 CFR 100.

ECCS sumps Doherty 13

The Emergency Core Cooling System (ECCS) performance will be degraded by blockage of the ECCS pump suction line strainers with insulation dislodged during a loss-of-coolant accident.

Intervenor contends Applicant's Containment Emergency Sump Pump will not function reliably because during a loss of coolant accident (LOCA) thermal shielding and insulation may be ripped off or otherwise released or separated from in-containment building piping where it would block off the drain of water, preventing it from being recirculated for cooling by the sump pump, and this would degrade the effectiveness of the Emergency Core Cooling System (ECCS). This would endanger Intervenor's health and safety. This issue has been part of Task # C-3 in the Office of Nuclear Reactor Regulation as "Insulation Usage Within Containment". Since issues have been raised by Staff on Applicant's ultimate Heat Sink, and ACNGS will be the largest BWR in the nation when completed, failure of ECCS function due to sump pump water blockage is of particular concern.

ECCS vaporization rate Doherty 32

General Electric's Two Loop Test Apparatus tests have shown that the vaporization rate of water injected during Emergency Core Cooling, after a loss-of-coolant accident, has been underpredicted by the GE ECCS Computer model.

Intervenor contends the vaporization rate of the Emergency Core Cooling System (ECCS) water during a design based loss of coolant accident (LOCA) is more rapid than the General Electric (GE) model predicted for an 8 x 8 fuel assembly core such as ACNGS. This was reported by the Advisory Committee on Reactor Safeguards from its March 8-10, 1979 evaluation meeting on the William Zimmer Nuclear Power Station, Unit 1 from data collected by GE using the two loop test apparatus. Further, Intervenor contends:

a. any revision of the ECCS model should be used in determining the capacity requirements for the ECCS of ACNGS, and

b. a calculation should be made to include the fact that the ACNGS channel boxes are of different thickness than the enclosures of the Zimmer plant, and

c. the results of the revision and calculation should be applied in the construction of the ECCS of ACNGS.

Energy conservation TexPirg 7a-c [Doggett 1(a)]

There has not been a dispositive assessment of the energy demand reduction potential that might derive from conservation measures available to Applicant because:

a. direct capital investment by the Applicant for conservation retrofitting in the service area has not been considered;

b. inadequate attention has been given to the likelihood that major industrial users in the Houston area will be producing their own energy in the near future; and,

c. the rate structure of the Applicant does not provide an incentive for energy conservation.*/

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*/ As consolidated by the Board's Order of May 23, 1980.

Filtration system leakage McCorkle 17

The containment as designed will allow 20% of the containment leakage to bypass the filtration systems.

The containment as designed will allow excessive leakage to bypass the filtration systems. The power company admits that 20% of the leakage would not even be filtered.

Financial qualifications Baker 1 [Cumings 1; TexPirg AC 32; Doggett 4; Perrenod 1]

The Applicant does not meet the requirements in 10 CFR 2.104(b)(1)(d)(iii) and of 10 CFR 50.33(f) that it show that it has sufficient funds available for construction of ACNGS or that it has "reasonable assurance" of obtaining such funds, or combination of the two, because:

(1) Applicant does not have these funds on hand;

(2) there have been cost overruns at STP;

(3) financing is difficult as a result of the accident at TMI;

(4) costs will be higher as a result of the accident at TMI;

(5) uranium costs are likely to increase;

(6) the cost of storing radioactive wastes are likely to increase; and

(7) Applicant has not obtained and will not obtain adequate rate relief.

Applicant must demonstrate that it will not engage in unsafe construction practices should it ever experience a shortage of funds.

[Baker, Cummings, TexPirg] Petitioner contends that the applicant does not meet the requirements of 10 CFR 2.104(b)(1)(d)(iii) and of 10 CFR 50.33(f) that it show that it has sufficient funds available for construction of ACNGS or that it has "reasonable assurance" of obtaining such funds, or combination of the two. Although my argument could have been made in 1978 using information available then, I have opted to use the most recent available information as more relevant to the current proceedings.

My argument relies largely on information contained in HL&P's rate-hike application now pending before the Texas Public Utilities Commission (PUC), which gives the most complete and current picture of the applicant's financial health. Therein, applicant states that it requires a rate-base increase of 179 million dollars in order to finance its ambitious crash program of power plant construction. The

estimated total cost of new facilities, including ACNGS, is said to be 3.9 billion dollars, with 1.7 billion to be spent by 1981 (testimony of D. D. Jordan, HL&P rate-hike application, p. 6). There is reason to believe that this figure is actually too low, as I will explain later.

Applicant does not anywhere claim to have these funds on hand, so the question of financial qualifications, as outlined under 10 CFR 50.33(f), becomes a question of whether or not applicant has "reasonable assurance" of obtaining this large amount of money. Applicant's PUC rate-hike application makes clear that their only hope of obtaining such funds is to include 100% of Construction Works In Progress (CWIP) and Nuclear Fuel in Process (NFIP) in the rate base, i.e., to get the current ratepayers to finance plants which are not yet producing electricity.

This is a continuing theme in the rate-hike application, but the company's position is stated most succinctly in the testimony of its comptroller, Steve Letbetter: "As a minimum, the level of CWIP and NFIP in rate base should be the amount required to maintain the Company's financial integrity.... As Schedule P indicates, 100% inclusion is required to produce results which would enable the Company to achieve its financial integrity requirements." (Testimony of Letbetter, p. 7, emphasis added). Later, Mr. Letbetter states: "Construction expenditures in 1980 will be far greater than the current level, but hopefully, with 100% of our CWIP in rate base, HL&P will be in a position to weather the serious financial burdens placed on the Company." (Letbetter, p. 30, emphasis added).

Petitioner contends that such "hopefulness" on the part of the applicant scarcely constitutes the "reasonable assurance" of financial integrity outlined in 10 CFR 50.33(f), since by applicant's own admission such assurance is dependent on the recommendations of the state PUC. This body (the PUC) dealt a severe blow to applicant's "hopes" in November of 1978 by granting only a fraction ($39 million) of the rate increase which applicant said it required; it is for this reason (according to cover letter of D. D. Jordan) that applicant seeks another rate increase this year even though the PUC's own rules of procedure allow such a request only every two years. PUC counsel has recommended against applicant's request already. Additionally, the City of Houston's consulting firm on this matter, Touche Ross of Dallas, has very recently recommended that applicant get only 43 million

of its requested 179 million dollar increase in rate base. (Houston Post, Sept. 14, 1979).

Finally, it should be noted that even if applicant gets . 1 of its hoped-for CWIP and NFIP, a substantial portion of it will have to cover cost overruns as its South Texas Project already under construction and will therefore be 1.6 billion dollars as the construction cost of STP 1 and 2 (from rate-hike application), which is the figure upon which applicant bases its CWIP requirements, and the recent disclosure by Brown & Root that the latest cost estimate for both these units is now of the order of 2.4 billion dollars. Applicant's share of this 800 million dollar discrepancy (30.8% or approximately 250 million dollars) will cut substantially into the one billion dollars it says it requires for construction of ACNGS, even if the PUC grants applicant 100% of CWIP.

Petitioner asks that the Licensing Board not look upon applicant's "hopefulness" of obtaining 100% of CWIP as "reasonable assurance" of having sufficient funding, but instead require that applicant obtain secure funding from a private source to be repaid when electricity is available from ACNGS. Alternatively, applicant should be required to make some showing that the PUC and the various local governments which represent the interests of the ratepayers are willing to make a clear commitment to provide applicant with all the construction funds (including such cost increase as may be required in the future) that it may need through assured inclusion of 100% of CWIP and NFIP in the rate base. Failing either of these goals, construction permit should be denied for failure to satisfy requirements of 10 CFR 50.33(f).

[Doggett, Perrenod] HL&P is not financially qualified to design and construct the proposed facility. Evidencing HL&P's financial disqualification is HL&P's application for a 20%, $179 million rate increase primarily to continue to finance its new power plant construction. According to HL&P each year ACNGS is delayed, an additional $110 million is added to the construction of ACNGS. STNP now shows cost overruns exceeding $1 billion. The Texas Observer, July 13, 1979. Most of these overruns have been caused by design changes, deadline revisions, and construction problems. Id. See also U.S. News & World Report, August 13, 1979, p. 37. Because of these tremendous cost overruns, city officials in Austin and San Antonio have demanded outside audits to check the performance of HL&P and

Brown & Root in the STNP. The possibility of lawsuits has also been raised. The Houston Post, August 29, 1979, p. 1. Financing is becoming difficult to obtain as a result of Three Mile Island. U.S. News & World Report, August 13, 1979, p. 38. Construction costs for STNP and ACNGS may be forced even higher if major design changes are found necessary as a result of Three Mile Island studies. NRC staff is already recommending revision of control and monitoring systems and improved training of operating personnel. Uranium costs are likely to increase, and there may be a severe shortage of uranium by the 1980's. Costs of storing radioactive waste are also likely to increase as storage sites begin to reach capacity. In summary, rising fuel, waste disposal, and construction costs are likely to continue to rise significantly. These are factors beyond HL&P's control. In addition, HL&P has shown poor management at STNP resulting in large, unnecessary costs. As a result, HL&P has already been forced to request a substantial rate increase to maintain its financial ability to continue with STNP and ACNGS. All factors tend to show that HL&P is not financially qualified to undertake ACNGS.

Flow-induced vibration/general TexPirg 11

Applicant has not adequately assessed the effects of flow-induced vibration on jet pumps, spargers, fuel pins, core instrumentation (other than LPRMs), and fuel rods.

Applicant has not adequately assessed the effects of flow-induced vibration on jet pumps, spargers, fuel pins, core instrumentation, and fuel rods. Feedwater spargers failures occurred at five BWR units from 1975 to 1976, all due apparently to flow-induced vibration. Petitioner asks that a license be denied until an adequate assessment is presented by the Applicant.

Flow-induced vibration/LPRMs Doherty 31

Flow-induced vibration of the fuel assemblies will lead to unacceptable degradation of the Local Power Range Monitors (LPRMs).

Intervenor contends coolant flow induced vibration of the fuel assemblies will lead to degradation of the Local Power Range Monitors (LPRM's) signal due to wear or other damage, to the extent reactivity monitoring and control in several significant fuel rods will become unreliable, exceeding the $\pm$ 5.4% error in Radiation Monitoring Systems and leading to administrative derating of the reactor. Intervenor contends Applicant should provide additional LPRM's to give additional information on the BWR core's power characteristics sufficient to prevent either administrative derating or accident hazards such as power excursions. Current plans for 33 LPRM's are not sufficient.

Fuel failure/MSLRM Doherty 14, 25 [Board Question 14]

ACNGS fuel failure detection is inadequate. The Main Steam Line Radiation Monitor (MSLRM) will not detect a rapid fuel failure or a flow blockage accident involving more than one fuel assembly.

[Doherty 25] The design based accident for a flow blockage incident is inadequate because it assumes blockage of but one fuel assembly. The only known accident of this type (a very serious one) involved blockage of two fuel assemblies (Fermi, Unit 1, 1966). In addition, NUREG-0401 "Fuel Failure Detection in Operating Reactors," March 1978, page 23, concludes that "...a possible exception (to adequacy of fuel failure detection) is associated with a postulated BWR flow blockage accident which might proceed undetected in its early stages." In-core and in-reactor materials and parts may work loose due to corrosion or mechanical failure including internal parts of piping, and fuel assembly support parts such as intermediary spacers, and channel box portions. Steam dryer section could do this also. Where ACNGS is planned to produce more thermal energy than any BWR to date in a configuration of reactor internals largely untried at full scale, the danger of this accident is greater than the smaller 7 x 7 fuel design plants. This Intervenor contends there is danger in such an accident of severe economic loss and possible danger to health and safety if fuel melts as in the Fermi Unit-1 accident. Applicant should be required to develop data on an accident involving additional flow blockage than the design based accident and incorporate any new developments which improve flow blockage detection reported to be in "experimental stages" in NUREG-0401.

[Doherty 14] Intervenor contends that the design of the Main Steam Line Range Monitor (MSLRM) is not adequate to detect rapid fuel failure in the core of ACNGS. That MSLRM cannot detect rapid fuel failure is evidenced by the failure of this system at Dresden Unit-3 in October of 1974 where an estimated 200 fuel rods failed during an operational transient and at Three Mile Island, Unit 2, where fuel failure was not detected until three hours after the feed-water transient of March 28. The MSLRM cannot be set low enough to detect rapid fuel failure with sufficient sensitivity due to the presence of N16 which gives false position alarms unless the monitor is set too high to detect rapid

fuel failure. NUREG-0401 (March 1973), concludes that a BWR flow blockage accident resulting in fuel failure cannot be detected with certainty by the MSLRM. This intervenor argues:

a. Since the MSLRM does function without N16 interference in a Pressurized Water Reactor (PWR) that nuclear steam supply system should be constructed at ACNGS, or

b. Applicant should consider the use of a Gamma Dose Rate Alarm, employing an Ionization Chamber (See: Health Physics 36, Feb., 1979, 195-99).

The higher power core density and high total output thermal power of ACNGS, make rapid fuel failure a higher probability than any other functioning BWR, and thus the contention is suitable for the construction license hearing.

Fuel rod hydriding McCorkle 14

The fuel rods to be used are not safe because of clad failures and off gas activity caused by hydriding and the effects of fuel densification which increases power spikes and heat generation rate.

The fuel rods to be used are not safe because of clad failures and off gas activity caused by hydriding and the effects of fuel densification which increases the power spikes and heat generation rate.

Fuel specific enthalpy Doherty 3

The Applicant's design limit on specific fuel enthalpy of 280 calories per gram is too high and does not provide a suitable margin for protection against accidents resulting in the dispersion of fuel into the coolant through cladding ruptures produced by internal gas pressure.

The design safety limit of thermal energy for each fuel rod is too high for fuel rods which will be in a cluster such as that proposed for ACNGS. Tests on two General Electric 9/16 in. outside diameter zircaloy rods, that had been irradiated approximately one-third (1/3) of the time a fuel rod typically between 147 cal/gm of uranium oxide fuel to 175 cal/gm of uranium oxide fuel if a power excursion (Reactivity Initiated Accident) occurs. The rupture of the rods means there is danger of:

a. Fuel fragments escaping into the coolant from the rods due to the pressure of gases escaping through the rupture.

b. Pressure pulses from fuel in contact with the water after it escapes from the fuel rod.

c. Serious weakening of the cladding strength of the rods after rupture. Such rupturing means the rods would not have sufficient resistance to withstand normal pressure actions of the circulating coolant or disturbances due to the power excursion (RIA) itself. The weakened rods would be bent out of alignment resulting in excess fissioning leading to further excess reactivity at the location where the rods are distorted and cladding rupture with results such as (a) and (b).

d. Fuel from damaged rods may prevent function of the control rods by jamming interstices between the control rods and the reactor bottom.

Because ACNGS has more compact rods in each fuel bundle and a higher power core density than any operating BWR in the United States, Petitioners request the design safety limit of the fuel rods be lowered, and various parameters in the reactivity control system be altered in accordance with this change.

Fuel swelling rupture Doherty 39

The Applicant has not shown adequately that the degree of swelling and incidence of rupture are not underestimated.

The Applicant has not provided an adequate showing that the degree of swelling and incidence of rupture are not underestimated.

Gap conductance Doherty 20(a)

Applicant has failed to account properly for temperature in its calculation of fission gas release rates.

Intervenor contends fission gas release due to fuel rupture of fuel rods with burn-up of greater than 20,000 megawatt-days per ton of uranium will be greater than applicant's estimate during a LOCA. Applicant's underestimate means fission gas release will be greater than predicted, resulting in lower pellet-cladding gap conductance which results in higher initial stored energy and consequently higher peak cladding temperature for the ECCS to control during a LOCA.

This higher peak cladding temperature will increase the calculated peak cladding temperature to one in excess of 2,200° F. The underprediction is caused by the fact that in the Dutt and Baker correction factor, the only independent variable considered was fuel burn-up. Fuel operating temperature is an independent variable also. Further, much of the data in support of the correction factor was taken from fuel rods fabricated many years before and tested in 1973. These older rods differ from those to be used in ACNGS in several ways, some of which may have increased fission gas release, while others decreased fission gas release. There is no certainty the differences cancel out one another, so that the data are applicable to a calculation to the ACNGS.

Intervenor contends Applicant should not be permitted to use fuel rods once the threshold for significant Fission Gas Release occurs. This would be at 24,000 MWd/metric ton for a BWR according to an article in Nuclear Safety, 20(4), p. 418, 1979.

Generic issue A-11 (fracture toughness) TexPirg AC 39

The Staff's conclusion that ACNGS may be operated without endangering the health and safety of the public is premature with regard to the fracture toughness of reactor vessel materials, because the NRC Staff does not have a sufficient understanding of the process of embrittlement to resolve this issue on a post-CP basis.

TexPirg contends the Staff's conclusion that ACNGS may be operated without endangering the health and safety of the public is premature with regard to reactor vessel materials. If the reactor is installed as planned now, resolution of generic issue A-11 will not be enforceable without such major disruption to service to make the plant virtually totally rebuilt. We contend that the process of embrittlement of the reactor vessel is not understood sufficiently well to justify the Staff position and that construction of the reactor vessel should not be started until the A-11 generic resolution is reached. In 44 Federal Register 18513, the NRC states it is considering amending its regulations specifying fracture toughness in 10 CFR 50, Appendix G.

H2 monitoring TexPirg AC 34

Applicant's hydrogen monitoring system for the containment building is not adequate during a LOCA or similar event, as demonstrated by the accident at TMI.

TexPirg contends that the Applicant monitoring of in containment building events during LOCA or similar events is not adequate to detect immediately the occurrences of hydrogen explosions. That the recent Three Mile Island incident shows that current approved containment building monitoring apparatus did not bring such an event to the attention of operators immediately, and that therefore the strong possibility existed that actions which would prevent a second hydrogen explosion were not taken. There is danger that hydrogen explosions will endanger TexPirg members because the containment building during a LOCA is likely to contain radioactive gases which would be released from the building damaged even lightly by the explosion and in excess of 40 CFR 190 or 10 CFR 20.

HPCS DG Reliability Doherty 10

The diesel generator which powers components in the High Pressure Core Spray system and the diesel generators which power the rest of the nuclear plant are not reliable in automatic start-up and operation because they are identical to ones identified in NUREG-0660 which had 122 start-up failures.

Intervenor contends that his health and safety interests are not sufficiently protected because applicant's diesel generator system to the High Pressure Core Spray (HPCS) and to the rest of the nuclear plant is unreliable in start up and operation. Specifically, Applicant's system is identical (largely) to one that according to NUREG-0660 (Feb. 1979) produced 122 start-up failures and which included 54 of these failures among BWR licensees from 1969 to 1979, and according to Nuclear Safety 19(1), p. 81, had 74 "Reportable Occurrences" in 1976 and 76 (Nuclear Safety, 20(1), p. 84) in 1977. Further that diesel generators are subject to other than inherent failure through worker error (Oyster Creek, December 1975), poor administrative practice, i.e. fuel oil stored with lubricating oil and used as a lubricant (Brunswick, Unit 2, October 1975) and outside storage of diesel generators prior to plant start-up, resulting in water logging (Ft. St. Vrain, June, 1975).

NUREG-0660 has concluded that interpretation by the utilities of the NRC regulatory guides on diesel generators has varied widely and been a problem source. Intervenor contends that the data above show the need for either (a) a third generator be installed for both the HPCS and a third for the balance of the plant systems, (b) a higher standard than 93 starts per 100 be used in requiring additional information to the NRC, (General Electric Technical Specification 4.8.1.1.4 for BWR's) and that (c) Surveillance Requirement 4.8.1.1, should require an every three day surveillance, and all other surveillance times halved in view of the serious consequences of power failure to a nuclear plant.

IGSCC TexPirg 10

Applicant has not adequately demonstrated compliance with 10 CFR Part 50, App. A, criterion 31, with regard to intergranular stress corrosion cracking as demonstrated by failures at similar BWR units.

Applicant has not adequately demonstrated compliance with 10 CFR Part 50, App. A, criterion 31, with regard to intergranular stress, corrosion and cracking. Excessive oxygen levels, superposed loads, and residual stresses may result in ultimate failure of piping, despite altered metal content for the ACNGS design, the NRC investigation of stress, corrosion, and cracking problems at similar BWR units was released in December, 1975.

IGSCC pipe crack/water hammer Doherty 44

The ACNGS piping in the feedwater, steam supply, residual heat removal, ECCS, containment spray and service water systems are not adequately designed to prevent propagation of intergranular stress corrosion cracks by water hammer forces.

Intervenor contends the ACNGS design is unsafe against pipe break accidents at pipe cracks initiated by water hammer. Further, analysis of such an event is required to indicate what must be done to cope with accidents caused by large deep cracks in the recirculation pipes such as those discovered at the Duane Arnold Energy Center in 1978. According to the 1978 NRC Annual Report, 100 incidents involving water hammer have occurred in both PWR's and BWR's. A recent Advisory Committee on Reactor Safeguards (ACRS) report to the Commission (August 16, 1979), indicates there is need for more adequate inservice inspection of piping including feedwater and steam supply piping, residual heat removal system, ECCS, containment spray system, and service water systems in nuclear plants such as ACNGS.

Intervenor contends:

a. Applicant should be required to analyze and determine what additional measures may be taken to mitigate the consequences of water hammer on system piping listed above, and...

b. Applicant should be required to analyze and determine what additional measures may be taken to mitigate the consequences of water hammer on system piping listed above which has suffered the various types of cracking observed in NUREG-0531, and NUREG-75/067, and

c. Applicant should be required to analyze and determine what additional measures can reduce the probability of an event where water hammer causes a cracked pipe to break.

Interconnection/grid stability Doherty 30

Applicant refuses to interconnect its electrical grid with any utility which interconnects with an out-of-state utility. This refusal makes the safety systems at the Allens Creek Nuclear Generating Station (ACNGS) more vulnerable to loss of off-site power during bad weather or other disturbances.

Intervenor contends his health, safety and economic interests are imperiled because Applicant refuses to interconnect with any utility which interconnects with an out of state utility. This refusal makes ACNGS safety systems more vulnerable to lack of power in the event there is loss of off-site power during severe climactic conditions or other disturbances, and the proposed unit must turn on on-site diesel generators which are not highly reliable, and unpreferred to the use of off-site power. Further, in July, 1974, the Vermont Yankee BWR experienced a turbine trip due to lightning during severe climactic conditions and in September, 1977, the Donald C. Cook-Unit 1, had the same event. Applicant's grid may become too highly centered around ACNGS because it will produce a high proportion of the power and will be a base load operating plant particularly during non-peak hours and non-peak seasons. Applicant should be required to show that interconnection is not necessary to provide grid stability and adequate power to the ACNGS safety systems without use of the unpreferred power source, with the condition that if this cannot be shown, Applicant will be required to interconnect with out-of-state interconnected utilities before a construction license is granted. Or, alternatively Applicant should be required to either:

a. shut down ACNGS when there are severe climactic conditions; or

b. provide a third generator and generator start-up when severe climactic conditions occur.

Interconnection/purchase of power TexPirg AC 12

Applicant can eliminate the need for ACNGS by interconnecting with other electrical systems across the country, because they have excess capacity which can be purchased by HL&P in lieu of constructing ACNGS.

Studies such as that conducted by Taylor in Energy: The Easy Path and by the Subcommittee on Energy of the Joint Commission of Congress indicate that national, systemwide conservation decreases the need for new generating facilities nationwide; and this can provide the applicant here the alternative of interconnecting the HL&P system to other electrical systems across the nation which presently have excess capacity and will have even greater excess capacity in the future due to conservation. By interconnection of grids, the required reserved margin can be reduced for HL&P, and the need for additional generating capacity will be obviated because of the lowered need for reserves and the reduced industrial electrical demand (relative to that projected by Applicant) resulting from the Houston area's designation as an air quality non-attainment area. The state and local governments, and business groups, have stated that the EPA's "offset policy" of enforcing the non-attainment designation will curtail Houston industrial growth. The PID failed to consider the question of interconnection as an alternative, and the FS-FES is deficient in that respect because it examines interconnection only in the sense of a discrete purchase of power transaction.

LPCI cold slug Doherty 7

Injecting Low Pressure Coolant Injection water from the suppression pool into the core after a SCRAM can result in a positive reactivity insertion which will overcome the shutdown reactivity of the inserted control rods and result in fuel melt temperatures.

The design of obtaining Low Pressure Coolant Injection (LPCI) core spray water from the suppression pool following exhaustion of the condensate storage tank during Loss of Coolant Accident (LOCA), Reactivity Insertion Accident (RIA), or Transient Without Scram (TWS) is an unnecessarily high risk to Petitioners' safety and environment interests because suppression pool water is colder than reactor coolant; hence when sprayed in the core it will increase core reactivity causing high temperature and increase possibility or actuality of fuel melt and formation of a critical mass.

Latching TexPirg AC 50

ACNGS is a hazard because its radioactive emissions may confuse electronic guidance systems in airplanes in the general vicinity.

TexPirg contends the ACNGS is a hazard to its members health and safety interests, because its radioactive emissions may confuse electronic guidance systems in airplanes in the general vicinity. A B-52 military plane crashed within two miles of a nuclear plant near Charlevoix, Michigan in January, 1971 (its cause was never released) and a light plane crashed in fog on August 25, 1972 at the Millstone Power Station. We have previously contended (TexPirg #6, accepted Feb. 1979) that airplane traffic will increase in the ACNGS area, and seek to add testimony on the guidance system "latching" phenomenon and the danger it imposes on public safety.

Marine biomass farm Potthoff AC 6

Applicant failed to consider a marine biomass farm as a viable alternative to ACNGS.

In the FES, the Staff states that biomass production is "not now a reasonable alternative" to ACNGS. However, Project Independence estimates fuels from biomass production (urban waste, agricultural waste, terrestrial crops, marine crops) would amount to 3×10^{16} gross BTUs per year, and that large quantities of marine crops can be grown and harvested without subsidies when oil hits $11 per barrel. Project Independence estimates a 100,000 acre marine biomass farm, producing 27×10^{12} BTUs/year, would cost $578 million. I contend building and operating a marine biomass farm, or other biomass production systems, would be environmentally preferable to ACNGS, and ask the Board to deny the permit under the NEPA.

Natural gas generation TexPirg AC 8

Natural gas plants are a feasible and environmentally superior alternative to ACNGS for generating the needed base load capacity in the time frame ACNGS is expected to operate.

Intervenor alleges that the PID did not consider the alternative of new natural gas fueled generating facilities; and that such a facility is feasible and will result in less environmental damage than the action envisioned in the application sought here. Specifically, the above-noted PID and the FS-FES did not consider the following factors weighing in favor of constructing a new natural gas fueled generator, extending the lifetime of gas generators presently planned for early shutdown, and/or increasing the capacity of presently operable natural gas fueled generator units; and these factors form the basis for alleging the inadequacies of those analyses:

A. the conclusion of the FS-FES and the PID's apparently implicit conclusion that supply of natural gas outstrips demand is not totally accurate, because --

   1. A present "glut" of natural gas exists in the market, at least partially due to price deregulation and the fuel switches which have occurred.

   2. The conclusions do not consider improved seismic and holographic techniques at 30,000 feet or more.

B. Supposed legal constraints upon the use of natural gas have been improperly used as a basis for dismissing the potential of natural gas because:

   1. The circumstances described in (A) above may lead to modification or repeal of constraining portions of P.L. 93-319 and the Industrial Fuel Use Act of 1976, just as the Texas Railroad Commission has suspended similar legal restraints

in Docket 600; and regardless, the legal modifications of those laws are reasonable and must be considered as an alternative federal action to the licensing of ACNGS under NEPA;

2. The Industrial Fuel Use Act of 1976 has exemptions for areas with poor air quality, and Houston is classed as an air quality "non-attainment area"; therefore, the granting of such an exemption is plausible and must be considered as an alternative federal action under NEPA.

C. Both the 1974 FES used for the PID and the FS-FES (1978) inaccurately conclude that natural gas prices eliminate this alternative, and this is shown by:

1. the fact that Applicant has prepared projections of natural gas prices for the future which indicate the price as adjusted for inflation will decline;

2. the numerous analyses of historical data (including the staff's own study by Sandia) regarding the capacity factors for nuclear units of the type similar to ACNGS, which thus show that ACNGS' likely efficiency has been overestimated by the Applicant and staff, increasing its cost relative to natural gas generation; and

3. the historical data for recent vintage nuclear plants indicate that the capital cost of ACNGS is probably underestimated, also increasing its relative cost.

D. Natural gas generation is environmentally superior to ACNGS because:

1. Natural gas has negligible sulphur dioxide and radioactive air emissions, and the remainder of air emissions are manageable; while nuclear generators

emit radioactive releases to the air in both normal operations and design basis accidents;

2. Natural gas ash content is negligible, resulting in no disposal problems, which nuclear waste disposal results in numerous environmental impacts.

3. Natural gas generators require less physical land space than ACNGS; and the natural gas fuel cycle entails less land damage, as well as less occupational risk, during the fuel extraction process.

4. Natural gas generators consume less water than ACNGS, and do not increase ambient water temperatures as high as ACNGS.

5. Natural gas facilities are more economically built in smaller multiple units than a nuclear power plant, which allows a lower necessary reserve margin and a consequent reduction in the amount of resources committed for installed capacity to produce given amounts of electricity.

Noncondensible gases TexFirg AC 53

Applicant should commit to a system to measure hydrogen gas in the reactor vessel following a small loss-of-coolant accident.

This Intervenor contends Applicant should commit to a system to ascertain accurately how much non-condensible gas is in the reactor vessel, to assist in estimating the possible explosion hazard in the vessel during an ECCS. The need for this information was demonstrated at Three Mile Island, Unit 2, during its recent incident. Petitioner contends that inability to know accurately the amount of non-condensible gas in the reactor increases the chance of an explosion and damage to the fuel geometry and/or physical breaking of fuel rod clad.

Occupational exposure TexPirg AC 21

The operating history of BWRs shows that the estimate of occupational radiation exposure for ACNGS is significantly understated.

The environmental impact of radiation exposure to the workers of the Allens Creek plant has not been properly considered. This is because the radiation exposure to the workers increases the longer the plant operates. The GESMO Report of 1976 estimated the occupational exposure from light water reactors at 570 man rem/GW(e) year, yet the measured exposure has been recorded as about 3 times this rate after only about 7 years operation. See Feb. 1979 article in the Nuclear Engineering International at page 36 entitled "Radiation exposure in LWR's higher than predicted". The problem is shown to be especially in BWR's such as Milestone, Nine Mile Point, Oyster Creek, and Pilgrim.

Outside containment sampling TexPirg AC 52

Applicant should commit to a system that permits taking of a primary coolant sample when the containment building is dangerously radioactive, such that no workers need enter.

Intervenor maintains Applicant should commit to a system that permits taking of a primary coolant sample when the containment building is dangerously radioactive, such that no workers can enter. This was one of the information problems at Three Mile Island, where during emergency conditions caused by an ECCS the utility operating the plant was unable to assess how much fuel damage had occurred. Intervenor contends lack of this knowledge made some options appear possible when they might have been hazardous or even had severe consequences if attempted. Such a system would remove some of the uncertainty likely to occur in the event of an ECCS.

Part 100 releases (TMI) Doherty 40

The doses from credible accidents at ACNGS will exceed 10 CFR Part 100 limits because the Regulatory Guide criteria for calculating such doses significantly underestimates the release of Xenon 133, as demonstrated by the releases that occurred during the accident at TMI.

Intervenor contends the Allens Creek site is unsuitable for the proposed nuclear plant, because the assumed fission product release from any accident considered credible will exceed the limitations of radioactivity dose to the low population zone stated in 10 CFR 100.11, (a)(1), (2), and (3).

This Intervenor contends this because the actual release of radioactivity from the Three Mile Island accident exceeded calculated release for any accident considered credible by a factor of 22, using the calculation suggestions of Regulatory Guide 1.4 */ The proposed ACNGS and Three Mile Island are sufficiently similar in design such that the miscalculation in the ill-fated reactor's case is the same for the subject of these proceedings, in regard to source terms, and other factors.

This contention is particularly relevant to ACNGS construction license proceeding because the Applicant's proposed NPSS will use the largest BWR core attempted, with the highest power core density, and greater minimum critical heat flux ratio than any functioning BWR plant. Construction of the plant at the proposed site will injure Intervenor's health and safety interest by exposing him to radiation in excess of the guidelines of 10 CFR 100.11.

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*/ This information was available by a "Board Notification TMI Releases (BN-79-23), received Friday, July 13, 1979. [Intervenor's footnote.]

Pipeline rupture/dam breach Bishop 7

Petitioner contends that the proposed re-routing of the Texas Utilities Company's 24-inch gas line so that it goes parallel to and very close to the cooling lake dam creates a safety hazard. The line could burst and through explosion or erosion breach the cooling lake dam and release the lake water. At least two serious consequences could result: (1) people could be killed and property destroyed in the area due to flooding, (2) the plant could be left without adequate cooling water. The Applicant should be required to reroute the line or redesign the dam to withstand the forces associated with a gas explosion and erosion.

Petitioner contends that the proposed re-routing of the Texas Utilities Company 24 inch gas line so that it goes parallel to and very close to the cooling lake dam created a safety hazard. The line could burst and through explosion or erosion breach the cooling lake dam and release the lake water. At least two serious consequences could result: (1) people could be killed and property destroyed in the area due to flooding, (2) the plant could be left without adequate cooling water. The Applicant should be required to reroute the line or redesign the dam to withstand the forces associated with a gas explosion and erosion.

Pipeline rupture/LPG Bishop 6 [TexPirg AC 23; Board Question 13]

The rupture of the six-inch liquid petroleum gas pipeline could cause a cloud of explosive gas to travel along depressions to the area of the plant before exploding with such force that it would damage the safety equipment and the workers at the plant.

The rupture of the six-inch liquid petroleum gas pipeline could cause a cloud of explosive gas to travel along depressions to the area of the plant before exploding with such force to damage the safety equipment at the plant and the workers at the plant. For this reason either the pipeline or the plant must be moved.

Pipeline rupture/24" gas line Bishop 4-5

Moving the Texas Utilities Company's 24-inch natural gas pipeline to the proposed route will increase the danger to the people in the city of Simonton and particularly to those people who live in the Valley Lodge subdivision.

This move also creates an increased hazard of pipeline rupture. Specifically, the new route runs the pipeline very near the bank of the Brazos River, which could give way due to unstable soil or undercutting during floods.

I contend that moving the Texas Utilities company 24 inch natural gas pipeline to the proposed route will increase the danger, in the case of a pipeline rupture, to the people in the city of Simonton and particularly to those people who live in the Valley Lodge subdivision. The proposed new route will put the pipeline between one-half and one mile closer to Valley Lodge and Simonton. In the case of a pipeline rupture natural gas in large volumes could escape and either axphixiate people in the area or more likely, create fires or explosions. I contend that the applicant has not adequately assessed the danger imposed on the area population. I contend that the Applicant should re-route the pipeline elsewhere so that fewer people are endangered.

I contend that moving the Texas Utilities Company 24 inch natural gas pipeline to the proposed route creates a hazard of pipeline rupture that did not previously exist. Specifically, the new route runs the pipeline very near the bank of the Brazos. Sediments near river banks are often unstable; furthermore, during floods the river could enlarge its channel and undercut the line. In any event, due to unstable soil or being exposed by the river the probability of a pipeline rupture has been increased by Applicant's proposed rerouting. A pipeline rupture and the attendant escape of highly flammable and explosive gas endangers the lives of citizens and property in the area. I contend that Applicant should be required to find a route for the pipeline that is less hazardous than the one proposed.

Pipeline rupture/non-methane Bishop 9

Applicant cannot effectively detect and deactivate a leaking section of the 24-inch natural gas line. Moreover, the potential exists for a greater than anticipated detonation energy release due to other than pure methane being discharged from a leak or rupture.

I contend that the Applicant has under-estimated the effects of detonation of gas from a ruptured natural gas line on the plant. The Applicant's assumptions on yield, point of ignition and volume of escaped gas are all conjectural. I contend that an analysis using different assumptions would show that the plant could be seriously damaged by detonation of a gas cloud. The Applicant should reevaluate the assumptions used in his analysis and prove that the plant is designed to withstand the detonation forces that could emanate from various combinations of cloud size, yield, etc.

Pipeline rupture/Brazos River Bishop 10

Applicant states that there are no sources of corrosive liquid or oil upstream of the plant on the Brazos River. This statement is incorrect. Numerous pipelines carrying a variety of potentially dangerous substances cross the Brazos upstream of the plant. If such a pipeline broke, the River could carry large amounts of flammable and/or corrosive materials downstream to the plant via the cooling lake intake. The materials could enter the cooling lake and create a hazard to the plant.

Applicant states that there are no sources of corrosive liquid or oil upstream of the plant on the Brazos River. This statement is incorrect. Numerous pipelines carrying a variety of potentially dangerous substances cross the Brazos upstream of the plant. If such a pipeline broke, the River could carry large amounts of flammable and/or corrosive materials downstream to the plant via the cooling lake intake. The materials could enter the cooling lake and create a hazard to the plant. I contend that the Applicant should redesign the plant or move the pipelines to eliminate this hazard to the public health and safety.

Population projections Bishop 1 [Lemmer 1]

The projected population density within a 50-mile radius of the proposed nuclear power plant at Allens Creek is greater than Applicant estimates and exceeds criteria set by the Nuclear Regulatory Commission.

Population in and around a nuclear power plant is a vital consideration to the NRC when siting the plant. HL&P has clearly underestimated the rate at which the population of Houston will grow and spread toward the plant. Houston's suburbs are already as close to the plant as the Applicant assumed they would be in 2020 A.D. I contend that this plant should not be sited so close to Houston which is the major population center in the south USA and the nation's fastest growing city. At the rate the city of Houston is growing the plant will soon be in the city limits, possibly before it could be constructed. It is absolutely unconscionable to endanger the lives of approximately 5 million persons which HL&P assumes will be living within 50 miles of the plant at some time during the plant's life. I contend that HL&P has underestimated the growth of the area and that the population within 50 miles of the plant may exceed 10 million persons during the plant's life. Furthermore, to risk, in the case of a major accident, the forced abandonment of the nation's major concentration of the petrochemical industry is folly. To risk losing a major part of this nation's conventional energy processing sites to gain a mere 1200 MW of electrical energy is foolishness of the worst sort.

I contend that the Applicant has grossly underestimated the growth of population in the area of the plant and that a construction permit should be denied. Multifamily dwellings, cluster homes and other high density developments are already underway within 2-3 miles of the plant boundary. This trend can be expected to grow and accelerate. Plans for a potential major recreational area like Disneyworld or Six Flags Over Texas are being studied for a site within about 10 miles of the plant. If this should develop, a major influx of permanent residents into the immediate area of the plant would ensue. Further, thousands of transient population would be in the area; many of whom would be children. I contend that this area is being developed too rapidly to risk siting ACNP in the area. I contend this plant should be sited in an area more remote from the city of Houston.

Based on the information supplied in the EIS, the proposed ACNP will have more people within 50 miles of the plant during the plant's life than did other plants to which HL&P compared; i.e., N. Anna, Calvert Cliffs, Susquihanna, Peach Bottom and Oyster Creek. Rather than siting ACNP in an area of greater population density than comparative plants it should be sited in an area remote from any major population centers and hence in an area with less population than other plants. I contend that the construction permit should be denied on the basis of population exposure and that the site should be moved elsewhere.

Position indication for SRV Doherty 42

The indication of power operated relief valve and safety valve position to the reactor operators is ambiguous and unreliable, as demonstrated by the accident at TMI.

Intervenor contends his health and safety interest will be injured because the information system giving the position of power operated relief valves and safety valves to the reactor operators is ambiguous and in need of improvement. This is a finding of the "Lessons Learned Task Force" on Three Mile Island, Unit 2 (TMI-2), reported in NUREG-0578, on p. 7, and is further supported by the fact Applicant states it "...will comply with the recommendations to alleviate this problem (Letter from E. A. Turner, Applicant to H. Denton, NRC, August 9, 1979, Attachment A, p. 2). However, Applicant does not say how this will be done, nor is there evidence this is even possible. Hence, this Intervenor contends Applicant must show how the recommendation will be complied with at the construction license hearing.

Post-accident monitoring TexPirg AC 28

The control room design and the post-accident display instrumentation for the Allens Creek plant are not adequate to insure that the operators can safely control the plant under all accident conditions, as demonstrated by the accident at TMI.

The control room design and the post-accident display instrumentation for the Allens Creek plant are not sufficient to insure that the operators can safely control the plant under all accident conditions. As at Three Mile Island, the operator may make one or more critical mistakes because of defective instruments or their location in the control room.

Rapid depressurization/steam break TexPirg AC 55

If the steam line breaks, the reactor vessel will rapidly depressurize, resulting in "frothing" of the core steam bubbles and drawing of coolant water into the reactor. The movement of this water will cause a dangerous increase in reactivity before the SCRAM system is effective.

In the event of steam line break, rapid depressurization of the reactor vessel would take place resulting in frothing of the core steam bubbles and drawing of coolant water into the reactor. The movement of this water will cause an increase in reactivity before the SCRAM system will be effective. The reactivity insertion constitutes a danger to petitioner's health and safety because of the danger of fuel melt following such a power excursion. Petitioner contends Applicant must demonstrate the SCRAM system will function rapidly enough to prevent such increase in reactivity.

Reactor pedestal Doherty 27

The pedestal concrete at ACNGS may be seriously weakened by the heat from a power excursion accident or loss-of-coolant accident.

Intervenor contends that the pedestal concrete of ACNGS may be weakened by the heat from a power excursion accident (PEA) or loss of coolant accident (LOCA) such that restart and operation of the reactor would endanger Intervenor's health and safety through subsequent reactor movement due to the original thermal damage to the pedestal. Subsequent damage would include but not be limited to pipe breaks and other accidents costing much to repair and releasing radioactivity in excess of 10 CFR 50, Appendix I. Damage occurred to the Dresden Units II and III in 1971 during drywell over-pressurization to which three General Electric engineers testified at Senate Hearings in 1976, and a small reactor tore loose from its pedestal in Idaho in 1961 (SL-1) following a power excursion (See, Thompson, T. J., and Beckerly, J. G., Technology of Nuclear Reactor Safety, V. 1, (1964), p. 676) and injuring the concrete. Further the exposure of pedestal concrete to thermally extreme conditions occurred at Three Mile Island, Unit 2 in March, 1979, and must be expected as a possibility for ACNGS. This Intervenor contends the proposed ACNGS should be constructed to withstand long term thermal shock to its reactor pedestal in view of the probable impossibility to evaluate Three Mile Island, Unit 2 for a considerable time, and Applicant should file such plants for Staff evaluation before the construction license hearings, to protect public safety and avoid expensive retrofit. Since ACNGS is far more thermally powerful than the reactors that have been subject to pedestal damage the appropriate forum is these hearings.

Reactor pressure limit/relief valves TexPirg AC 41

Applicant has not provided adequate relief capacity in its safety relief valves because the flux signal which operates these valves is not accurate enough to provide prompt opening during an overpressurization transient.

Applicant's relief valve system against overpressurization is based on an analysis that is too close to ASME Boiler & Pressure Vessel Code allowable upper pressure limit for public safety. Although Applicant and Staff maintain recirculation pump trip will bring some pressure relief, the assumption of relief valve performance at ACNGS does not take poor performance of radiation monitors which signal high flux and actuate the pressure relief valves into account. Nuclear Safety 19(1), 1978, p. 82, shows 17 "Reportable Occurrences" for 1976 with such instruments among 22 BWR's, and Nuclear Safety, 20(1), 1979, p. 84, shows 36 such reports among 23 BWR's. The fact the high flux signal system is conservative to the high pressure signal is not significant if there is a high flux signal failure. Petitioner contends redundancy of signal systems is preferable.

Reactor water level indicators Doherty 41 [TexPirg AC 54]

Applicant's reactor water level indicators are unreliable, as indicated by events at TMI and Oyster Creek.

Intervenor's health and safety interests are endangered due to inadequate water level indicators for the reactor vessel for the proposed atomic plant. That such indicators are often defective and mislead operators into actions which aggravate reactor incidents are evidenced by two recent incidents at U. S. facilities. At Three Mile Island. Unit II, spurious water level indications in the pressurizer and the reactor vessel resulted in operator errors which aggravated the event (March 29, 1979); and spurious water level indications in the Oyster Creek Nuclear Power Plant, resulted in operators failing to take action until the water level was dangerously low (May 2, 1979) - specifically the operator failed to open valves which would have allowed coolant to be pumped from the condensor to the reactor vessel. Intervenor contends Applicant must develop an alternative whereby the water level is sensed more reliably by redundant as to type level indicators and redundant as to function water level indicators. Intervenor contends an accident where a core uncovering results from unreliable water level sensing can lead to a release of radioactivity in excess of 10 CFR 100, endangering his health and safety interests.

Intervenor further contends that inadequate water level indicators will lead to serious accidents for ACNGS, as at Three Mile Island, because the reactor systems are sufficiently similar in design being both dependent on safety systems actuated when reactor water level threatens to reach the top of the fuel rods. Because the proposed ACNGS has a higher power core density than any BWR this contention is particularly relevant to this proceeding. The Oyster Creek event provides a basis for showing much of the accident sequence has occurred in a BWR system.

Recirculation pump overspeed Doherty 6

Recirculation pump impeller missiles can penetrate the pump case or eject through the open end of a broken pipe and damage safety related components in the containment.

Applicant has committed itself to provide a decoupler to prevent destructive overspeed of the recirculation pump motor. However, a potential for pump impeller overspeed exists. The Applicant states that impeller missiles will not penetrate the pump case and that ejection of impeller missiles through the open end of the broken pipe will be prevented by additional pipe supports and restraints. Petitioners request that an adequate basis be provided to assure that these measures will be effective.

Rod drop Doherty 24

Applicant has not provided a basis for showing that the reactivity insertion from any dropped control rod will be sufficiently small to prevent the peak energy yield from exceeding 280 cal./gm of fuel.

Applicant has not provided a basis for showing that the reactivity insertion from any dropped control rod will be sufficiently small to prevent the peak energy yield from exceeding 280 cal./gm of fuel.

Rod pattern control system Doherty 12

The Rod Pattern Control System of the proposed ACNGS is not reliable, because of failures at other BWRs.

Intervenor contends the Rod Pattern Control System in the Instrument and Controls systems of the proposed ACNGS is not reliable. The operators of Dresden Unit 3 (a G.E. BWR) reported the system inoperable for 54% of start-ups in 1972. Quad Cities Units 1 and 2 were operable in but 74% of the start-ups, and Millstone Unit 1 reported this system failed in 172 of 245 start-ups in a 16 month period beginning in 1971. Further, 34.6% of "Reportable Occurrences" in BWR reactors in 1977 were in the Instrumentation and Controls area (NUREG-0483, page 4-7). The Average Power Range Monitor (APRM) used to detect surplus neutron flux in this system is not highly reliable. Power Range Instruments contributed to 36 "Reportable Occurrences" in BWR's in 1977, and 17 in 1976, (Nuclear Safety, volumes 19(1) and 20(1), 1978 and 1979, pp. 84 and 82, respectively). Most recently a rod block monitor was inoperative during start-up of the Brunswick-2 reactor (Sept. 4, 1978) due to a failed integrated circuit. Petitioners contend danger to their health and safety interest by a reactivity insertion accident during start-up unless Applicant installs a more reliable system than this one.

SCRAM discharge volume float switch TexPirg AC 38

The SCRAM Discharge Volume Tank at ACNGS will not perform its safety function because defective float switches will allow the tank to fill with leakage and there will not be remaining a sufficient volume to accept return water from the hydraulic CRD control units during a SCRAM.

Petitioner contends the ACNGS control rod drive system is a hazard to public (and its members) safety because General Electric Designed control rod systems have had defective float switches which failed to function in their scram discharge volume tanks (SDVT). These switches activate the outflow of these tanks. If they fail to float, the SDVT will not empty. In the event of SCRAM, while the SDVT is filled with water, water from the hydraulic CRD system cannot escape and permit the control rod to be driven into the core as designed, because the rod's progress is slowed. From 1972 to 1974 this failure was noted at Hatch I, Peach Bottom III, Duane Arnold Energy Center and Fermi 2.

Short reactor period Doherty 46

Control rods capable of causing a five second period on being withdrawn one notch could, if uncoupled from their drives and stuck in the core, fall several notches moments later and cause a significantly shorter period leading to fuel damage.

This Intervenor contends control rods capable of causing a five second period on being withdrawn one notch, if uncoupled from their drives and stuck in the core could, by falling several notches moments later cause a significantly shorter period leading to fuel damage. The core conditions necessary for fuel damaging short periods such as these are three:

1. when there is high xenon concentration in the reactor core (high xenon concentration magnifies the worth of certain central control rods until burned off),

2. moderator temperatures are high (200°F - 480°F), and

3. the percentage of voids in the coolant was greatly reduced.

Solar power TexPirg 7d [Cumings 6(c)].

There has not been a dispositive assessment of the energy demand reduction potential that might derive from conservation measures available to Applicant, because neither Applicant nor Staff has considered the increased use of passive solar techniques.*/

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*/ As consolidated by the Board's Order of May 23, 1980.

Stainless steel cleaning [Doherty 43]

Applicant's stainless steel components, including safety system piping and nuclear steam supply system piping, will be coated and cleaned with compounds that could contribute to intergranular stress corrosion cracking.

Intervenor contends Applicant's stainless steel components including safety system piping, and nuclear steam supply system piping will be coated and cleaned with compounds that could contribute to corrosion, intergranular cracking or stress corrosion cracking. These compounds contain chlorides, flourides, lead, zinc, copper, sulfur, or mercury which are leachable or could be released by breakdown caused by radiation. Further, that Applicant's coating and cleaning program should conform to Regulatory Guide 1.54, because cracking of piping has been observed in several General Electric Units (i.e., Duane Arnold Energy Center, 1978) of similar construction to ACNGS. And, NUREG-0152, General Electric Standard Safety Analysis Report, p. A-5, indicate the General Electric position is to take exception to the provisions of Regulatory Guide 1.54 (Feb. 8, 1977).

SRV reliability Doherty 17 [TexPirg AC 51]

Intervenor contends pressure from blowdown following a Power Excursion Accident (PEA), Loss of Coolant Accident (LOCA) or Power Coolant Mismatch Accident (PCMA) combined with a single or several stuck relief valves may hit the suppression pool with sufficient force to permit escape of radioactive gases by causing cracks in the containment building wall and endanger Intervenor's health and genetic safety interests. There has been considerable unreliability in pressure relief systems in BWRs, and the reduction from 22 to 19 relief valves increases the danger from failure of any single relief valve or more than one relief valve. Applicant should be required to research all data on such valves, and:

a. Commit to the use of one type with best record of performance during blowdown conditions; or

b. use a variety of manufacturers' products to prevent common mode failure.*/

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*/ As consolidated by the Board's Order of May 23, 1980.

STP 3 vs. AC 1 TexPirg 1 [Bishop 23(a); Conn 2; Cumings 4; Doggett 2; Johnston 5-2/6-2; Lemmer 2]

The South Texas site is obviously superior to Allens Creek as the site for an additional nuclear power plant because:

(1) Two nuclear power plants are already under construction at South Texas, and a third unit could be added without disturbing the unspoiled site at Allens Creek;

(2) the cooling lake at South Texas is large enough to accommodate a third unit;

(3) a third unit at South Texas would use less additional land than would a unit at Allens Creek;

(4) a third unit at South Texas would use significantly less water than would a unit at Allens Creek;

(5) a third unit at South Texas would require less additional land for transmission lines than would a unit at Allens Creek; and

(6) the present and projected population density around South Texas is significantly less than around Allens Creek.

The South Texas site is an obviously superior alternative to the Allens Creek site because:

a. South Texas is already the location for two nuclear plants which are currently under construction and disturbing an unspoiled site is not justified;

b. the cooling lake at South Texas is large enough to accommodate one more unit such as the proposed Allens Creek facility;

c. constructing another nuclear facility at South Texas would involve significantly less land use than constructing the proposed facility at the Allens Creek site;

d. construction of an additional facility at South Texas will involve the use of significantly less water than will the proposed facility. Consumptive water use is a critical issue in Texas; indeed, the Legislature has required that ground water users in the Houston area convert to surface water to reduce subsidence, which is a major problem in this area;

e. construction of an additional facility at South Texas would require less use of additional land for transmission lines than would the proposed facility; and

f. the population density in the vicinity of the South Texas site is and will in the future be significantly less than that in the vicinity of the proposed facility. The residual risk to the public from operation of an additional facility at South Texas would therefore be less than that associated with the operation of a facility at the proposed site.

Solid waste combustion TexPirg 5 [Cumings 6(b)]

Residents of Houston produce 6,000 tons of solid waste daily. By building a 3,000-ton-a-day electrical generating plant fueled by this solid waste, Applicant can obviate the need for the ACNGS.

Neither the Applicant nor the Staff have given adequate consideration to the combustion of solid waste as an alternative energy source, because:

a. The Staff concludes on § 9-9 of the DS-FES that "the lack of demonstrated technology on a commercial basis eliminates the potential future energy sources from consideration as alternatives for central station power by the late 1980's, apparently including refuse combustion among the "future alternatives". However, the evidence will indicate that the Staff has been inaccurate with regard to solid waste combustion. Twenty-one operational plants exist in the United States, with more than one dozen under construction, over forty in the advance planning stage, and over sixty in the feasibility study stage. Further, such facilities have operated successfully in Europe for over 40 years.

b. The Staff states on § 9-6 of DS-FES that solid waste generation plants should be used to "regain lost energy", but expresses doubt that such plants will be contributing electricity in the near future. The heat content of solid mixed municipal waste is approximately 5,000 BTU/lb. or 40 percent the value of coal. In waste processing systems, the removal of light combustibles and separation of non-combustibles like glass and metals yield a paper-rich fraction in excess of 10,000 BTU/lb. or 90 percent the heat value of coal. Among the 80 operating "waste-to-electricity" plants in Europe are plants in Amsterdam and Frankfurt which supply six and seven percent of their city's electricity needs, respectively. The assumptions of the Staff regarding the use of this option are therefore incorrect.

c. The six thousand tons per day of solid waste in Houston are more than adequate to support a three-thousand ton per day conversion plant that would obviate the need for the proposed ACNGS; and this alternative is technologically, environmentally, and economically desirable relative to nuclear generation stations. (This option should be an issue at this hearing. Petitioner believes the solid waste of Houston can sustain 800-1,000 MWe of production; though this level of supply could not have substituted for the two-unit ACNGS proposal in 1975, it does become viable in comparison to only one unit. In addition, since July, 1975, 28 communities have begun feasibility studies for solid waste power generation, 14 new plants went into the planning stage, and two more plants became operational - thus suggesting an increased viability of this option during that time).

Spent fuel pool accident Doherty 11 [Framson 1]

Applicant has not provided adequate design characteristics and operating safeguards to protect the integrity of stored spent fuel during unattended operation of the spent fuel pool. In addition, the Final Environmental Statement is inadequate in failing to consider the consequences of a spent fuel pool design basis accident.*/

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*/ As consolidated by the Board's Order of May 23, 1980.

Stud bolt Doherty 26(a)

There is insufficient assurance that each stud bolt in the reactor head meets adequate minimum standards for yield strength during Anticipated Transient Without SCRAM conditions.

The Safety Analysis for the proposed ACNGS is inadequate because:

a. there is insufficient assurance that each stud bolt in the reactor head meets adequate minimum standards for yield strength during anticipated transient without scram conditions.

Suppression pool uplift Doherty 5

The control rod drive mechanism hydraulic control units and the traversing in-core probe may be damaged by the hydrodynamic forces of a high vertical water swell in the suppression pool following a loss-of-coolant accident.

In the event of blowdown, loss of coolant, reactivity initiated or other accident, the location of the Control Rod Drive Mechanism Hydraulic Unit as planned in ACNGS, as well as the Traversing in Core Probe makes these two systems vulnerable to suppression pool uplift. There are no Mark-III containment systems in operation today, and no full scale tests have been done to guard against this possibility. Petitioners contend plant is endangered in the event such accidents destroy these systems when they are needed.

TNT detonation Bishop 17

The Applicant has estimated the effect on the plant of rupture and/or detonation to train car loads of TNT. I contend that these estimates are underestimated. I also contend that these estimates are not accurate for all cases and that the Applicant should provide more design protection. I further contend that the Applicant has not fully considered the effects on the plant of other hazardous materials that could be carried by rail car.

The Applicant has estimated the effect on the plant of rupture and/or detonation to train car loads of TNT. I contend that these estimates are underestimated. I also contend that these estimates are not accurate for all cases and that the applicant should provide more design protection. I further contend that the Applicant has not fully considered the effects on the plant of other hazardous materials that could be carried by rail car.

Technical qualifications TexPirg AC 31 [Doggett 3]

The PID did not thoroughly review, nor has the Applicant adequately shown, that HL&P is technically qualified to construct ACNGS. The following forms a basis for concluding that the Applicant is not technically qualified to design and construct the proposed facility:

a. The Applicant has never designed an operating nuclear power plant with a record of safe operation;

b. In 1978, an internal study by the Applicant stated that HL&P had underestimated the amount of steel required for HL&P's South Texas Project by 122%, concrete by 63%, rebar by 125%, piping by 88%, wire and cables by 100%, terminations by 71%, cable trays by 116%, and conduit by 49%, at the time of application to build the South Texas Project in 1973. The report concluded that this underestimation was partially due to "development from the conceptual stage" which had occurred since the construction license proceedings there. This may indicate technical deficiencies in the Applicant's power plant construction planning;

c. NRC inspections indicate that the Applicant deviated in at least three instances from the PSAR submitted for its South Texas Project, all of which related to quality assurance, and this raises questions regarding the Applicant's ability to meet commitments in its ACNGS PSAR;

d. HL&P has reported to the NRC that it failed to meet a commitment that a gantry crane at the South Texas Project meet tornado stress levels due to providing inadequate bid specifications to contractors, and this directly relates to the technical performance of the Applicant in this docket;

e. In a 1977 NRC inspection report at HL&P's South Texas Project (Rpt. #50-498-08), HL&P was informed six of the ten quality control inspectors stated that they had experienced harassment (including an individual report of a death threat), and despite this notice, at least four other instances of quality control inspector-reported harassment were noted in later NRC inspections; and an August 22, 1978 NRC report states that QC inspectors at South Texas Project agreed "in majority" that they were not receiving adequate technical assistance from Project Quality Assurance Licensee personnel;

f. On Sept. 15, 1978, the NRC reported an investigation of an incident in which a quality control inspector alleged that HL&P's contractor at the South Texas Project fired him for strict inspection behavior, while the contractor's employee alleged a conversation with the quality control inspector in which the inspector allegedly solicited a bribe and supposedly stated that HL&P would "stay out" of any quality control let-downs; and though intervenor does not know what in fact occurred in this incident, the matter is sufficiently serious to form the basis for the consideration of this contention in this docket;

g. HL&P is the Project Manager of South Texas Project and is ultimately responsible to the NRC for the 24 items of non-compliance reported in inspections there so far, and for the numerous construction problems such as building the mechanical auxillary building one foot too narrow and installing understrength bolts, and that such performance as project manager there raises questions as to the technical qualifications of Applicant.

Because of the factors stated above, Intervenor contends that Applicant should be required to show that technical capabilities have been upgraded such that the problems encountered at its other nuclear project will not occur at ACNGS, with a finding that Applicant is not technically qualified if that is not shown.*/

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*/ No rewording proposed.

Transmission lines/health effects Rentfro 2 [Marrack 2(b)]

The Applicant has not adequately analyzed the potential health hazards associated with living in proximity to high-voltage transmission lines. Hearings on this subject are currently being conducted before the Pennsylvania Public Utilities Commission in the case of Winfred Higgins who has experienced considerable discomfort and mild electric shocks while living beneath a high-voltage line.*/

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*/ No rewording proposed

Transmission lines/waterfowl Marrack 2(c) [Board Question 4]

Neither the FES nor the FSFES addresses the impact upon migratory waterfowl along the transmission routes beyond the plant site, nor considers that this impact could be minimized by constructing the power lines to follow the Brazos River to the south of the site, then east and then north to the O'Brien substation.*/

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*/ No rewording proposed.

Turbine missiles Doherty 47

Turbine missiles may damage critical components of the ACNGS plant.

Intervenor contends Applicant 's main generator turbine is not designed sufficiently to prevent turbine missiles from damaging critical components of the system. Further, that stoppage or vibration of the turbine following missile thrust will create dangerous halting and damage to the turbine and main steam power train of the plant.

That one turbine has indeed expelled a portion of a turbine disk is shown by Board Notification BN 80-8. which sites a preliminary report of a portion of a disc hurled during turbine synchronization at 1,800 rpm on February 14, 1980, at the Yankee Rowe nuclear plant in Massachusetts. Cracking of turbine disks is the subject of Board Notification BN 80-4, which indicates "the cracking may be more widespread than previously reported" and that one manufacturer, Westinghouse, is "[i]n the process of elevating some of their previously estimated turbine missile energies." (BN 80-4, January 16, 1980.) The largest cracks detected to date were found at Zion Station, Unit 1, and reported by the Inspection & Enforcement Division of the NRC on November 20, 1979. Further, on March 11, 1980, special inspections were ordered for ten nuclear reactors of their turbines. Because of uncertainty of these calculations of missile energy and the dangers of missiles, to the functioning of the ACNGS and consequent risk to this Intervenor's health and environmental interests, he urges admission of this contention to the proceedings.

WIGLE computer code Doherty 15

The computer code used by the General Electric Company to predict SCRAM reactivity following a Power Excursion Accident is not conservative because it predicts results similar to the WIGLE Code which produces results that have been shown to be nonconservative in tests conducted by the Idaho Nuclear Experimental Laboratories titled IN-1370.

Intervenor contends his health and safety interests are inadequately protected because the industry standard power excursion theory (WIGLE) is inadequate to represent the increase in heat energy due to rapid increase in reactivity in a Design Based Power Excursion Accident (DB-PEA). Experiments reported in IN-1370 Large Core Dynamics, pp. 48-87, where a burst of neutrons was injected in the side of reactor, give results which when compared to WIGLE, indicate this industry standard DB-PEA theory might underpredict the energy yield of a power excursion by 50%. This underprediction is not factored into the DB-PEA calculations, which is significant since power excursion theory predicts the energy yield per gram of fuel in a PEA will be about 70% of the design safety limit (280 cal/gm) for fuel rods. (See Regulatory Guide 1.77, May 1974, PSAR, Montague I & II, pp. 4.3-29, and 15.143-55.) Further, the National Reactor Testing Station (NRTS) recommended in 1970, a special research program to resolve this underprediction, (IN-1370, p. 18).

Hence, Intervenor contends that Applicant's one dimensional time code (described in Supp. No. 2 to the SER on p. 4-11) under generates the true scram reactivity function for this system because the product generated is too small compared to data resulting from the neutron burst experiments reported in IN-1370 (supra), as is the data generated by WIGLE. (Note: This Intervenor does not contend Applicant's NSSS vendor uses WIGLE or relies upon it, but rather that Applicant's analytic method generates the scram reactivity function for the DB-PEA theory as does WIGLE.)

Hence, Applicant or Applicant's NSSS provider should be required to provide data from power excursion tests from full scale reactors as was recommended by the AEC's test laboratory in 1954 (See "International Report," PTR-738, "A Review of the Generalized Reactivity for Water-Cooled and -Moderated UO2 Fueled Power Reactor," G. O.

Bright, *et al.*), and the BWR system be redesigned to reduce its reactivity potential.

Welder training Doherty 35

The welding at ACNGS will be unsafe because Applicant's constructor will pay wages below union scale and will experience a shortage of trained employees.

Applicant will be unable to provide safe welding of piping at ACNGS without costly repairs to such welding or danger to petitioners health and economic interests in the event of pipe break as a result of such welding not being rewelded when it should have been. Welding at Comanche Peak Nuclear Steam Station, Units 1 & 2 in Somerville County, Texas, has been done frequently by persons being trained to be welders prompting large frequency of rewelding and seven meetings between NRC officials and the utility representatives. This Intervenor says the same situation is likely to occur here due to a shortage of trained employees and less than union wages from Applicant's constructor, Ebasco. Intervenor contends Applicant should be required to present a program for training persons before they weld at the ACNGS site and to require a pay scale for employees of all contractors for welding and welders equal to union wages for welders at similar construction conditions, in order to assure continued employment of such welders.

IV. ASLB Questions

1. Lignite

Does the availability of lignite and the environmental costs of its use justify its consideration as an alternative fuel to supply Applicant's needs?

2. WASH-1400

Did the Staff use WASH-1400 in arriving at its conclusions regarding environmental risks, as stated in S.7 of the Supplement to the Final Environmental Statement? If so, do these conclusions need to be modified as to the result of recent criticisms (Lewis Report) of WASH-1400 and the NRC's recent policy statement regarding same?

3. ATWS

We deny the admission of this contention [regarding ATWS] but on our own initiative will require that the Applicant testify on the record as to its intent and willingness to comply with NRC requirements.

4. Transmission lines/waterfowl

The Applicant's Environmental Report has been amended in response to a question from the Staff (Amendment No. 0, 11/13/73, p. 5.6-2A) to provide a discussion of this specific point. The Applicant states:

> "There are many miles of transmission lines in the Houston Lighting & Power Company system, some of which have been in existence for many decades. Many of these lines cross water bodies several of which are used by migratory waterfowl. These lines are regularly inspected (for maintenance purposes) and on instances of significant bird losses have been reported."

Hence, this aspect of the proposed contention is rejected for lack of an adequate basis. However, since we do not find this result in the FES as supplemented, we shall seek a clarification from the Staff as to whether the FES can be deemed to be so modified.

5. Combustible gas control

Applicant and Staff are directed to present evidence upon the question of whether the proposed ACNGS facility will meet the current requirements of the Commission with respect to standards for combustible gas control. (We note that at the Special Prehearing Conference, Mr. Shreffler, in discussing his Contention 3 - Tr. 655 - also expressed a concern about hydrogen generation, which concern the Board deems to be subsumed in Contention 2).

6. Criterion 50

Applicant and Staff are directed to present evidence on the issue of whether the proposed facility will meet the current requirements of the Commission with respect to Criterion 50 - Containment Design Basis. [See 43 Reg. 50162, October 27, 1978].

7. Class 9 accident

We note that in its Memorandum and Order of September 14, 1979, the Commission requested that the Staff "In the interim, pending completion of the rulemaking on this subject, bring to our attention, any individual cases in which it believes the environmental consequences of Class 9 accidents should be considered." We await the Staff's notification to the Commission whether ACNGS is one of those cases in which it believes the environmental consequences of a Class 9 accident should be considered, and if there is such a staff notification, we will reconsider our ruling.

8. Seismic Category 1

During the special prehearing conference, intervenor asserted there was a discrepancy between the requirements of Regulatory Guide 1.29 and PSAR Table 3.9-4. This was an improper expansion of the scope of the contention (Tr. 807). However, this being a matter of potential safety significance, we direct Staff and/or Applicant to present evidence in response to the following Board question: Should not control rods, control rod drives and their hydraulic control units (listed as Safety Class 2 in Table 3.9-4 of the PSAR) be treated as Seismic Category 1 in accordance with Regulatory Guide 1.29?

9. Non-safety grade equipment

In light of a Board Notification of November 26, 1979 (BN-79-41), the Staff shall present evidence as to the acceptability of using non-safety grade equipment for the mitigation of transients.

10. Bypass leakage

What is the technical basis for concluding that maintaining containment atmosphere temperature and relative humidity values within prescribed limits is a practical method for minimizing bypass leakage?

11. RHR system

Staff and/or Applicant shall present evidence either to establish that the concerns of the ACRS are not applicable to ACNGS or that these concerns have been obviated by remedial measures. The ACRS concerns shall be treated as a Board question.

12. On site transportation accident

Is there an opportunity for the permissible site boundary radiation level to be exceeded by virtue of a gap in NRC and/or EPA regulations, whereby an on-site transportation accident gives rise to a radiation field which, when added to the ambient radiation level from normal plant operation (including radiation from stored spent fuel), might then result in a higher than permissible site boundary radiation level? If not, why not? If so, does this constitute an oversight in the Staff's FES analysis?

13. LPG pipeline rupture

Has it been definitively established whether said pipeline might carry potentially more dangerous materials such that, following a pipeline rupture, safe shutdown of the plant could be precluded?

14. MSLRM

If there is no difference in principle between the ACNGS and the Dresden III MSLRM systems, why could not the Dresden III incident be repeated at ACNGS/

Attachment D

Contentions For Which Summary Disposition Will Be Sought

Doherty

5. Suppression pool swell
12. RPCS
13. ECCS sumps
15. WIGLE
24. Rod drop
28. Rod ejection
31. Flow-induced vibration
33. Doppler
35. Welders
38(b). Cold shutdown in 24 hours
43. Stainless steel cleaning
44. IGSCC and water hammer
45. Core lateral support
46. Short reactor period

TEXPIRG

10. IGSCC
38. Flow switch
50. Latching
A6. Mannings coefficient
A40. Early hydrogen detection

McCorkle

14. Fuel hydriding
17. Filtration leakage

Potthoft

1. Biomass