

6-12-75

REL. CORRESPONDENCE



UNITED STATES OF AMERICA  
 NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

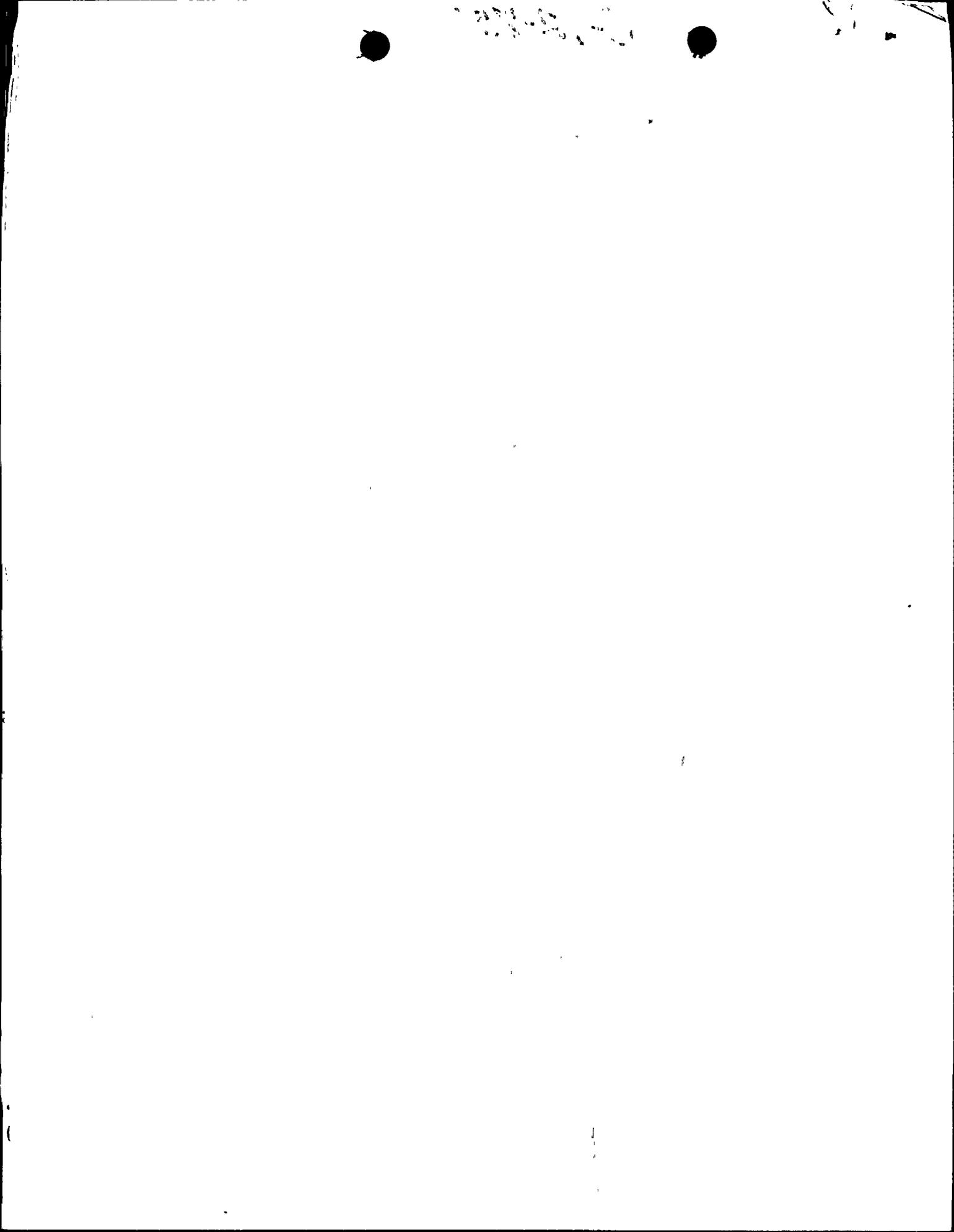
In the Matter of	)	
	)	
ARIZONA PUBLIC SERVICE	)	Docket Nos. STN 50-528
COMPANY, et al.	)	50-529
	)	50-530
(Palo Verde Nuclear Generating	)	
Station, Units 1, 2, and 3)	)	<u>INTERROGATORIES</u>

TO: Intervenor, ARIZONA CLEAN ENERGY COALITION, and its attorney, Barbara E. Fisher.

Under authority of 10 CFR § 2.750, 10 CFR 2, App. A and the Federal Rules of Civil Procedure, Applicants ARIZONA PUBLIC SERVICE COMPANY, et al., hereby demand that Intervenor Arizona Clean Energy Coalition (hereinafter ACEC) or their attorney answer in writing and under oath and within thirty (30) days from receipt hereof, the following interrogatories:

Instructions for Use:

- A. All information is to be divulged which is in the possession of Intervenor or any of its members or witnesses, their attorney(s), investigators, agents, or other representatives of Intervenor or its attorney(s).
- B. Where the terms "you," "your," or "Intervenor" are used, they are meant to include every individual who is a member of Arizona Clean Energy Commission or prospective witness to be called at hearings in this matter or any other individual acting through any of the Intervenor's authorized agents, employees, investigators, attorneys, or other representatives and those interrogatories should be answered by those respective persons or their duly authorized agents or representatives.
- C. If any of the information sought is unknown to Intervenor or its individual members, agents, representatives, prospective witnesses, attorneys, or investigators, then, in addition to stating that fact, Applicants demand that the name or other means of establishing the identity, present or last known residence, and the present or last known place of employment of each such person known or believed to have such information be set forth.
- D. These interrogatories, pursuant to 10 CFR 2, App. A, are to be answered "in line with the Federal Rules of Civil Procedure" and Applicants demand that Intervenor comply with those



rules, by, inter alia, updating answers in writing and under oath should new, additional, or corrected information become available after the answers to these interrogatories are completed at the time such information becomes available. This includes the names of witnesses and the substance of testimony as well as mere factual information.

1. State full name of Intervenor.  
ARIZONA CLEAN ENERGY COALITION

2. State the legal status of ACEC, i.e., whether it is a corporation, association, etc.  
Parent Organization

3. State the date Intervenor was formed.  
Parent Organization formed 4/10/74 (ERG)  
A.C.E.C. formed 10/10/74

4. List the present membership of ACEC, including names, occupations, addresses, and telephone numbers of each member and identify all officers and respective offices.  
List of membership not available. Member groups include: Arizona Friends of the Earth; Tucson Consumer Council; Saguaro Ecology Club; Arizona Nuclear Responsibility and Safety Committee; Energy Research Group; Environmental Conservence; Concerned Arizona Students for the Environment Center for Social Change; Tucson Public Power; Arizona Consumer Council, Arizona Public Law Advocates; The Environment Center

(5-6) 5. State each and every fact, in detail, upon which you base your contention that the Applicants have not shown that they will comply with 10 CFR 20.1(c). Applicants cannot predict accurately the frequency of occurrence and duration of temperature inversions which lead to lack of dilution of routine emmissions.

Applicants promise to comply with ASLAP standards before knowing how the final quantative definitions of ASLAP will affect their ability to comply with 10 CFR 20.1(c).

In agreeing to comply with the proposed ASLAP standards, applicants assume the responsibility for the design and construction which applicants propose to deligate to others.

Calculatron for public exposure for 1980 (400X 1.239 x 3) per (994000) = 1.496 mrems greater than the 1 mrem average.

4. Continued

Attorney: BARBARA E. FISHER, Esq.  
201 North Stone Avenue, Suite 210  
Tucson, Arizona 85701  
Telephone: (602) 884-9342

Director: DONALD E. OSBORN - Student  
1802 East Linden Street  
Tucson, Arizona 85719  
Telephone: (602) 624-9644

Phoenix Coordinator: KEVIN DAHL - Student  
615 South Harov #29  
Tempe, Arizona 85281

Tucson Coordinator: PAT MALCHOW - Architect  
7150 East 30th Street  
Tucson, Arizona 85710

6. State each and every fact, in detail, upon which you base your contention that the Applicants have not shown that they will comply with 10 CFR 50.34(a).

7. State each and every fact, in detail, upon which you base your contention that electro-magnetic fields emanating from proposed extra high-voltage transmission lines may have an adverse effect upon persons and animals living in the vicinity of the right-of-way.

The adverse affects of Extra High Voltage (EHV) transmission lines are the economic and health problems. caused by the chemical compounds formed because of the corona discharges of EHV lines, the noise pollution caused by the operation of EHV lines, and the shocks and even possible electrocution induced in non-grounded conductors near EHV lines.

The corona discharge of EHV lines forms such compounds as nitrates, and ozone which are toxic to people, animals and plants.

8. State each and every fact, in detail, upon which you base your contention that the Applicants' cost-benefit analysis is deficient in that the escalation rate of ten-percent per year for capital cost is too low, 12-15% being more realistic.

"The myth of cheap energy is disappearing rapidly, though, because of the scarcity of resources, escalating construction costs (16%/year for 1969 and 1970) and higher interest rates." EDN, June 1974, p.57, Dr. Dalal.

"Construction costs for power plants, both fossil and nuclear, have been sky rocketing at a rate of about 25%/year." Environment, Dec. 1974, p.10. From speech by L. Manning Muntzing, Dir. of Regulation AEC, Sept, 1974.

## 7. Continued

The electric field associated with EHV. transmission lines induces voltage in all objects nearby. If the object is an insulated conductor, any person or animal touching it will receive a shock. Under surge conditions (eg lightning strike) these electric fields will be substantially larger than normal and so will the electric shock. If the conductor is a long insulated fence, or rain gutter on a house or barn, the shock can be lethal.

If USSR standards for exposure to electric field gradients were adopted in the US certain activities now permitted would no longer be allowed.

9. State each and every fact, in detail, upon which you base your contention that the assumed plant availability factor of 80% is too high, a more realistic figure being 65% for the first three years and 32-34% for the next four years.

10. State each and every fact, in detail, upon which you base your contention that the capacity factors of present nuclear plants average 50% and lower.

11. State each and every fact, in detail, upon which you base your contention that the adverse impact from fossil fuel plant particulate emissions is over-emphasized.

The most advanced electrostatic precipitators presently available can remove up to 99.5% of the flyash, by weight from the emissions. These precipitators are new and are only in use in the newest plants (APS's Cholla plant). If required on all new plants, the environmental, health and esthetic impact of a coal-fuel plant would not be eliminated, but would be significantly decreased.

9-10.

See "Will Idle Capacity Kill Nuclear Power?" by David Comoy, Bulletin of the Atomic Scientists, Nov. 1974, p.23. The capacity factors are for all operating commercial reactors larger than 100MW that had operated for the full six months ending June 1974.

Average capacity factor for the 1st four year of operation was 59.1% and for more than 4 years, it was 45%.

Average capacity factor for 1973 was 57.3%. Average for the first 6 months of 1974 was 50.5%.

In 1973, the average capacity factors for plants 0-3 years old was 55.0%, for plants 3-5 years it was 71.5%, and for 5 years and older, it was 44%.

In January 1974 to June 1974, the average capacity factors for plants 0-3 years old was 51.3% for plants 3-4 years old it was 67%, and for plants 4 years and older it was 46%.

### 13. Continued

revenues by charging for sewage treatment but has never done so. The City of Phoenix has never had much difficulty raising funds for the operation of the city. However, with the recession causing budget deficits and extreme difficulty in meeting commitments, it is quite likely Phoenix will follow other municipalities in the area and institute a usage tax. If this occurs, industrial users are quite likely to institute recycling procedures to minimize their cost. This will also minimize the effluent available at the 91st AVE plant.

12. State each and every fact, in detail, upon which you base your contention that the analysis fails to consider adequately the impact of the facility's use of water on agricultural and residential uses.

The groundwater supplies in the entire area of ANPP are presently being depleted. In the longterm, the only things that can happen are for water consumption to be decreased, water supplies to be increased, or a combination of the two. If it is impossible to import water (See answer 15) then ANPP will simply act as an additional load on an already overloaded system. The effect will be to retire an additional 15000 acres of farmland over and above what will be retired without ANPP. Applicants have not considered the costs to the individual owners of farmland who must retire that land from cultivation with little or no chance of regaining any of their losses.

13. State each and every fact, in detail, upon which you base your contention that the analysis over-estimates available water.

Cooling water for PVNGS is to come from sewage from the 91st AVE plant. This water will be available only if the population grows as it has in the past and if percapita consumption remains the same as today.

The population growth rate that is predicted is highly unlikely since it is completely counter to the national trend which is presently below replacement level.

The per capita consumption is unlikely to be maintained. The City of Phoenix does not presently charge for sewage treatment, but surrounding cities do. The City of Phoenix has, in the past, considered the possibility of increasing

14. State each and every fact, in detail, upon which you base your contention that the cost of replacement water to Arizona consumers may range from \$100-\$190 per acre foot.

If it quite probable that CAP water will not be available. If this is the case, the cost of water will not be \$32.50/af for M & I users and \$13/af for agricultural users (at canal side) but instead could be \$100/af to \$1000/af or more for imported water. (Frank Brooks Metropolitan Utilities Management Director)

Bukeye presently pays \$244.50/af to desalt water (Star 5/25/75 section I page 1).

15. Continued

2 million af/yr. In addition to being overallocated, the deficit is not shared equally among the various states in the lower basin. Under the CAP act of 1969, Arizona and Nevada guarantee California the 4.4 million acre ft/yr allocated to it under the law. Since Arizona is presently using more than 1 million acre ft/year of its 2.8 million acre ft. allocation, the effect of the CAP act will be to reduce the amount of Colorado River water the state presently uses and provides more for CAP.

The only other sources are the Northwest Water and Power Project (an approx. \$100 billion project to bring water down from Canada to the Columbia basin, to the Upper Colorado basin); Cloud seeding to increase the snow pack in Colorado by about 10ft (proposed by Wesley Steiner head of the Central Arizona Water Conservation District, the state body which contracts with the federal government for CAP); desalinization of Gulf of California or Pacific Ocean water and piping it to Arizona; and towing icebergs from the artic to California and pumping the water to Arizona (proposed by the former Governor of Arizona Jack Williams). All of these proposals are very expensive and have serious environmental, economic and legal problems.

15. State each and every fact, in detail, upon which you base your contention that replacement water may not be available.

Replacement water obviously cannot come from the ground and there are essentially no additional water sources from within the state. Therefore, the only possible sources of replacement water must come from out of state.

CAP is the prime candidate to provide that alternate source of water. However, because the CAP law 1969 assumed substantially larger supplies of water than actually exist (see "Water for Energy in the Upper Colorado Basin." Dept. of Interior study) and because it failed to consider evaporation or where the water for treaty obligations with Mexico was to come from, the water allocated to the lower basin has been over allocated by approximately 2 million

16. State each and every fact, in detail, upon which you base your contention that the operation of the Palo Verde Nuclear Generating Station (PVNGS) may be curtailed or ended before the presently estimated plant life expires because of the following factors:

(a) an unavailability of nuclear fuel;  
No long term contracts are available for fuel from any source, and the NRC reduced the estimated US reserves of \$8/lb fuel reserves from approximately 280000 tons to approximately 200000 tons.

(b) inadequate facilities for reprocessing of irradiated fuel;  
There are presently no reprocessing plants available and the one plant scheduled for 1976 cannot possibly handle either the backlog or the new production of spent fuel. It takes years to plan and build a reprocessing

(c) inadequate storage for irradiated fuel at the Palo Verde plant site; or  
Each unit of PVNGS has only  $1\frac{1}{2}$  years of on site storage area for spent fuel elements. For a refueling cycle of  $1/3$  of the core every 12 months, this will be used up for the first unit by mid 1986. In light of the answer to 16(b) (d) a combination of (a) through (c).

See 16.(a) through 16.(c)

16. (b) Continued

plant and the only other plant being built (the GE plant) has been halted and will probably not be continued. Even if it is, it will only handle up to three plants the size of PVNGS.

16. (c) Continued

and the fact that 14 reactors will have to shut down within the next few years because of lack of reprocessing facilities and onsite storage area, it is very likely that a large backlog will exist that will force a shutdown even when sufficient reprocessing facilities become available.

17. State each and every fact, in detail, upon which you base your contention that salt laden vapor plumes will tend to corrode nearby transmission lines.

Corona around conductors is more prevalent in humid contaminated air than in clean dry air. This produces various reactive chemicals compounds which pit and corrode aluminum.

18. State each and every fact, in detail, upon which you base your contention that salt laden vapor plumes will increase maintenance costs and/or decrease systems reliability.

Salt deposits accumulate on insulators in wet contaminated air. Periodically the insulator strings must be cleaned.

Corona discharges increase in wet contaminated environments, increasing corona losses.

Transmission lines critical flashover voltage (CFV) is reduced in wet contaminated air compared to the CFV in dry clean air.

19. State each and every fact, in detail, upon which you base your contention that Applicants have underestimated the costs of decommissioning the facility.

Applicants have given no figures on the cost of decommissioning, therefore ACEC cannot gauge whether the cost is overestimated or underestimated.

20. State each and every fact upon which you base your contention that there are unique problems associated with a desert environment as respects decommissioning.

Some proposed types of decommissioning require filling the containment structure with concrete. Temperature variations of 40° - 55°F in a 12 hr period and low humidity can cause serious problems in the preparation and curing of concrete.

21. State each and every fact, in detail, upon which you base your contention that the need for power analysis is based on trend extrapolation which fails to take adequately into account:

(a) the potential conservation of energy;

People and industries will conserve energy when they can and when it is in their best interest to do so. However, it is impossible to evaluate how well the trend projections take conservation into account since there is

(b) the elasticity of demand for electricity;

Rate increases in the last year and a half have amounted to about 52% in TG&E's service area. In that period of time the growth rate in energy consumption decreased from 7% per year to less than 1% per year.

(c) the possible loss of or substantial reduction

in demand from large industrial consumers of electricity; and three mining companies and a cement manufacturer might build their own power plants and stop purchasing TG&E power should rates go too high. Star 11/22/74.

The mines have already drafted plans for in house generation of electricity.

(d) the population growth rate in Arizona is pro-

jected to be smaller in the future.

The national birth rate is the lowest in U.S history and the Az. birth rate has dropped in the last few years from 5.7% to 3.9%.

Both Pima and Maricopa counties (by far the largest in the state) both recorded lower growth rates in 1974.

21.(a) continued

no analysis of the effects of conservation on expected load.

Apparently the applicants have done some evaluation however, because the project has been delayed a year because of the effects of conservation by the public.

It has been reported in the local press that the growth rate in energy consumption has dropped from about 7%/year to less than 1% per year.

21.(b) continued

In addition, these effects probably have not been fully felt since many ways of conserving energy require additional capital expenditures, and these take considerable time to take effect.

21.(c) continued

Copper production in 1973 was 927,271 tons and in 1974 it was 842,300 tons. The decrease has carried over into 1975.

22. State each and every fact, in detail, upon which you base your contention that the need for power analysis fails to consider adequately instituting different rate structures such as flat rates and time-of-day metering. Neither is mentioned in the ER.

23. State each and every fact, in detail, upon which you base your contention that the need for power analysis fails to consider adequately the possibility of load staggering or selective load shedding. Neither is considered. ER 1.2-18 mentions "interruptible loads" but only says that few of the participants have it, and none use it to reduce the need for peaking generation capacity a peak loads.

24. State each and every fact, in detail, upon which you base your contention that the need for power analysis is premised on the continued existence of overly large reserve margins as high as 42.8%. According to table 1.2-4 PNM will have a 55.8% margin in 1979.. EPE has a 36.7% margin in 1975. In 1974 rate case TG&E was shown to have a projected reserve of 42% in 1981 exclusive of ANPP. (See staff document #26 in 1974 TG&E rate hearings before the Arizona Corp. Commission). Table 1.2-4 does not reflect this.

25. State each and every fact, in detail, upon which you base your contention that Applicants have failed to consider adequately alternate sources of generating electricity, such as:

- (a) small and medium-size fossil fuel plants which will have greater reliability than the proposed facility;

25. (a)

Small and medium coal-fixed plants have availability and capacity factors in the 90% range. In exhibits before the ACC for the 1974 rate hearings, TG&E showed that total reliance on these plants in the plans already formulated provided completely adequate safety margins for the maximum projected loads into the 1980's. These projections are probably drastically overestimated since they were made when the growth rate in energy consumption was 7% and higher.

(b)

The Applicants have assumed that solar energy will not be available until after the turn of the century. According to a NASA-NSF study, the first commercial plants can be on line by 1985.

The use of solar collectors to reduce demand is already here and even if solar cannot make a major impact nationwide by the mid 1980's, it can have a major effect in the Southwest.

(c)

Applicants claim that the results of explorations for geothermal power are not yet available. They will be available within a few years, however, and the combination of conservation, use of solar collectors to reduce electrical consumption, and a completely adequate power supply without ANPP makes it safe to wait until the results are in.

(d)

The Rocky Mountain Power pool is expected to have an excess of 600-900 MW by 1982 when ANPP #1 is scheduled to go on line.

26. continued

Considering the proximity of these training areas, the likelihood of a plane crash is significantly higher than elsewhere, and the proximity to centers of population (36 miles to Phoenix) makes the possible consequences very severe.

(b) solar energy;

(c) geothermal energy; and

(d) purchased power and sharing arrangements with other utilities.

26. State each and every fact, in detail, upon which you base your contention that the probability of aircraft impact is such that the containment for PVNGS should be built to withstand adequately such impact. Numerous warning and restricted areas used for training fighter pilots exist within the immediate vicinity, one comes within 8-9 miles of the plantsite. In these areas both pilots and planes are operated at the limits of their capacity and accidents are likely to happen and have happened.

26(a). State each and every fact, in detail, upon which you base your contention that PVNGS is not presently designed to adequately withstand aircraft impact. NRC standards do not require the outer containment vessel to withstand the impact of a highspeed aircraft. PVNGS meets NRC standards in these matters. This does not imply that PVNGS meets adequate safety standards.

27. As respects the preceding interrogatory, please state specifically and in detail the following:

(a) The geographical air space which you consider to be of concern to the question of containment for PVNGS. Anything within 10 min. of the site for the top speed of any craft commonly in the general vicinity of the plant; i.e. at least 100 miles.

(b). The number of aircraft in this geographic area on a per day basis. Unknown at this time

(c) The type of aircraft suspected to be in the area, i.e., how many are commercial aircraft, how many are military aircraft, how many are private, etc. Unknown at this time.

28. State each and every fact, in detail, upon which you base your contention that the aquifers and perched water zone under the proposed site are susceptible to contamination from radionuclides. Approximately 300 acre feet/year is expected to leak from the on site reservoir into the perched water zone. Hydrographic data indicates a continuous hydraulic connection throughout the perched water zone with a recharge mound centered under the irrigation area of the site. Any radio nuclides getting into the reservoir will eventually get into the perched water zone and from there to the aquifer.

29. State each and every fact, in detail, upon which you base your contention that the proposed site is susceptible to subsidence caused by:

(a) natural forces; and the site is situated over a depression cone and layers of Palo Verde clay. As the water table continues to drop, the presently simiporus

(b) the potential lowering of the water table as demand for water in the area increases.

Even one foot drop in the water table per year is 40 feet over the lifetime of the plant. In addition upstream water uses have so curtailed natural recharge that groundwater levels in the site area will probably continue to drop even though pumping on the site itself is decreased.

29. (a) Continued

clay, when dehydrated, will tend to collapse under the weight of the plant (more than  $10^6$  metric tons).

30. State each and every fact, in detail, upon which you base your contention that the proposed site is too close to major population centers and major installations serving a national security function. Applicants' figures for population living within 30 miles of the plant do not include two residential developments planned within 5 miles of the plant. They also do not include large transient populations at various recreational centers within 50 miles of the plant. They include Firebird Lake, Pointed Rock Historical Park, Painted Rock Dam, Agua Caliente Hot Springs, Lake Pleasant and Gillespor Dam. (For national security installations see Answer to #32)

31. State each and every fact, in detail, upon which you base your contention that there will be an increased demand for water in the area of PVNGS. APS has a pump storage project in the Sierra Estrella Mountains which needs 1 billion gal of makeup water. Makeup water is needed for Firebird Lake recreation area. Residential developments are planned near the site, but are not yet developed.

32. List each and every major installation serving a national security function in the area of PVNGS and the exact distance of each such installation from PVNGS. Interstate 10, Natural gas pumping station, four gas pipelines, Southern Pacific petroleum products pipeline, SP railroad, Lake Airforce base and lake auxiliary fields # 2 and 3, Buckeye Military Reservation, Navel Air Facility near Litchfield Park. see ER 2.2.3 for distances.

33. State each and every fact, in detail, upon which you base your contention that the Applicants have failed to consider adequately additional safeguards for the rail transport of hazardous materials to and from the facility. Southern Pacific Railroad is the railroad in the area. In the past two years it has had numerous accidents (see 34) including a trainload of bombs exploding and the derailment of a shipment of chlorine. If SP is to be the carrier, their safety record indicates that additional safeguards are necessary.

34. State each and every fact, in detail, upon which you base your contention that the Southern Pacific Railroad has an extremely poor safety record in Arizona. SP had 237 train fires from 1970 - 1974 according to a study by National Transportation Safety Board. The NTSB study was prompted by the explosion of a train loaded with 500 lb. bombs stored in wooden cars with no spark shields. The explosions destroyed 12 cars.

The number of accidents has risen sharply since 1970 with 17 accidents (\$900,000) in 1973 and 19 accidents (\$1,694,000) in 1974.

35. State each and every fact, in detail, upon which you base your contention that the Applicants have failed to consider adequately alternate means of transporting hazardous materials to and from the facility. We concur with the staff that transportation of tritium by truck should not be allowed and Applicants have not considered alternates to this.

The ER says that transportation routes will be picked to avoid major population concentrations. This is impossible by Interstate or Railroad since both go through major centers on the way to and from the plant.

36. Identify specifically and in detail each material you contend will be hazardous and will be necessary to transport to and from the facility. Cold fuel, spent fuel, low-level wastes, high-level wastes, tritium, chlorine, ammonia, formic acid, TSP, hydroxyacetic acid, Hydra zine, herbicides, pesticides,  $\text{CuSO}_4$ ,  $\text{H}_2\text{SO}_4$

37. State specifically and in detail each and every means of transporting hazardous materials to and from the facility which would be acceptable to you. NRC and DOT approved and monitored means of transportation with ultimate responsibility resting with applicants. In addition substantial precautions should be taken against sabotage during transport.

38. State each and every fact, in detail, upon which you base your contention that there are capable faults which can be extended to close proximity of the proposed site. Applicants claim that there are no significant faults in the area and that no earthquakes have occurred within recent years. In fact, two quakes occurred in December, 1974 in the New Rivers area less than 50 miles north of Phoenix.

39. State each and every fact, in detail, upon which you base your contention that the proposed seismic design criteria of the plant are inadequate. Applicants claim that it is unnecessary to consider quakes since there have been none in the area. See answer #39. More information will be coming when the person who has that information returns from a trip.

40. State each and every fact, in detail, upon which you base your contention that the Applicants failed to discuss adequately the adverse impacts of the deposition of salt and heavy metals from cooling tower plumes.  
Information not available at this time.

41. State each and every fact, in detail, upon which you base your contention that the Applicants failed to discuss adequately the adverse impacts from the loss of water for agricultural and residential uses caused by plant consumption of cooling water. See answer to question 12

42. State each and every fact, in detail, upon which you base your contention that the Bechtel Power Corporation is not technically qualified to design and construct the facility. See Petition to Intervene Docket Nos. STN 50-528, STN 50-529, STN 50-530, pages 5-7

43. State each and every fact, in detail, upon which you base your contention that Bechtel's experience and performance in quality assurance is inadequate. Same as 42

44. State with specificity what you mean by:

(a) small-size fossil fuel plants;  
100-500 MW

(b) medium-size fossil fuel plants.  
500-750 MW

45. State each and every fact, in detail, upon which you base your contention that Combustion Engineering is not technically qualified to construct the nuclear steam supply system. See Petition to Intervene Docket Nos. STN 50-528, STN 50-529, STN 50-530 pages 7-8

46. State each and every fact, in detail, upon which you base your contention that operating experience with nuclear steam supply systems designed by Combustion Engineering has revealed inadequacies in design. See answer to #45

47. State each and every fact, in detail, upon which you base your contention that nuclear steam supply systems designed by Combustion Engineering have had problems with the integrity of steam generator tubes, basic internal reactor structures, and with corrosion of reactor vessel headbolts. See answer to Question 42

48. State each and every fact, in detail, upon which you base your contention that Arizona Public Service's past operating history with fossil fuel plants has demonstrated its inadequate concern with public health. The incidences of hospitalization for respiratory diseases of Navajo children in the area of the four corners power plant has doubled since the 1963 start up of the plant yet (according to testimony before Sec of Interior Rogers Morton in 1971) APS has shown no concern what so ever for this fact.

49. State each and every fact, in detail, upon which you base your contention that Arizona Public Service's past operating history with fossil fuel plants has demonstrated its inadequate concern with safety. ACC Commissioner Ernest Y. Garfield has charged that, based on reports by consultants, APS has severely mismanaged their operation of the 4-Corners powerplant by an inadequate maintenance program which cost the consumer approximately \$14 million last year in added fuel costs for backup generators. (Arizona Daily Star 5/29/75 page 1A)

50. State each and every fact, in detail, upon which you base your contention that Arizona Public Service's past operating history with fossil fuel plants has demonstrated its inability to reliably meet the power needs of its consumers. See answer to question 49. Also, testimony at the 1971 TG&E rate case indicated that a number of the 1970-71 shut-downs at the 4-Corners plants (APS'is manager) were due to improper design of the ash handling equipment.

51. State each and every fact, in detail, upon which you base your contention that Arizona Public Service's past operating history with natural gas pipe lines has demonstrated its inability to reliably meet the power needs of its consumers. See Petition to Intervene Docket Nos. STN 50-528, STN 50-529, STN 50-530 pages 8-10

52. State each and every fact, in detail, upon which you base your contention that Arizona Public Service intends to delegate the responsibility for quality assurance during construction to Bechtel Corporation and Combustion Engineering. Applicants present no quality assurance program for PVNGS. Therefore, if a quality assurance program exists, it must be a program set up by Betchel and CE. If APS has no quality assurance program it can't very well an APS program, therefore, APS will effectively have delegated its responsibility.

53. Is it your contention that Arizona Public Service Company intends to devoid itself of any responsibility for quality assurance during construction? \_\_\_\_\_ If so, state each and every fact, in detail, upon which you base that contention. APS is effectively delegating its responsibility for quality assurance by failing to establish a comprehensive Q.A. program directly under APS control and management and thus will not be able to assure Q.A.

54. State each and every fact, in detail, upon which you base your contention that the current earnings of Arizona Public Service Company are presently inadequate to provide them with reasonable assurance that they will be able to finance their share of the construction costs. In the past year and a half, APS has received rate increases amounting to approximately 50%, yet it presently asking the ACC for another 7% rate increase in order to have a fair return on their investment. APS's bond rating dropped from AA to BAA in 1975. APS has undertaken a \$150 million pumped storage project, the proposed Kapaiowitz plant (+3000 MWe) and mining operations through a subsidiary.



. . . .

55. State each and every fact, in detail, upon which you base your contention that the current earnings of Tucson Gas & Electric are presently inadequate to provide them with reasonable assurance that they will be able to finance their share of the construction costs. Public Statements by TG&E spokesman.

56. State each and every fact, in detail, upon which you base your contention that increasing costs of fuel and pollution control devices will further reduce the earnings of Arizona Public Service Company in the future. APS and TG&E have commitments to install and maintain pollution control equipment in their present generating facilities. These commitments would be weakened by the financial burden of PVNGS. Further these commitments which must be honored will reduce the financial capacity available for the construction and proper maintenance of PVNGS.

57. State each and every fact, in detail, upon which you base your contention that increasing costs of fuel and pollution control devices will further reduce the earnings of Tucson Gas & Electric in the future. same as 56.

58. State each and every fact, in detail, upon which you base your contention that increased electricity costs may motivate the copper mines to generate their own electricity, with a resulting loss of income to Tucson Gas & Electric. Statements before the ACC in the 1974 rate increase hearings by the lawyer for the mines and a local cement plant.

59. State each and every fact, in detail, upon which you base your contention that the copper mines account for 86% of Tucson Gas & Electric's base load. This was not a contention but a supporting fact for the contention that neither APS and TG&E are financially qualified to build ANPP. The fact is incorrect and should read that the copper mines have an 86% load factor. The support for this fact is the "Cost of Service" study presented at the 1974 TG&E rate increase hearings before the ACC.

60. State each and every fact, in detail, upon which you base your contention that increased electricity costs will not increase revenues as much as expected because of the elasticity of demand for electricity. Statement by Dr. Irwin M. Stelzer, president of National Economic Research Associates Inc., to the conference on "Energy Up-Date and Outlook" New York Nov. 21, 1974.

The elasticity of electrical demand is approximately -.5 (i.e. 10% increase in cost causes a 5% decrease in consumption).

TG&E has received approximately 50% increase in rates since the beginning of 1974 and consumption growth rate has decreased from approximately 13% per year to less than 1% per year.

61. As respects your answers to interrogatories nos. 5 through 60, please state:

(a) The name, occupation, address, and telephone number of each person who will be called as a witness to testify as to the facts set forth in those answers, identifying which facts each person will be testifying to. Not Established At This Date (NEATD)

(b) The field or science in which each such person is sufficiently schooled to enable them to express opinion evidence in this matter, if any. NEATD

(c) Whether such witness will base his opinion:

(i) in whole or in part upon facts acquired personally by that person in the course of an investigation or examination as to the facts; or  
NEATD

(ii) solely upon information provided that person by others, NEATD

(d) The qualifications of each such person that would render that person, if possible, as an expert witness.  
NEATD

(e) If any such witness has made a personal investigation or examination relating to any of the facts or bases set forth in the answers to interrogatories nos. 5 through 60, state the date(s) and nature of each such investigation or examination. NEATD

(f) Each and every fact, and each and every document, photograph, report, item, or other tangible object supplied or made available to each such person. NEATD

(g) Whether each such person has rendered written reports, regarding facts, bases, or opinions as respects your contentions referred to in interrogatories nos. 5 through 60. NEATD If so, state:

(i) the date(s) of each such report;

(ii) the name and address of the custodian of each such report.

NEATD

62. List each expert witness you will call to testify in this matter. NEATD

(a) If not previously given in answers to these interrogatories, give the occupation, address, telephone number, educational background and experience (as it may relate to each such person's field of expertise, if any) of each expert witness. NEATD

(b) State the subject matter on which each such expert is expected to testify. NEATD

(c) State the facts to which each such expert is expected to testify. NEATD

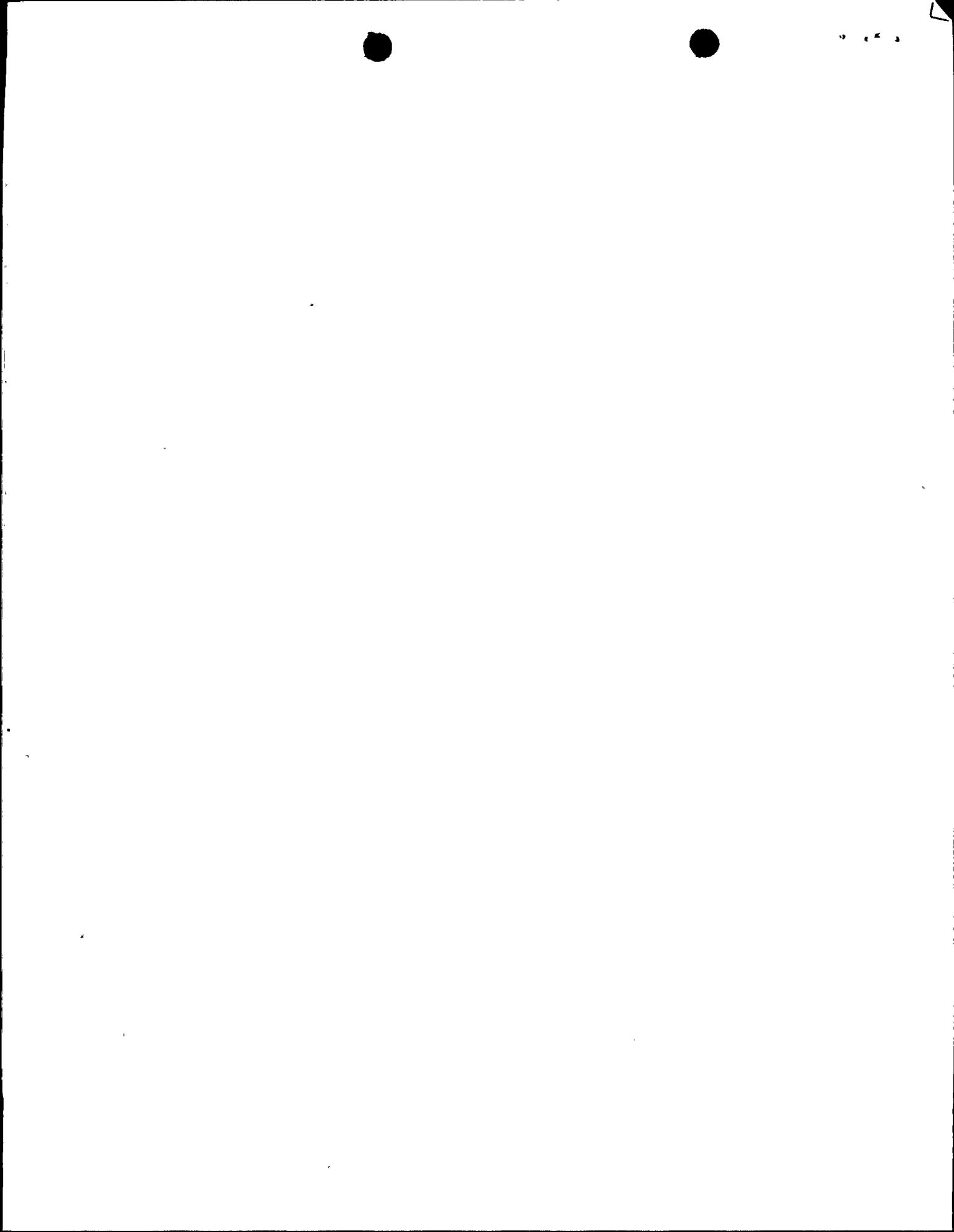
(d) State each opinion, if any, which each such expert is expected to express in testimony. NEATD

(e) Give a detailed summary of the grounds for each opinion expressed by each such expert. NEATD

63. Are any of the contentions of ACEC or the facts and/or opinions set forth in answers to the preceding interrogatories based solely or partially on secondary sources such as articles, books, pamphlets, publications, or the like? yes

If so, please identify:

(a) which contentions are based solely on such secondary sources; ALL



(i) The secondary sources each such contention is based on; see 63(a)

(ii) if other than the entire secondary source is being relied upon, identify the part or parts which are being relied upon. see 63(a)

(b) Which contentions are based partially on such secondary sources; see 63(a)

(i) The secondary sources each such contention is partially based upon; see 63(a)

(ii) if other than the entire secondary source is being relied upon, identify the part or parts which are being relied upon. see 63(a)

(c) Which facts are based solely on such secondary sources; see 63(a)

(i) The secondary sources each such fact is based on; see 63(a)

(ii) if other than the entire secondary source is being relied upon, identify the part or parts which are being relied upon. see 63(a)

(d) Which facts are based partially on such secondary sources; see 63(a)

(i) The secondary sources each such fact is partially based on; see 63(a)

(ii) if other than the entire secondary source is being relied upon, identify the part or parts which are being relied upon. see 63(a)

(e) Which opinions are based solely on such secondary sources; see 63(a)

(i) The secondary sources each such opinion is based upon; see 63(a)

(ii) if other than the entire secondary source is being relied upon, identify the part or parts which are being relied upon. see 63(a)

(f) Which opinions are based partially on such secondary sources; see 63(a)

(i) The secondary sources each such opinion is partially based upon; see 63(a)

(ii) if other than the entire secondary source is being relied upon, identify the part or parts which are being relied upon. see 63(a)

64. Identify, with specificity, each and every exhibit you intend to use in this matter. NEATD

(a) As to each such exhibit, state which facts, opinions, or contentions the exhibit supports, if any. NEATD

65. With reference to the exhibits listed in the preceding interrogatory, state the source and nature of the exhibit, i.e., whether said exhibit is documentary, a picture, or whatever; who prepared each exhibit; its date of preparation; and, who has custody of each exhibit. NEATD



COPIES of the foregoing  
mailed this 12<sup>th</sup> day of  
June, 1975, to:

Frederic S. Gray  
Thomas M. Bruen  
U.S. Nuclear Regulatory Commission  
Office of Staff Counsel  
Washington, D.C. 20555

Docketing and Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Bruce Norton  
SNELL & WILMER  
3100 Valley Center  
Phoenix, Arizona 85073



Lydia Ramirez

