

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	\$	
	\$	
HOUSTON LIGHTING & POWER COMPANY	\$	Docket No. 50-466
	\$	
(Allens Creek Nuclear Generating	\$	
Station, Unit 1)	\$	

AFFIDAVIT OF DONALD VANSICKLE

My name is Donald VanSickle. I am a vice president in the firm of Turner Collie & Braden, Inc. A copy of my curriculum vitae is attached.

My firm has been employed as a consultant to the City of Houston at various times since 1964 to undertake comprehensive studies of the City's municipal water system. The most recent study was completed in January, 1980.

The City of Houston currently obtains groundwater from well fields in the Houston area and surface water from the San Jacinto River Basin and the Trinity River Basin. The City's records show that average municipal use for 1979 was 341.4 million gallons per day (mgd). Approximately 40 percent of the water supplied to the municipal system during 1979 was treated surface water from the San Jacinto River Basin (138 mgd). The remaining 60 percent (203 mgd) was supplied from wells located throughout the service area.

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Houston's groundwater is supplied by 169 wells located in 10 major well fields (ranging in size from 5 to 11 wells), 10 secondary well fields (2 to 3 wells), and 60 minor (1 well) fields. Two well fields, having a total of 3 wells, discharge directly to the distribution system.

Houston's surface water is supplied from three reservoirs. Lake Houston and Lake Conroe, constructed primarily for municipal supply, are both located in the San Jacinto River Basin. Lake Houston has 146,700 acre-feet of storage occupying 12,240 acres of land with an estimated firm yield of 170 mgd. The City of Houston is entitled to approximately 120 mgd from Lake Houston. Lake Conroe has a storage capacity of 430,260 acre-feet and an estimated firm yield of 75 mgd. The City has perpetual right to two-thirds of the yield, a supply of about 50 mgd. However, due to the projected effects of future sedimentation, Houston's future allocations of surface water from Lake Houston and Lake Conroe are 108 mgd and 45 mgd, respectively.

The third surface water source for the City of Houston is Lake Livingston, located in the Trinity River Basin. This reservoir has a storage capacity of 1,750,000 acre-feet, with an estimated firm yield of 1,150 mgd. The City has a perpetual right to 70 percent of this yield, or a dependable supply of 806 mgd. The City also supplied an

average of 147 mgd of untreated surface water to large industrial customers. In general, industrial customers now purchase untreated surface water from the City of Houston. The Coastal Industrial Water Authority (CIWA) now operates a system of conveyance and distribution facilities to provide this untreated surface water from the Trinity River (Lake Livingston) to industrial customers in the Houston area.^{1/}

In 1968, the Texas Legislature created CIWA as a conservation and reclamation district. CIWA was invested with powers to transport and deliver water, to acquire and construct facilities necessary for such purposes, and to issue revenue bonds supported by water conveyance contracts. The Authority and the City entered into a contract in 1968 (amended in 1977), authorizing CIWA to finance and construct facilities to transport untreated water from the Trinity River to the Houston area, in return for payments from the City from gross revenues of its water system.

In 1976, CIWA substantially completed construction of conveyance and distribution facilities discussed previously. Although the City was originally responsible for the

^{1/} CIWA was one of two governmental agencies created to combat subsidence problems. As a result of the CIWA system, groundwater levels in the southern half of Harris County have increased 20 to 50 feet and this rebound is expected to continue.

operation and maintenance of the Trinity River conveyance system pursuant to an operating agreement with CIWA, the agreement was terminated by mutual consent in August, 1977, allowing CIWA to oversee all aspects of the project.

By mid-1977, as industrial customers began relying on the CIWA system, the City saw a decrease of approximately 20 mgd in the untreated surface water demand of industry on Lake Houston. This decrease has provided the City with additional surface water supply for municipal uses. As the CIWA system is completed and additional industrial customers finalize the transfer to CIWA, industrial use of Lake Houston water is expected to be sharply reduced, further increasing the available municipal raw water supply.

Our studies indicate that Lakes Conroe, Houston and Livingston can supply surface water to meet the City's projected demands through approximately the year 2000.

This conclusion is primarily a result of the fact that previously Lake Livingston water was intended for industrial use only; however, due to decreased industrial demand water should also be available for domestic use, enabling the existing reservoirs to meet projected demands to almost the year 2000. However, since no new reservoirs seem to be economically justifiable at the present time within the San Jacinto Basin projected demands beyond the

year 2000 will require additional surface water supplies. Our analyses indicate that it would be more economical to turn directly to existing or proposed East Texas reservoirs for additional surface water supplies.

The East Texas reservoirs investigated are Toledo Bend in the Sabine Basin, and Sam Rayburn and Rockland in the Neches Basin. The nearest to Houston of these reservoirs is Rockland Reservoir, which has been proposed for some time but never constructed. If constructed, the reservoir would have a firm yield of approximately 600 mgd. Houston could presumably obtain 70 to 75 percent of this yield--420 to 450 mgd--by participating in its construction, thereby meeting or very nearly meeting the Municipal Water System needs of the City through the year 2010. The rapidly increasing cost of any new reservoirs, as well as the growing environmental opposition to such new facilities, makes reliance on Rockland Reservoir for long-term supply somewhat questionable.

From a review of data presented in the Texas Water Plan it appears that a significant amount of surplus presently exists in the Neches River Basin. By the year 2000, approximately 440 mgd are projected to be surplus. Based on needs increasing within the basin, surplus is expected to decline to 356 mgd by the year 2010. The major source of supply in this basin is Sam Rayburn Reservoir.

Toledo Bend Reservoir, located on the Texas-Louisiana border, is the most distant of the East Texas reservoirs. This reservoir is the major source of supply in the Sabine River Basin. Approximately 780 mgd are projected in the Texas Water Plan to be surplus to the Sabine Basin in the year 2010.

It therefore appears that both of the existing East Texas reservoirs, Sam Rayburn and Toledo Bend, presently have surplus supplies adequate to meet the projected year 2010 water supply needs of the Municipal Water System. Therefore, it is recommended that the City of Houston turn to the major East Texas reservoirs as a source of supply for the Municipal Water System beyond the year 2000.

Use of the Brazos River Basin has been investigated on a number of occasions as a possible source of supply for the City of Houston in the future, but has always been rejected for a number of reasons. Among these are:

1. Relatively poor quality of the Brazos River water in comparison with the relatively high quality of the San Jacinto, Trinity, Neches and Sabine. This lower quality is attributable in large measure to upstream salt formations. The absence of a large reservoir in the lower basin to average out the fluctuations in quality, and the apparent infeasibility of implementing measures to reduce

salt contamination, make it unlikely that these quality problems can be alleviated in the near future.

2. Past policy of the State of Texas indicates that trans-basin diversions from west to east are not likely to be permitted, and that such diversions will be from the water surplus areas in the east, to water deficient areas in the west.
3. Construction of additional reservoirs would be required to make a firm supply available, the probable reservoirs being Millican and Navasota on the Navasota River. Diversion directly from these reservoirs to obtain higher quality water would probably not be possible since the flow is needed to provide dilution and improve the quality of run-off from the upper basin and such diversions would result in significant deterioration of the quality of flow in the lower basin.
4. In addition to the usual problems encountered in any new reservoir construction, these reservoirs face the additional constraint that lignite deposits have been discovered in the reservoir areas and construction would probably be delayed until the lignite is mined and the surface restored.

Because of these and other problems, we do not consider the Brazos River as a potential long-range water supply source for the City of Houston and have never recommended that the City look to the Brazos basin for additional water supplies. To the best of my knowledge, the City has never considered the Brazos as a source of supply in any of its planning efforts.

Donald R. VanSickle

Senior Vice President
Technical Services



Education

Bachelor of Science in Civil Engineering, University of Texas at Austin, 1954; Master of Science in Civil Engineering, 1958.

Registration

Texas No. 17121;
Ontario, Canada.

Professional Affiliations

American Society of Civil Engineers; American Institute of Consulting Engineers; Consulting Engineers Council; American Water Resources Association; American Water Works Association; American Geophysical Union; Engineering Institute of Canada; International Association for Hydraulic Research; Houston Engineering and Scientific Society; Houston Chamber of Commerce.

Duties and Activities

Develops and directs technical operations of the professional services of the firm in the field of planning, particularly in the areas of water resources, environmental controls, traffic and transportation systems, economics systems, and other special study areas.

Experience

Member of the firm since 1957, and principal since 1968. Responsible for planning studies in water resources; water quality management; drainage; flood control; flood plain management; water supply, treatment, and distribution; wastewater collection, treatment, and disposal; land development; coastal and estuary engineering; land reclamation and irrigation; hurricane protection; land subsidence; regional sewer systems; and river basin planning. Directed feasibility studies, master planning, and preliminary design planning for a broad variety of projects.

Served as research engineer and lecturer at the University of Texas at Austin for three years prior to joining the firm.

Publications

"The Effects of Urban Development on Storm Runoff," *The Texas Engineer*, 1962; "Interior Drainage for Hurricane Protection Projects," Proceedings ASCE, *Journal of the Hydraulics Division*, March, 1968; "Experience with Evaluation of Urban Effects for Drainage Design," in *The*

Effects of Watershed Changes on Streamflow, University of Texas, 1969.

Representative Papers

"Urbanization of Houston and Its Effect upon Stormwater Drainage," winner of the ASCE Daniel W. Mead Prize, Texas Section and Houston Branch, 1958. "Effects of Urban Development on Storm Runoff," winner of the ASCE Award for Meritorious Technical Paper, 1962, published in *The Texas Engineer*, 1962. "Experience with Evaluation of Urban Effects for Drainage Design," published in *The Effects of Watershed Changes on Streamflow*, University of Texas, 1969.

Representative Lectures

U.S. Army Corps of Engineers — Donald VanSickle has been and continues to be a guest lecturer for the U.S. Army Corps of Engineers at its Hydrologic Engineering Center, Davis, California, for training courses in Urban Hydrology.

Effects of Urbanization on the Hydrologic System — Effect of urban development on the various components of the hydrologic system; definition of terminology used in describing urban systems; types of drainage systems; overview of hydrologic and hydraulic differences between natural and urban watersheds; dual drainage system concept; and pervious versus impervious area.

Effects of Urbanization on the Volume, Peak and Timing of Runoff — Analysis of quantity of runoff in urban areas; identification of the most influential components in urban systems with respect to volume, peak, and timing of flow; review of results of previous studies.

Texas A&M University — Guest lecturer, February, 1968. Training course in Water Quality Aspects of Water Resource Planning.

University of Houston — Seminar guest lecturer, January, 1971. Water Resources Planning for the Houston-Galveston Region.

Other Professional Activities

Chairman, Harris County Flood Control Task Force, 1973. Chairman, Houston Chamber of Commerce Flood Control Committee, 1971.

Representative Assignments

Donald R. VanSickle is a nationally recognized authority in the field of hydrology, drainage and flood control. All company assignments in hydraulics/hydrology have been accomplished under VanSickle's direct supervision or were heavily dependent upon his consulting expertise.

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

AFFIDAVIT OF DONALD VANSICKLE

I, Donald VanSickle, first being duly sworn, upon my oath certify that I have reviewed and am thoroughly familiar with the statements contained in the attached affidavit and that all my statements contained therein are true and correct to the best of my knowledge and belief.

Donald VanSickle

Notary Public in and for
Harris County, Texas

JOHNSON DEPOSITION

OF

December 18, 1979

CLARENCE JOHNSON

was called as a witness by the respondents and,
being first duly sworn, testified as follows:

DIRECT EXAMINATION

QUESTIONS BY MR. COPELAND:

Q Could you state your name for the record,
please?

A My name is Clarence Lee Johnson.

Q All right, Mr. Johnson, could you please
provide us with your current address?

A 7368 Fairway, Houston, 77017.

Q All right, sir, and what is your present
job?

A I am Executive Director of the Texas Public
Research Group.

Q Is that a paid position?

A Yes.

Q Do you have any other jobs?

A No.

Q All right, sir, and how long have held that
position?

A Well, somewhat intermittently for about
two years.

Q Now, could you give me your educational
background, beginning with the time that

1 you got out of high school?

2 A I received a Bachelor of Science in Political
3 Schience, University of Houston.

4 Q What year did you get your degree?

5 A It was 1975, I believe.

6 Q Did you take any post-graduate courses?

7 A Yes, I have taken approximately 36 hours
8 in the graduate program of open studies.

9 I'm scheduled to receive my Master of
10 Arts in Urban Studies from the University
11 of Houston in the spring.

12 Q Okay, what courses have you taken in your
13 graduate work?

14 A It's --

15 Q Just in general terms.

16 A It's primarily an inter-disciplinary
17 social science program. The emphasis is
18 on economics. I have taken courses in
19 urban economics, and public finance, and
20 microeconomics, and some geography, urban
21 spacial relations, some architecture, land-
22 use planning. That's the general kind of
23 background.

24 Q Your courses in economics, are they taught
25 from the School of Economics?

1 A Yes, in fact, the head of the graduate
2 program, Louis Stern, is professor of
3 economics in the economic department.

4 Q Your economics courses include, for example,
5 -- in urban studies, do you include
6 mathematical models in your course studies?

7 A Yes, to some degree.

8 Q Have you taken courses in mathematical
9 computation in the field of economics?

10 A Not other than in undergraduate level
11 I took a microeconomics course that
12 included some mathematical theory.

13 I've taken graduate statistics courses
14 in the political science department.

15 Q Okay, have you done any computer modelling
16 in the field of economics?

17 A No.

18 Q All right, after you graduated from the
19 University of Houston in 1975, did you
20 continue going to school at that time or
21 did you get a job, or what happened there?

22 A I got a job, I was a news reporter for
23 the Daily Sun in Texas City, and I was
24 also later a news reporter for the New
25 Citizen in Clear Lake.

1 Q All right, and how long were you a
2 reporter?

3 A Well, I began my reporting on a part-time
4 basis for the Daily Sun, well, I was still
5 an undergraduate, and all in all, something
6 in the order of like three years as a
7 reporter.

8 Q All right, and that was from 19 --
9 beginning when?

10 A From about '73 to about '76.

11 Q All right, and some time during 1976,
12 you ceased being a reporter?

13 A Yes, and I took a position as staff person
14 with TexPIRG, my title was Research
15 Coordinator, and then within about two
16 years or about a year and a half, our
17 Executive Director resigned and I was
18 promoted into her position.

19 Q Okay, so other than your employment as
20 a news reporter, your only employment
21 since graduating from college has been
22 through TexPIRG?

23 A Yes, other than in this past spring and
24 early part of this summer, took a leave
25 of absence from TexPIRG and I was employed

1 as a legislative coordinator for Texas
2 Consumer Association.

3 Q And was that a paid position?

4 A Yes.

5 Q Do you currently -- I think you said, as
6 I understood it, you don't hold any jobs
7 right now other than Executive Director
8 of TexPIRG?

9 A No, I don't hold any other jobs.

10 Q Now, just as a preliminary matter today,
11 we are going to get into a lot of very
12 technical areas and I want to make it
13 clear to you that if you don't understand
14 the question I am asking you, I want you
15 to please stop me and tell me that, and
16 tell me you don't understand the question.

17 A Okay.

18 Q And I'll try my best to rephrase it.

19 Secondly, don't try to anticipate
20 my question and answer it before I complete
21 it. If you would just let me finish my
22 question and I'll try my best to let you
23 finish your answers. That way the trans-
24 cript will come out much clearer, and be
25 much easier on the court reporter today.

1 unit there, but if that were the case,
2 you are correct, it would.

3 Q Well, have you done any analysis to
4 determine whether the local community
5 in South Texas could, in fact, absorb
6 additional construction workers?

7 A No, I haven't.

8 Q All right.

9 A But I guess my point is is that there
10 is -- that my contention is is that if
11 more likely that it would just be the
12 work force that's there continually.

13 Q That's your position?

14 A Yes.

15 Q And do you recognize that if the site
16 -- if this unit were moved to the South
17 Texas site, there would be a loss of
18 revenue to the community at the Allen's
19 Creek site?

20 A I think that's true.

21 Q And that would be something that would
22 have to offset whatever adverse effects
23 were there from the presence of the work
24 force?

25 A I'm not certain I follow that. What is

1 the board didn't refer to that analysis.

2 MR. NEWMAN: Are you aware
3 that the Appeal Board has affirmed
4 that decision?

5 A Yes.

6 QUESTIONS BY MR. COPELAND:

7 Q Well, as of right now, though, you cannot
8 say that there will be insufficient crop
9 land available to meet projected agri-
10 cultural needs in the United States
11 through the year 2020?

12 A As far as I know.

13 Q All right, sir.

14 A I mean, I don't have any other documents
15 at the present time to indicate otherwise.

16 Q You say in this same paragraph that
17 Allen's Creek, the construction of the
18 pond, will result in the destruction of
19 8.5 miles of spawning area for aquatic
20 life. How can that be?

21 A Because I took that statement out of
22 the Environmental Report.

23 Q What is the effect of that, is it relevant?

24 A Well, if there is a loss of spawning
25 area for the aquatic life, and if our

1 deal with the Brazos River availability.

2 Q Other than what's in the State of Texas'
3 answers to interrogatory, do you know of
4 any document?

5 A No, and I -- as I mentioned, subsidence
6 -- I don't know if I mentioned here or
7 not, the Subsidence District is doing a
8 study right now on subsidence as it
9 relates to the various river basin
10 water availability, and it is not
11 completed yet, but I will be keeping
12 in check with them to see if I can get
13 it as soon as it's ready.

14 Q Okay, let's go to your contention on
15 the barge.

16 MR. NEWMAN: Before we leave
17 that, could I just ask a few
18 questions?

19 MR. COPELAND: Yes, sir, please
20 do.

21 QUESTIONS BY MR. NEWMAN:

22 Q Just sort of a general wrap-up. Has
23 TexPIRG performed or relied on any studies
24 which support the allegation that the
25 S.T.P. site is an obviously superior

1 alternative to the Allen's Creek site?

2 A. We have not performed any studies. The
3 only studies I know of that compare in
4 terms of using the word, "obvious super-
5 iority", of the two sites is the N.R.C.
6 study.

7 Q. Is that the document that you are relying
8 upon?

9 A. We've relied upon the N.R.C. study for a
10 great deal of our information, but they
11 did not conclude that.

12 Q. Do you mean the F.E.S.?

13 A. Yes.

14 Q. Yes, now, in answer to an interrogatory
15 that was transmitted to TexPIRG in March
16 on 1979, you were asked to state whether
17 you have performed or relied upon any
18 studies which support the allegation that
19 the South Texas Project site is an obviously
20 superior site to Allen's Creek and the
21 suballegations thereto, and produce any
22 such study, and the answer was yes, you
23 have them. I guess we need an identification,
24 then, of the studies which you are
25 referring to.

1 A Well, it's basically pointing out the
2 fact that we're using, to a great
3 extent, relying on the information in
4 the Final Environmental Statement.

5 Q Is that the study that your answers
6 refers to, then?

7 A Yes, that and the Environmental Report,
8 information in the Environmental Report.

9 MR. NEWMAN: Thank you.

10 QUESTIONS BY MR. COPELAND:

11 Q Do you have your contention before you
12 on the barge issue?

13 A I don't think I do.

14 Q All right, see if I can --

15 A Yes, I do.

16 Q All right, do you have your further
17 answers to interrogatories before you?

18 A Yes.

19 Q Answer to 31-a, you set forth some assump-
20 tions about the length, width, of the
21 vessel, and how much it would weigh when
22 it's fully loaded. Where did you get
23 those numbers?

24 A I believe it was H.L.&P. response to
25 Hinderstein's interrogatories.

1 extent that it's true, you can mitigate
2 or can't mitigate it, I think that has
3 their effect.

4 Q Let's go back to this question, then,
5 about the uniqueness of this land. Is
6 there any unique habitat here for any-
7 thing that you know of, on the Allen's
8 Creek site, any animals that --

9 A I don't know, it's not unique, but I
10 don't think uniqueness is necessarily
11 a criteria.

12 Q Assuming that there is some displace-
13 ment of terrestrial organisms, is it
14 TexPIRG's position that those organisms
15 cannot relocate somewhere else?

16 A Well, I presume a number of them could.
17 I presume a number of them would be
18 flooded.

19 Q Like what?

20 A Well, just depends on how fast they can
21 move. I don't know. I guess -- see,
22 what did I say here in terms of the
23 organisms?

24 Q Let's talk about that. You talk about
25 raccoons, deer, rabbits, squirrels,

1 gophers, armadillos, and opossums. Is
2 there any unique habitat for any of those
3 animals?

4 A It's not unique, I'll agree with that.
5 It's not a unique habitat. There's a
6 lot of habitat like that on the Gulf
7 Coast.

8 Q Do you know if any of those animals
9 that are an endangered species?

10 A No, there is none that are endangered
11 species here.

12 Q And do you know of any of them that
13 would become endangered by the elimina-
14 tion of this habitat?

15 A No.

16 Q Okay. Let's go off the record.

17

18 (Discussion had off the record.)

19

20 Q All right, so you would agree, then, if
21 we are correct in terms of what the
22 recreational benefits would be at the
23 Allen's Creek lake that that would weigh
24 heavily in favor of the Allen's Creek
25 site in comparison to the South Texas

1 site?

2 A Yes.

3 Q All right, and would you further agree
4 that if we're wrong that there is still
5 some doubt as to whether that would be
6 the determinant factor in the comparison
7 between South Texas and Allen's Creek as
8 alternate sites?

9 A Yes.

10 Q All right, now, let's talk about algae
11 growth. Is it your position that algae
12 growth is going to affect the recreational
13 use of the lake?

14 A Yes.

15 Q What is the source of that concern?

16 A Well, first of all, the impact state-
17 ment states that algae growth is likely
18 to occur.

19 Q All right, anything else?

20 A Well, none other than just a general
21 knowledge that combinations of temperature
22 and organic material, such as that from
23 the sewage discharge, and just organic
24 material in the lake, the organisms that
25 are there, promote algae growth.

SAXION DEPOSITION

OF

February 14, 1980

1 A. Yes, I am.

2 Q. So you haven't reached a final
3 conclusion yet?

4 A. I have reached a final conclusion on the --
5 well, on this particular topic I have pretty much
6 completed my research. I have reached
7 conclusions.

8 Q. What is your conclusion?

9 A. That the use of Allen's Creek for a
10 cooling reservoir for the proposed nuclear
11 generating station may preclude the opportunity
12 to use water in the Allen's Creek Basin as well
13 as portions of the Brazos River Basin for needed
14 municipal water supply sources.

15 Q. Have you identified any municipal water
16 supply source that may go unserved? I'm sorry.
17 Have you identified any particular municipality
18 whose water, whose availability of water from the
19 Brazos may be impacted by this plant?

20 A. Not in the Brazos River Basin is there
21 any community that would be probably impacted by
22 this plant per se. The real question is the
23 Houston S.M.S.A. and the large population there.

24 Q. I understand then it's your position
25 that there are no municipalities within the

1 Brazos River Basin itself that you are concerned
2 about, rather you are concerned that this may be
3 a supply of water for the Houston area, Houston
4 S.M.S.A.?

5 A. To qualify that, I wouldn't say the
6 entire Brazos River Basin, but in the project
7 area, proposed project area, I really don't have
8 any concerns that the siting of this power plant
9 would preclude the opportunity to use water
10 supply sources. The critical question is outside
11 the sources. §

12 As I stated earlier in some of my
13 studies that I have been doing which are
14 associated with my employer, the mid-basin area
15 of the Brazos is in a rather severe problem right
16 now because of mining of ground water so, you
17 know, there may be an opportunity for more
18 diversions upstream of the proposed site.

19 Q. But you haven't reached any conclusion
20 on that?

21 A. No, I haven't, not except the fact that
22 there is a water supply problem.

23 Q. In the mid-basin?

24 A. In the mid-basin.

25 Q. Are you familiar with the total amount

1 that indicated that the South Texas project site
2 would be suitable.

3 Q. Have you read the environmental impact
4 statement for the Allen's Creek project?

5 A. Would you show me the title?

6 Q. This is the one that --

7 A. I have excerpts out of it. I do not
8 have the entire document, although I have read
9 the final ER supplement.

10 Q. All right. Have you read Section 5.2 of
11 the November 1974 F.E.S.?

12 A. I have to look at that page.

13 Q. All right.

14 A. Yes, I have read that section.

15 Q. All right. Have you concluded that that
16 section is in error?

17 A. Yes.

18 Q. Can you specify how it is in error?

19 A. Let me see the document again.

20 Q. Okay.

21 A. I have on my work notes those areas that
22 I disagree with.

23 Q. Okay.

24 A. Are you specifically citing 5.21 or just
25 the entire section?

1 Q. Well, I was thinking about 5.21 at this
2 time.

3 A. Well, this is basic flow data and I
4 retract my earlier statement. I do not have any
5 disagreement with 5.21.

6 Q. All right. Where is your area of
7 disagreement within Chapter 5?

8 A. Well, one of my areas of disagreement is
9 thermal stratification of the reservoir.

10 Q. I'm talking now about limiting the
11 question to the water supply issue.

12 A. To water supply?

13 Q. To the extent that you have any
14 disagreement with that analysis, that is
15 reflected in your notes; is that correct?

16 A. Looking at the section on background
17 data on water quantity and quality, I don't have
18 any basic disagreement with it.

19 Q. Okay. Let me see that. On Page 5.2,
20 the next to the last paragraph of Section 5.21,
21 it states that the B.R.A. has assured the
22 applicant of adequate water supply. In addition,
23 studies by the applicant show that an adequate
24 water supply would have been available during the
25 severest drought on record. I take it then that

1 adequate water in the Gulf Coastal Aquifer in-
2 land from the coast 50 to 60 miles, which I guess
3 is about the approximate location of Allen's
4 Creek.

5 Q. Page 28 of Miss Hinderstein's deposition,
6 and I'll show this to you, she said as far as she
7 was aware, that while there was a great demand
8 for water in the Houston area, the projections as
9 to where the water would come from are all to the
10 east and northeast of Houston. I'll let you take
11 a look at that. I paraphrased what she said.

12 A. I haven't read her entire deposition and
13 I really don't know what context this is taken
14 out of, but --

15 Q. Taking that in any context, is it
16 basically your understanding that as of right now
17 all of the projections as to additional water
18 supplies from Houston are assuming that that the
19 water will come from the east or northeast of
20 Houston?

21 A. Well, projections by who? The City of
22 Houston?

23 Q. Well, by anybody?

24 A. Well, as I stated earlier, the
25 Department of Water Resources has looked at

1 potential water resources development in the
2 Brazos River Basin and there is an indication
3 that if water supplies are available in the
4 Brazos, that they could be used for Houston.

5 I am aware that the City of Houston
6 is primarily looking east and northeast to the
7 Trinity River Basin.

8 Q. All right. Other than that one study,
9 do you know of any other possible studies or
10 projections concerning the possibility of using
11 the Brazos River water in Houston?

12 A. Well, the Presidential Commission Report
13 which I can give you the citation for.

14 Q. All right. I wish you would.

15 MR. COPELAND: Could we take about
16 a two minute break to talk with these gentlemen
17 here?

18
19 (Short recess.)
20

21 Q. (By Mr. Copeland) Continuing with this
22 contention, have you identified a specific
23 coastal site which you contend is superior to the
24 Allen's Creek site?

25 A. Well, I contend that the South Texas

1 project site is superior to Allen's Creek.

2 Q. You consider that a coastal site?

3 A. Yes.

4 Q. All right. So it is your position then
5 that if the Allen's Creek unit were to be moved
6 to the South Texas project site, that salt water
7 would be the source of cooling for the third site?

8 A. Well, the use of sea water is a
9 potential coolant media for a third unit at South
10 Texas.

11 Q. And how would that be accomplished?

12 A. Well, one would -- I'm not an engineer,
13 but basically as far as I know two large diameter
14 pipelines would have to be laid out into the Gulf.

15 Q. All right. And would the water be used
16 in a cooling tower or in the existing cooling
17 lake?

18 A. Well, I just don't know.

19 Q. Are you doing any analysis of that?

20 A. No. It's not in my area of expertise of
21 use of coolants for nuclear power plants.

22 Q. So you would have no knowledge as to the
23 mechanism for getting the water there, the cost
24 involved and the way in which it would be used?

25 A. Well, I have read the ER final

1 supplement where there is some analysis done in
2 that report, looking at South Texas as an
3 alternate site, and I don't have any opinion
4 about that because I'm not an expert in that,
5 although it appears to be a feasible engineering
6 end and money-wise.

7 Q. Well, are you aware what the cooling
8 source is for the two units at South Texas?

9 A. It's run-of-the-river water pumped into
10 a cooling pond.

11 Q. All right. And is it your idea that the
12 cooling pond would then be filled with salt water
13 instead of run-of-the-river?

14 A. No.

15 Q. Well, I am just trying to visualize how
16 you would --

17 A. Well, as I said earlier, I am not an
18 expert in this area. I am aware that cooling
19 could be -- sea water could be used as a coolant
20 and it could be a once-through system, I assume.

21 Q. Other than the South Texas site, have
22 you identified any other specific site?

23 A. No.

24 Q. Or has Miss Hinderstein asked you to do
25 so?

1 construction impact of the area, all those things
2 have taken place or, you know, are currently
3 taking place, and since there is this rather
4 large facility going in and documents produced by
5 NRC and others indicate that there is enough
6 physical land space for another two units at
7 South Texas project site, that makes sense to me
8 that the South Texas site is superior.

9 Q. Have you reduced your conclusions to
10 writing at this point or prepared any other work
11 papers relevant to this contention?

12 A. We? I have prepared some papers on
13 population projections in that area, land use
14 projections.

15 Q. All right. Those would all be in your
16 work papers?

17 A. Yes.

18 Q. Are you continuing to do work on this
19 contention?

20 A. No, I have pretty much done all the data
21 finding that I plan to do on it.

22 Q. Okay. Do you know of anything which is
23 based on your review which would lead you to
24 conclude that the Allen's Creek site is
25 environmentally unique?

1 A. Well, as stated in the ER supplement,
2 final supplement, there are unique and prime
3 agricultural lands. I am not aware of any
4 critical habitat of any endangered species, with
5 the exception of some water prairie chicken
6 transients in the area. But to the best of my
7 knowledge I am not aware that this is an
8 ecologically unique area.

9 Q. As a lawyer, I just have to chuckle at
10 the idea of a transient prairie chicken, but -- .

11 Well, is it your understanding that
12 there is unique agricultural land on this site
13 that it is not duplicated anywhere else in
14 substantial quantity?

15 A. Well, it is unique in that as the Soil
16 Conservation Service defines it, that unique farm
17 lands are just that; they occur in only certain
18 areas and are not widespread. I believe in this
19 case they refer to unique farm lands as being
20 able to support rice.

21 Q. On the Allen's Creek site?

22 A. Yes.

23 Q. Is it your understanding that rice is
24 being grown in that site now?

25 A. I am not aware that rice is being grown

SAXION DEPOSITION

OF

June 17, 1980

1 Q. All right.

2 A. Yes. It would be -- could be out of
3 zone 5, but Allens Creek is out of zone 6.

4 Q. Could they take water from 5? Could
5 Houston take water from 5?

6 A. I assume they could if there was a
7 reservoir, or if they had water rights.

8 Q. How about 4?

9 A. Mr. Copeland, they could take it
10 anywhere if they had the money to make pipelines
11 or water rights and were able to procure the
12 water.

13 Q. Well, what I'm trying to find out is
14 where you think that the City of Houston is going
15 to get some water from the Brazos River?

16 A. Well, there's a couple of reservoirs
17 that are proposed on the Brazos, I believe.

18 Q. These would be proposed reservoirs?

19 A. Yes. The size of Allens Creek could be
20 optimized for water supply purposes rather than
21 for cooling.

22 Q. Where are the other reservoirs that you
23 have in mind?

24 A. Well, there's a couple of federally
25 authorized projects on the Navasota River.

1 Millikin and Navasota.

2 Q. All right. When are those due to come
3 on line?

4 A. Those are Corp of Engineer projects.
5 I'm not sure what the status of planning is on
6 that.

7 Q. Do you know how much water will be
8 available from them?

9 A. Yes.

10 Q. All right.

11 A. Millikin would have a yield of 144,100
12 acre feet per year. Navasota would have a yield
13 of 129,200 acre feet per year.

14 Q. All right. Do you know whether any of
15 the water from those projects is committed to any
16 contract?

17 A. I'm not sure. Both of these reservoirs
18 are planned for future development, so I don't
19 know what the allocation of water would be at
20 this time.

21 Q. Do you know if plans show them to be
22 developed before the year 2000?

23 A. No.

24 Q. All right.

25 A. Not that I'm aware of.

1 Q. When are they due?

2 A. Well, in the case of Navasota, it's
3 projected to be built to meet demands in the year
4 2030. And the case of Millikin, it's projected
5 to be built to meet demands in the year 2000.

6 Q. Okay.

7 A. Those are both federally funded projects.

8 Q. Well, let's back up then. What I need
9 to know is exactly how much short fall the City
10 of Houston is going to have that you calculated,
11 and were you think they would get the water from.
12 Which zone in the Brazos?

13 Let's take the year 2000. Do you think
14 Houston is going to have a short fall of water in
15 the year 2000?

16 A. Yes. I believe they will. According to
17 this document and testimony that I heard that was
18 presented in the Wallisville case.

19 Q. All right. Who testified in that?

20 A. I don't recall the man's name. He's
21 deceased, but he was head of Houston's Public
22 Works Department.

23 Q. All right. Do you know how much short
24 fall there will be in Houston by the year 2000?

25 A. I don't -- I can't recite a figure at

1 this time.

2 Q. Well, do you have just a ball park guess?

3 A. Not at this time.

4 Q. Is it more than the output of Millikin?

5 A. Yes.

6 Q. More than the output of Navasota and
7 Millikin together --

8 A. I'm not sure.

9 Q. -- in the year 2000?

10 A. I'm not sure.

11 Q. Let's assume then there is 160,000 acre
12 feet short fall in the year 2000. How would the
13 construction of the Allens Creek Plant interfere
14 with the ability of Houston to obtain the 160,000
15 acre feet that it would need from the Brazos
16 River in the year 2000 if they could take it from
17 Millikin or Navasota?

18 A. Well, there is that possibility. Those
19 are both federally funded projects, and it's
20 uncertain whether they will be built. If Allens
21 Creek is built, it's a closer supply source that
22 could potentially alleviate Houston's future
23 demands.

24 The documents that I presented to you,
25 there is a report on the President's River Basin

1 Commission which indicated an Allens Creek
2 reservoir being constructed for water supply
3 purposes.

4 Q. Well, I think that you must have missed
5 my question. My question was: If Allens Creek
6 is constructed, will it prevent Houston from
7 being able to get the water it needs from the
8 Brazos River?

9 A. Well --

10 Q. You're just saying it's a more
11 convenient location for a reservoir?

12 A. Yes. But these two projects are federal
13 projects, and the uncertainty of getting those
14 funded and built -- what I'm trying to say is if
15 the reservoir is needed to meet future demand
16 that Allens Creek would make better sense, and
17 the more appropriate use would be water supply
18 rather than cooling.

19 Q. Better sense than Millikin or Navasota?

20 A. Yes.

21 Q. Why is that?

22 A. It's closer. Pumping costs are less.

23 Q. How much less?

24 A. I haven't done those calculations, but
25 it's based on distances and topography.

1 Q. Well, I mean is it enough to worry about?

2 A. I think it would be.

3 Q. How much is it?

4 A. I don't know.

5 Q. So basically then the only way that

6 Allens Creek would interfere with the ability of

7 Houston to get whatever water it needs from the

8 Brazos is simply because it would preempt a

9 better location for a reservoir?

10 A. That's correct.

11 Q. All right. If you would, look at page
12 430 page Roman numeral IV-430 of the Continuing
13 Water Resources document.

14 A. Okay.

15 Q. If you look at the column on the left-
16 hand side or the right-hand side of that page,
17 there is a statement there that they do not
18 believe there will be a shortage up to and
19 including the year 2000 on the Brazos River.

20 Do you see that statement?

21 A. Yes. I'm reading it.

22 Q. Okay.

23 A. Well, they say small deficiencies would
24 be experienced in drought years.

25 Q. All right.

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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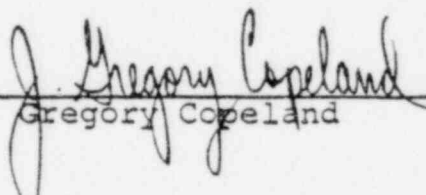
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