

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Jan. 15

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

HOUSTON LIGHTING & POWER CO.
(Allens Creek Nuclear Genera-
ting Station, Unit 1)

Docket No. 50-466 CP

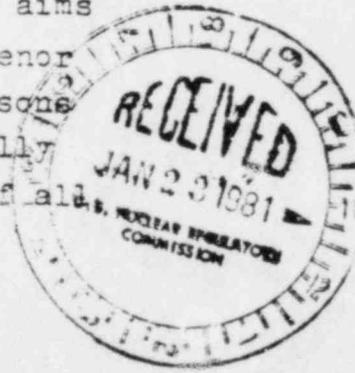


JOHN F. DOHERTY'S CONTENTIONS # 51, 52, 53, and 54.

John F. Doherty, Intervenor pro-se in the above Construc-
tion License proceeding now files these contentions in response
to Staff's release of NUREG-470, Supp. No. 2, "Draft Supplement
to Final Environmental Statement related to the Construction of
Allens Creek Nuclear Generating Station, Unit No. 1", (hereafter:
Draft). This document was available according to Staff on
December 17, 1980. Hence Intervenor has treated his obligation
to file Contentions based on the Draft as granting him 30 days
from December 12, 1980. He further bases his right to file
these, on new information provided by the Draft. The Board
in its Order of December 17, 1980 (Pg.2), stated, "Staff
advised that the second supplement to the FES would be issued
soon (TR. 1810-15) and the Board observed and Staff agreed
that said issuance might generate amendments to petitions
to intervene..." (Tr 1818).

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Intervenor contends that for the reasons listed below the
site designated Li-3 in the Draft is a superior site, with less
environmental impact for the same benefit, as the site proposed
by Applicant in Wallis, Texas. Hence, said Li-3 site must be
used for the proposed boiling water reactor^{to} fulfill the aims
of the National Environmental Policy Act (NEPA). Intervenor
does not contend that necessarily each of the below reasons
is sufficient to conclude the Li-3 site is environmentally
superior and hence preferable, but that a combination of all
or combinations do so.



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Contention #51 (Parts (a) to (c))

(a) Intervenor contends there is no significant difference in the amount of dissolved oxygen in the Brazos River at Rosharon and Trinity River at Romayor according to 1979 figures from U. S. Department of Interior Report: Water Resources Data for Texas, Volume 2 (Page 474, for Brazos River) and Volume 1 (Page 598, for Trinity River). The average monthly difference for 1979, is but 1.5 milligrams/ liter and this difference is not sufficient to use in any determination of difference in environmental impact of a BWR system operating on either river for the AONGS or Li-3 site.

(b) Intervenor contends Staff erred by comparing Brazos River quality in its current condition with Trinity River water quality in comparing the AONGS site to the Li-3 site (Draft, Table 2.11, Page 2-61). This is because (particularly with regard to Chloride) the Brazos River will be further deteriorated by biocides from the Comanche Peak Units I and II, blowdown cooling lake water. Impact on water quality of the AONGS on the Brazos River will be more severe because the threshold of tolerance for chlorides and heavy metals in much of the aquatic life of the Brazos will be exceeded unlike the Trinity River which is at this point of better quality and less close to the tolerance thresholds for chlorides and heavy metals.

(c) Intervenor contends Staff has underestimated the survival ability of the Trinity Bay and Galveston Bay shrimp to both water temperature changes and increased salinity, (Draft, Page 2-32). In Biological Bulletin, 129 (1965), 199-215, "Growth and Survival of Penaeus aztecus under Controlled Conditions of Temperature and Salinity", Zeig-Belden and Aldrich concluded, "Salinity per se had little effect on either survival or growth at extreme temperatures" (Page 215) for this shrimp species, which along with Penaeus setiferus make up the majority of shrimp harvest in the bay complex to which the Trinity River flows.

(d) Intervenor contends Staff has underestimated the survival ability of the oyster (Ostrea virginica) from changes in salinity caused by water loss to Trinity River estuary from the operation of a BWR at the Li-3 site. In Bulletin of the Bureau of Fisheries, No. 21, (U. S. Department of Commerce, 1936, "Adaptation of the Feeding Mechanism of the Oyster (Ostrea gigas) to changes in

Contention #51 (Continued) Parts (c) to (e)

Salinity", 1936, A. E. Hopkins concluded this species can adapt to a rise in salinity rapidly but more slowly when salinity decreases (P.363) and tolerates salinity as high as 30 parts per mille. The author believed this research applicable to Ostrea virginica (Ibid. P. 345). Accordingly staff's decision that impacts on spawning or nursery grounds, water quality and to "important" aquatic biota should be changed to favoring the Li-3 site due to less impact. (Note: it is impossible to determine if this issue applies to all three of these areas of aquatic ecology or less, so Intervenor has chosen to apply it to all three. This is because there is considerable lack of clarity in where the dividing line for these three areas exist. It is particularly difficult to separate "Impacts on spawning or nursery grounds" from "impacts to 'important' aquatic biota".)

(d) Intervenor contends Staff has erred in its conclusion with regard to the impact on the nursery grounds of the American oyster, Crassostrea virginica Gmelin, caused by consumptive water loss caused by operation of a BWR at the Li-3 site, which would be in Trinity and Galveston Bays. In Technical Series (Report) #24, Trends in Population Levels of the American Oyster, published by the Texas Parks & Wildlife Department (1977) p. iii, R. R. Hofstetter, reported, "Although more spat (Note: spat are young oyster or other bivalve mollusk) set in years of above normal river flow, survival is better when river flow is below normal. In 'wet' years about 36% of the spat survive to market oyster size compared to 49% surviving in dry years."

(e) Intervenor contends the category "Impacts to spawning or nursery grounds" in Table 2.11 (Draft Pg. 2-61) should not be "-", but "+" in accordance with Technical Series (Report) #24, "Trends in Population Levels of the American Oyster,

Contention #51 (Continued) Parts (e) to (h)

published by the Texas Parks & Wildlife Department (1977). There (p. 26) R. R. Hofstetter, reported, that these oyster (Crassostrea virginica Gmelin) spawn with a temperature rise such as would occur or be aided by the thermal discharges to the Trinity Bay and Galveston Bay from the Trinity River from a nuclear plant at Li-3 site.

(f) Intervenor contends Staff has presented no information that migration of any aquatic species will be impacted by location of a BWR of ACONGS capacity at site Li-3, in the Draft. Therefore Staff's conclusion in Table 2.11 (Draft 2-61) that the ACONGS site will have less impact to "feeding areas or migration routes" is unsupported and should show otherwise.

(g) Staff's conclusion the effect of operation of Li-3 on Trinity River would be greater than the effect of operation of a same-capacity BWR on the Brazos River has led it to conclude the aquatic habitat quality would be greater impacted. However, pollution on the Brazos River is "light to moderate" as indicated by species diversity, (Applicant's ER, Appendix B, pg. 4-33). The Trinity River is described as moderately polluted (Draft, Sec. 2.3.2.2, Page 2-31). Since no such reports are referenced for Trinity River, Staff should have concluded such a difficult comparison on habitat quality could not be made, and indicated such in Table 2.11 of the Draft.

(h) Intervenor contends Staff has erred in concluding that a detrimental environmental impact to "Important" aquatic biota will occur (Draft 2-32, and Table 2-11, Page 2-61) if salinity of Galveston Bay and Trinity Bay is increased as a result of operation of a BWR at the Li-3 site. A study by the consulting engineering firm of Lockwood, Andrews and Newman Inc. for the Texas Water Development Board (1966), titled: A New Concept: Water for Preservation of Bays and Estuaries, concluded that for Galveston Bay, the State of Texas should, "Enlarge Rollover Pass at the east end of East

Contention #51 (Continued) Parts (h) to (j)

Galveston Bay to improve circulation and increase salinity (P.33, emphasis Intervenor's). Accordingly conclusions shown in Table 2.11 of the Draft should be revised with regard to "Impacts to 'important' aquatic biota" and other categories where increased salinity due to the operation of a BWR at site Li-3 were included as part of the environmental impact.

i) Intervenor contends "Freshwater flow" for the Li-3 site (Draft, Table 2.11, Page 2-61) should have been judged "+" or "0", not "-" because the Final Supplement to the Final Environmental Impact Statement (Page 3. 5-3) states only that the intake flows for ACONGS (a single unit) will be less than 10% during low flow conditions, which is not significantly different from the statement in the Draft (Page 2-32, Sec. 2.3.2.2) which states during low flow conditions Li-3 will require 9-11% of the river flow. Waterflow at the Li-3 site (Measured at Romayor, Texas) for the Trinity River and at the ACONGS site (Measured near Rosharon, Texas) are close to the same. For the Li-3 site average flow for the Trinity River (Regulated by the Livingstone Reservoir) from 1969-1979 was 7,528 cfs, and for the ACONGS site average flow for the Brazos River from 1968 to 1979 was 3,017 cfs. (Data from: Water Resources Data for Texas, U. S. Department of Interior, Geological Survey, 1979, Volumes I and II, page 597 and page 473 respectively).

j) Intervenor contends Staff has underestimated the environmental impact to winter feeding habitat for waterfowl by indicating the removal of 5,270 acres of land at ACONGS is merely equal to the removal of feeding habitat lost by construction at the Li-3 site (at most 640 acres). See Draft (Sec. 2.3.1.2, Page 2-20 and Sec. 2.3.2.1, Page 2-27) Intervenor accordingly maintains Table 2.10 should indicate "less impact than at Allens Creek" with regard to terrestrial habitat.

Contention 51 (Continued) Parts (k) to (m)

(k) Staff has underestimated the ability of the species Brevoortia patronus (Gulf Menhaden) to tolerate salinity and high temperatures in the Trinity Bay and Galveston Bay. In Fishery Bulletin, 77(4), 1980, a publication of the U. S. Department of Commerce, National Marine Fisheries Service, S. P. Ferraro in "Embryonic development of Atlantic menhaden, Brevoortia tyrannus, and a fish embryo estimation method," observed salinity between 10‰ and 30‰ had no effect on embryonic mortality and no noticeable effect on rate of development. Temperature was significant below 15°C. only. Although the common Gulf menhaden is brevoortia patronus, Intervenor contends this species is sufficiently similar to the study's species to establish a nexus for the contention, and that Staff's concerns expressed in the Draft (Sec. 2.3.2.2, page 2-32, and in Table 2.11, page 2-61) with regard to "Impacts to spawning and nursery grounds" are incorrect.

(l) Intervenor contends Staff erred in its conclusion environmental impact on terrestrial species from operation of a BWR at the Li-3 site would be the same as that of the ACNGS on "Threatened or endangered species" (Draft, Table 2.10, Pg 2.58). The Final Supplement to the Final Environmental Impact Statement, 1978 (Table S. 2.5) lists six species from the "Endangered and Threatened Wildlife and Plants" of the Department of Interior of 1977, for ACNGS, but the Draft mentions but a single species, the alligator (Pg. 2-31). Hence, Intervenor contends the Li-3 site will have less impact to endangered or threatened terrestrial species from an operating BWR and its construction than the impact of the proposed ACNGS on its site.

(m) Intervenor contends that since the cooling towers for the Li-3 site will accomplish the same task as a cooling lake for the ACNGS site, these two different cooling systems must be compared for "onsite impacts," (Draft, Table 2.10, Page 2-58). Intervenor contends the use of circular mechanical draft cooling towers as described in NUREG-0574, "Final

Contention 51 (Continued) Parts (m) to (o)

Environmental Impact Statement Related to selection of the preferred closed cycle cooling system at Indian Point Unit no. 3 (Dec. 1979, Sec. 2.4.3.3), at the Li-3 site would have less environmental impact on Trinity River than a cooling lake at ACNGS, because of less land use, less visual impact, less loss of habitat for protection of terrestrial fauna, and increased availability of land for residences.

(n) Intervenor contends Staff has erred in its calculations of the amount of land to be taken for powerline transmission right of ways for the Li-3 site. Using 63 miles (Draft, Page 2-29) transmission line length, and using typical right-of-way width from Table 4.1, (Pg. 24) of Management of Transmission Line Rights-of-way for Fish and Wildlife, Vol. 1, U. S. Department of Interior, Fish & Wildlife Service, 1979, the typical right of way for a 345 kv line is 150-170 feet or 13.2 to 20.6 acres per mile. Staff used a 200 foot corridor without explanation to arrive at 1,524 acres removed for this purpose. Staff has required 378 acres unnecessarily in its calculation for the Li-3 site. Using a 150 ft. corridor the Li-3 site will require 750 acres less than than the ACNGS. Hence the offsite impact of transmission line corridors for Li-3 site will be less than the impact for a nuclear plant at the ACNGS site, which should be reflected in Table 2.10 of the Draft.

(o) Intervenor contends the Staff has erred by not considering the possibility of meander cut-off (as a result of flooding) on the Brazos River at a point approximately .1 miles upstream from a point marked "B 1" in Figure S. 2.3 (Page S.2-8) of the Final Supplement to the Final Environmental Impact Statement. (The transcript of the Pre-hearing Conference pp. 984-989 covering a Bishop Contention has more on this; its date is 10/16/79) If the river takes this new course, construction of a pipeline to the make-up pumphouse in excess of two miles would be required. In addition, a mile of piping from the spillway to

Contention 51 (Continued) Parts (o) to (q)

the Brazos, would probably be required unless the prior spillway were closed and a new one constructed. An additional cost would be down time of the ACNGS, caused by low cooling pond water level while the new make up piping and other facilities were constructed. Intervenor contends failure to include this in the comparison between Li-3 "makeup and discharge pipeline" impacts (Draft, Table 2.10, Pg. 2-58) and ACNGS was in error and that the Li-3 site is equal to or superior to the ACNGS site with regard to environmental impacts from this feature of the two BWR plants.

(p) Intervenor contends Staff's conclusion "In-migration" (Draft, Table 2.12, Pg. 2-64) will have a greater impact on the Li-3 site than in-migration on the ACNGS site is not demonstrated by comparing the text in the Draft (Sec. 2.3.2.2, page 2-33) which pertains to Li-3 and the text in the Draft (Sec. 2.3.1.2, Pg. 2-24) which pertains to the ACNGS site. Because of this, Staff's only conclusion options are that the two sites are equal, uncertain, or that the Li-3 site is superior in this socioeconomic characteristic.

(q) Intervenor contends the continued westward growth of Houston residential districts which result in increased populations as reflected in testimony of Applicant's witness William T. White, submitted on December 18, 1980, to these proceedings, shows that Staff's conclusion the the impact of the proposed BWR on the ACNGS site demography will be equal to that on the Li-3 site (Draft, Table 2.12, Page 2-64) is in error because current land use patterns and population growth patterns both present and emerging indicate the appearance of the ACNGS and its cooling lake will impinge a rapidly growing residential area, where on the other hand the land use and population patterns at or near the Li-3 site indicate little recent change or emerging pattern changes.

Contention 51 (Cont.) Parts (r) to (t)

(r) Intervenor contends Staff erred in deciding the impact on the site demography of the ACNGS would be equal to that at the site of Li-3. This is because staff did not consider the impact of having a 200 ft tall reactor building and associated structures on the conduct of the "Concentrated student jet pilot training areas (which) are located on Matagorda Island and directly to the north of Matagorda Island," (Draft, Pg 2-2 and Figs. 2.2, pg. 2-5, and Fig. 2.6, pg. 2-11). The plant and its cooling lake both offer severe hazards to such trainees in the event of emergency landings or other student errors in the form of collision, drowning or other injury or damage which would not occur if the terrain of the ACNGS site were not disturbed.

(s) Intervenor contends the Staff erred in concluding a BWR of the proposed capacity at site LI-3 would have greater impact than a replicate BWR at the ACNGS site with regard to impacts on spawning grounds and to "important aquatic biota" (Draft, Table 2.11, Pg.2-61). The impact of increased salinity from this location would improve osmoregulation of mature female crabs (Callinectes sapidus Rathbun), because this species does not function as well in this stage of its life cycle in low salinity, as reported in Technical Series (Report) #1, A Contribution to the Biology of the Blue Crab in Texas, Texas Parks & Wildlife Department, 1969.

(t) Intervenor contends the Staff erred in concluding a BWR of the proposed capacity at site Li-3 would have greater impact than a replicate BWR at the ACNGS site with regard to impacts on "habitat quality" and "feeding grounds" (Draft Table 2.11, Pg. 2-61). It has been shown operation of a plant at Li-3 would increase salinity in the Trinity and Galveston Bays, yet, for productivity of a wide variety of detritus food for various aquatic creatures, "Only under extreme conditions, i. e. in hypersaline waters, does salinity seem to

Contention 51

to become the limiting factor...". ("Control of photosynthetic production in aquatic ecosystems", E. Stengel and C. J. Coeder, in Photosynthesis and Productivity in Different Environments, Cambridge University Press, 1973.

CONTENTION 52

Intervenor as well as agencies of the various governments and recipients of the Draft Supplement No. 2 to the FUS cannot determine in Fig 2.14, pg. 2-34 if the areas called: "(4) Lake Steinhilber and Lake Superior;" and "(5) Smith Point, Lone Oak Bayou, Sandy Marsh and Vincent-ou Islands" and Fig. 2.17, page 2-47 "(1) Attwaters prairie chicken habitat, (2) Earle West Lake and Harris Reservoir - eagle nesting habitat (3) Brazos River bottomland forest, (4) Garza Reservoir - eagle nesting habitat." are feeding or resting areas (or both) for waterfowl. This makes it impossible to determine if mitigation of impact might be accomplished by crossing feeding and resting areas resources within the same area (or even if that is necessary) and create sites superior to ANGS. This information, not in the Draft, is important, because, by making both resources available on the same side of a transmission line corridor, trans-corridor flights will be unnecessary for the impacted waterfowl. This was suggested in Impacts of Transmission Lines on Birds in Flight, U. S. Dept. of Interior, 1978, in an article by L. S. Thompson, "Mitigation Through Engineering and Habitat Modification," 10-32, on page 30. The use of mitigation of this form should be considered for the Je-3 and Ma-3 sites because of the great significance attached to locating a BRL of the proposed capacity with regard to their environmental impacts on terrestrial ecology through the transmission lines required. (See summary Sec. 2.5 of the Draft at 2-66, and page 2-10 and page 2-48 for Je-3 site and Ma-3 site respectively.

CONTENTION 54

The Draft, which compares for the first time the socio-economic consequences of construction of the proposed station at the STNP site with the consequences of construction at the Allens Creek site has unreasonably concluded that the impact of in-migration of workers at the WONGS site will be less than at the STNP site and the Ma-3 site. See Table 2.12, page 2-64. This is because Staff has assumed "no workers on STNP 1 and 2 will remain in the area to work on a third unit at STNP". As of December 31, 1979, STNP #2 was 17% constructed and STNP #1 was 52% completed, and fuel loading was planned for STNP #1 in Sept. 1983 and for STNP #2 in April 1985 according to NUREG-0030, Vol. 3, #1. Delays have since occurred. Intervenor contends in-migration will have less impact (from the above) at STNP and Ma-3 leading to the conclusion that both Ma-3 and STNP are superior sites in in-migration impacts and that given Staff's other findings with regard to STNP, that site is a superior site to WONGS.

Copies of: "JOHN F. DOHERTY'S CONTENTIONS #51, 52, 53, and 54," were served on the parties below this 15th of January, 1981 at Houston, Texas.

Sheldon J. Wolfe, Esq. Chair, ASLB; Gustave A. Linenberger, Administrative Judge; Dr. E Leonard Cheatum, Esq., Administrative Judge; Richard A. Black, Esq. for Staff; Jack R. Newman, J. Gregory Copeland, Esqs. for Applicant; Atomic Safety Licensing & Appeal Board, Richard Priester, Susan Plettman, for State of Texas; and Docketing & Service Branch, N.R.C.

Respectfully Submitted,

John F. Doherty

John F. Doherty, Intervenor