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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	Docket Nos. 50-361 OL
	)	50-362 OL
SOUTHERN CALIFORNIA EDISON COMPANY, et al. (San Onofre Nuclear Generating Station, Units 2 and 3).	)	BRIEF IN SUPPORT OF MOTION FOR SUMMARY DISPOSITION OF INTERVENOR FRIENDS OF THE EARTH, ET AL.'s CONTENTIONS 1a (DEWATERING WELLS) and 9 (URANIUM FUEL COSTS).

Pursuant to 10 C.F.R. §§ 2.730(d) and 2.749, SOUTHERN CALIFORNIA EDISON COMPANY and SAN DIEGO GAS & ELECTRIC COMPANY (hereafter "Applicants") hereby submit their brief in support of their motion for summary disposition of

Contention 1a, relating to dewatering wells, and Contention 9, relating to uranium fuel costs, as alleged by Intervenor FRIENDS OF THE EARTH, ET AL. (hereafter "FOE") and admitted by Memorandum and Order of the Atomic Safety and Licensing Board (hereafter the "Board"), dated January 27, 1978.

I.

STATEMENT OF THE CASE

1. By Memorandum and Order, dated January 27, 1978, the Board admitted the following two contentions alleged by FOE:

> CONTENTION 1a (hereafter the "Dewatering Contention").
>
> "Whether the cavities caused by Applicants temporary dewatering of the San Onofre Unit 2 and 3 site will have an unacceptable adverse effect on the capability of structures and equipment of San Onofre Units 2 and 3 to withstand the design basis seismic events." (T.R. 610.)
>
> CONTENTION 9 (hereafter the "Fuel Costs Contention").
>
> "The Applicants' projection of fuel costs over the life of the plants does not adequately account for escalation of uranium prices and therefore the cost-benefit analysis is in error." (T.R. 658.)

2. On June 23, 1978, the NRC Staff served on FOE its first set of interrogatories and request for documents (hereafter the "NRC Staff Interrogatories"). On June 28, 1978, the Applicants served on FOE their first set of interrogatories (hereafter the "Applicant Interrogatories"). Both the NRC Staff and Applicant Interrogatories requested

FOE to reveal their factual basis for the Dewatering and the Fuel Costs Contentions and to specify each and every fact, document, event, person, and witness upon which FOE was relying to support such contentions.

3. On June 26, 1978, FOE served its first set of interrogatories on the Applicants (hereafter "First FOE Interrogatories"). Thirteen of these interrogatories requested information relevant to the Dewatering and the Fuel Costs Contentions (First FOE Interrogatory Nos. 3-6, 18-26).

4. On July 17, 1978, Applicants responded to the First FOE Interrogatories, and provided or identified all the information requested by FOE pertaining to the Dewatering and the Fuel Costs Contentions, except for such information pertaining to Applicants' source and pricing arrangements for their uranium fuel supply as to which Applicants claimed the protection of 10 C.F.R. § 2.740(c) due to the confidential and proprietary nature of such information. As regards FOE's request for production of all documents and things pertaining to the Dewatering and the Fuel Costs Contentions, Applicants referred FOE to the procedure for such requests provided in 10 C.F.R. § 2.741.

5. On July 28, 1978, FOE served its responses to the NRC Staff and Applicant Interrogatories. These responses, taken together, provide an accurate picture of the precise bases (or lack thereof) for the Dewatering and the

Fuel Costs Contentions, as well as the documents and witnesses upon which FOE would rely at a hearing on these contentions.

6. On October 20, 1978, Applicants served herein their Second Discovery and Status Report. That report announced the completion of the discovery described in Paragraphs 2 through 5 above and notified the Board that Applicants "would move for summary disposition well before the hearings in this matter if it appears that as to a particular contention there is no genuine issue as to a material fact and that Applicants are entitled to a decision on that contention as a matter of law."

7. In November, 1978, the NRC Staff published its Draft Environmental Statement related to operation of San Onofre Nuclear Generating Station, Units 2 and 3 (the "DES") and served a copy on the parties herein. On January 31, 1979, FOE served its comments on the DES, among other things, objecting to the conclusion in the DES that projected escalations in uranium fuel costs would not reverse the favorable cost-benefit analysis. By letter to the NRC Staff, dated March 12, 1979, Applicants responded to FOE's comment challenging the cost-benefit analysis on uranium fuel cost grounds.

8. On February 28, 1979, Applicants took the deposition of Ronald Allen Carstens to determine whether

FOE's reliance on Carsten's for testimony in support of the Fuel Costs Contention would provide a factual basis for that contention. No discovery request pertaining to the Fuel Costs contention has been served by any of parties hereto since that date.

9. On May 22, 1979, FOE served a request for production of documents upon Applicants pursuant to 10 C.F.R. § 2.741. The requests, among other things, asked Applicants to "produce and transmit" all documents pertaining to the Dewatering Contention. On June 19, 1979, Applicants served their response herein notifying FOE that pursuant to 10 C.F.R. § 2.741(1) all requested documents pertaining to the Dewatering Contention would be made available for examination and copying at Southern Calfiornia Edison Company, 2244 Walnut Grove Avenue, Rosemead, California, during regular office hours, on business days mutually acceptable to both Applicants and FOE. FOE has not availed itself of Applicant's offer to make all requested documents pertaining to the Dewatering Contention available. Since May 22, 1979, no further discovery requests pertaining to the Dewatering Contention have been made by any party.

10. As of this date there are no outstanding discovery request by any party and no party has moved to compel further discovery as to any prior discovery request.

II.

LEGAL AUTHORITIES

A. A Motion To The Licensing Board For Summary Disposition Of Both Contentions Is Proper At This Time.

Section 2.749(a) of the Nuclear Regulatory Commission's Rules of Practice in pertinent part provides:

> "Any party to a proceeding may, at least forty-five (45) days before the time fixed for the hearing, move, with or without supporting affidavits, for a decision by the presiding officer in that party's favor as to all or any part of the matters involved in the proceeding." 10 C.F.R. § 2.749(a).

Summary disposition procedure is appropriate in disposing of matters that have not already been the "subject of an evidentiary hearing . . . but are susceptible of final resolution on the papers submitted by the parties in advance of any such hearing." Tennessee Valley Authority (Hartsville Nuclear Power Plant), ALAB-554, 10 NRC 15, 19 and N.15 (1979).

The Board appointed by the chairman of the Licensing Board Panel to conduct the hearing in the case is the appropriate board to decide a motion for summary disposition, which may be "considered with appropriate dispatch" on or after the special prehearing conference held pursuant 10 C.F.R. § 2.751a. Pacific Gas & Electric Company (Stanislaus Nuclear Project), ALAB-400, 5 NRC 1175, 1178 (1977).

In the instant case, the Board has been assigned by the Chairman of the Licensing Board Panel to conduct the hearing in this matter. The special prehearing conference authorized under Section 2.751a was held herein on December 6, 1977. (T.R. 527.) A hearing date has not been set, and it is clear that hearings in this case are more than forty-five days away.

For the foregoing reasons, Applicants submit the attached motion for summary disposition of the Dewatering and the Fuel Costs Contentions is proper at this time.

B. Motions For Summary Judgment Are Encouraged To Resolve Tenuous Issues Raised in Petitions To Intervene And To Expedite The Licensing Process.

The use of summary disposition motions to resolve tenuous issues raised in petitions to intervene and to expedite the licensing process has long been encouraged by the Commission. Northern States Power Company (Prairie Island Nuclear Generating Station), CLI-73-12, 7 AEC 241, 242 (1973); Mississippi Power & Light Company (Grand Gulf Nuclear Station), ALAB-130, 6 AEC 423, 425 (1973); Duquesne Light Company, et al. (Beaver Valley Power Station), ALAB-109, 6 AEC 243, 246 (1973); see Pacific Gas & Electric Company, supra, 5 NRC, at 1178; 10 C.F.R., Part 2, Appendix A.V. This is especially true in the case wherein no "real issue of fact between Staff and Applicant, still

exists." Gulf States Utilities Company (River Bend Station), LBP-75-10, 1 NRC 247, 249 (1975).

"The fact that a contention may be adequate for purposes of [intervention under] Section 2.714 does not mean that it necessarily gives rise to a 'genuine issue [which must] be heard' within the meaning of Section 2.749." Mississippi Power & Light Co., supra, 6 AEC, at 425 N.4, citing Duquesne Light Company, supra, 6 AEC, at 244-45.

C. Summary Disposition Should Be Granted Where Movants' Filings Affirmatively Establish The Absence of A Genuine Issue of Material Fact.

"Motions for summary disposition under Section 2.749 are analogous to a motion for summary judgment under Rule 56 of the Federal Rules of Civil Procedure, and the same standards are generally applied in considering the appropriateness of terminating a proceeding without an evidentiary hearing." Pacific Gas & Electric Company, supra, 6 NRC, at 163; citing Alabama Power Company (Farley Nuclear Power Plant), ALAB-182, 7 AEC 210, 217 (1974); Public Service Company of New Hampshire (Seabrook Station), LBP-74-36, 7 AEC 877, 878 (1974); accord Cleveland Electric Illuminating Company, et al. (Perry Nuclear Power Plant), ALAB-443, 6 NRC 41, 756 N.46 (1977).

Summary disposition is authorized "where the moving party is entitled to judgment as a matter of law, where

it is quite clear what the facts are," and where the movant's filings affirmatively establish "the absence of a genuine issue of material fact." Pacific Gas & Electric Company, supra; Cleveland Electric Illuminating Co., supra, 6 NRC, at 753-54.

In making its determination the Board should view the record in the light "most favorable to the opposing party", but summary disposition should be granted if the record clearly demonstrates that there is "no possibility that there exists a litigable issue of fact." Id.; Power Authority of the State of New York (Green County Nuclear Power Plant), LBP-79-8, 9 NRC 339, 340 (1979).

III.

ARGUMENT

There is no genuine issue of material fact as to either the Dewatering Contention or the Fuel Costs Contention. The concerns and assumptions which may have caused the formulation of these contentions in 1977 are completely laid to rest as is shown by the evidence contained in the accompanying affidavits. As more fully explained below, this evidence supports the accompanying statements of material fact submitted by Applicants regarding the Dewatering and the Uranium Fuel Costs Contentions. The statements, as supported by the affidavits, set forth a logical progression of facts which negates the necessity of a hearing on these

contentions and warrants summary disposition of these contentions.

A. Summary Disposition Of The Dewatering Contention (FOE Contention 1a) Is Appropriate At This Time.

The Dewatering Well Contention arose because of FOE's apprehension that cavern-like voids had been created under the San Onofre Nuclear Generating Station, Units 2 and 3 site (hereafter the "Site") by operation of the Site construction dewatering well system. The presence of subsurface features had been detected, but the nature and extent of such subsurface features created by the Site construction dewatering system had not been defined as of the last prehearing conference in December, 1977. Uncertainty as to the nature and extent of these subsurface features gave rise to FOE's apprehensions and resulted in the Dewatering Contention.

Applicants' subsequent investigation, analysis, and demobilization of the relatively small subsurface cavities created by the Site construction dewatering well system, as summarized herein and more fully explained in the accompanying affidavits of Lucien Hersh, John A. Barneich, Robert L. McNeill, Jay L. Smith, and Kenneth P. Baskin, demonstrates that FOE's apprehensions leading to the Dewatering Contention were misplaced. The relatively small subsurface cavities caused by the Site construction dewatering

system have been properly demobilized with sand and/or grout. Even if these cavities had not been demobilized, they would not have had an unacceptable adverse effect on the capability of structures and equipment of San Onofre Nuclear Generating Station, Units 2 and 3 (hereafter "SONGS 2 and 3") to withstand the Design Basis Earthquake.1/

Subsequent discovery by Applicants and the NRC Staff confirms that FOE has no independent factual basis for their Dewatering Contention, but seeks merely to cross-examine Applicants' witnesses. Such a purpose has been recognized as an insufficient basis upon which to oppose summary disposition. Gulf States Utilities Company, supra, 1 NRC, at 248.

Summary disposition of this contention is further compelled by the fact that "no real issue of fact" on this contention "still exists" between the Applicants and the NRC Staff. Id. at 249. The NRC Staff has authorized, approved, and had an opportunity to review, without any outstanding objections, each step of Applicants' program for investigating, demobilizing, and analyzing the structural effects of the subsurface cavities created by the Site construction

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1/ The Design Basis Earthquake design criterion for SONGS 2 and 3 is .67g. Safety Evaluation of the San Onofre Nuclear Generating Station, Units 2 and 3, U.S. Atomic Energy Commission, October 20, 1972, at p. 16.

dewatering system. This program was completed and comprehensively reported to the NRC Staff in August, 1979.

1. There is Evidence to Support Each Statement of Material Fact.

Applicants' accompanying statement of material facts regarding the Dewatering Contention relies on the affidavits of Lucien Hersh (hereafter "Hersh"), John A. Barneich (hereafter "Barneich"), Professor Robert L. McNeill (hereafter "McNeill"), Jay L. Smith (hereafter "Smith"), and Kenneth P. Baskin (hereafter "Baskin") and the exhibits thereto.[2/] The evidence in these affidavits pertaining to

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2/ For convenience, Applicants have also served on attorneys for the parties herein a set of eight reference volumes containing all significant reports and other documentation produced by Applicants' program to investigate, demobilize and analyze the structural effect of the cavities caused by the SONGS 2 and 3 construction dewatering system. Each of the reports and other documentation contained in these references volumes have been identified and assigned a reference number in the accompanying "List of Project References in Support of Motion for Summary Disposition of Intervenor Friends of the Earth, et al.'s Contention 1a (Dewatering Wells)" (hereafter the "Project Reference List"). Applicants do not rely on the information in these reference volumes as direct evidence in support of these motions, except insofar as such information is attached as an exhibit to one of the above-mentioned affidavits and expressly incorporated by reference therein as evidence in support of this Motion. Each exhibit to the above-mentioned affidavits, where appropriate, has been parenthetically cross-referenced to the corresponding reference number in the Project Reference List.

each statement of material fact may be summarized as follows.

(a). The Subsurface Cavities at the Site are Not Naturally Occurring Phenomena.

Applicants submit that the geology of the San Mateo Formation underlying the Site is such that subsurface cavities are not naturally occurring phenonmena. Applicants rely on the accompanying affidavits of Smith and Hersh.

Smith establishes that the subsurface area underlying the Site is San Mateo Formation. The lithology, chemistry, and geological history of the San Mateo Formation weigh heavily against the creation of subsurface cavities by naturally occurring processes. Smith details his extensive professional experience observing the San Mateo Formation in surface, as well as subsurface exposures, on and around the Site and reports that he has never observed any evidence of subsurface cavities. Smith concludes with his professional opinion that the subsurface cavities detected on the Site during the investigation and demobilization of the Site Construction Dewatering Well System were not caused by naturally occurring phenomena in the San Mateo Formation.

The conclusion that the subsurface cavities detected on the Site were man-made, rather than naturally-occurring phenomena, is confirmed by the extensive excavations and borings performed on the Site, including those

associated with the construction dewatering wells, which have failed to uncover any naturally-occurring subsurface cavities. (Hersh Affidavit.) Even more significant is the fact that if the detected cavities had been naturally-occurring phenomena they would necessarily have been discovered when the dewatering wells were installed. In fact, no such cavities were detected or indicated when the Site construction dewatering system was installed. (Hersh Affidavit.)

Applicants submit that the Smith and Hersh evidence establishes that the subsurface cavities detected at the Site were man-induced, and are not naturally occurring phenomena.

(b). The Site Construction Dewatering System Caused The Subsurface Cavities at the Site.

The operation of the construction dewatering system caused subsurface cavities to be formed adjacent to certain dewatering wells due to the absence of filter gravel in the annular zone of the wells involved. (Hersh and McNeill Affidavits.)

As explained by Dr. McNeill, the absence of filter gravel in the annular zone of a dewatering well permitted formation of sand-filled cavities, limited in areal extent, rather lobate in shape, in the draw-down zone of the

dewatering well where relatively high hydraulic pressure gradients exist.

Dr. McNeill's hypothesized mechanism for the formation of cavities by operation of a dewatering well has been proven correct by the empirical results of the extensive investigatory surveying, borings and grouting programs accomplished by Applicants at the Site. (Hersh Affidavit.)

(c). All Significant Subsurface Cavities at the Site Have Been Detected, Defined and Properly Filled With Sand or Grout, and Contain No Open Voids.

The extensive field and laboratory investigation of the ten operational construction wells on the Site detected all significant cavities underlying the Site and defined the depth, lateral extent, and characteristics of the cavities and the in-fill material associated with these cavities. (Hersh and McNeill Affidavits.)

Hersh, in particular, explains the extensive and thorough efforts, as well as the various complementary techniques used at the Site, to guarantee that all significant cavities had been discovered and fully defined. These efforts resulted in the development of subsurface areal contour maps of the largest detected cavities, which were located adjacent to Seismic Category I Structures at Dewatering Wells 6, 7, and 8. These maps confirm the validity of Dr. McNeill's mechanism for cavity formation insofar as

the subsurface cavities proved to be sand-filled, limited in areal extent, rather lobate in shape, and, predominately located in the draw-down zones of the affected dewatering wells. These maps, as well as other exhibits to the Hersh and Barneich affidavits, also show the relative minuteness of even the largest cavities, when compared to the immensity of the SONGS 2 and 3 structures to which they were adjacent.

Hersh also fully explains the extensive and thorough efforts accomplished at the Site to insure that all detected cavity areas have been properly filled with sand or grout and contain no open voids.

(d). Applicants Have Satisfied All Regulatory Requirements Imposed by the NRC Staff By The Investigation and Demobilization of The Site Construction Dewatering System.

Applicants have done everything requested of them by the NRC Staff in detecting, defining, demobilizing and analyzing the structural impacts of the cavities caused by the SONGS 2 and 3 construction dewatering system. The NRC Staff has been made aware of and had an opportunity to review each step of Applicants' program to investigate and demobilize all cavities caused by the Site construction dewatering process. (Baskin Affidavit.)

Baskin establishes that during the period November, 1977 through August of 1979, Applicants held several meetings with the NRC Staff. Two of these meetings included

site tours of the Site construction dewatering system and were attended by representatives of FOE. The last of these meetings was held on August 10, 1979, and involved a comprehensive presentation of the steps taken by the Applicants to meet the various objectives proposed by the Applicants and approved by the NRC Staff in November, 1977.

Baskin also identifies and references the extensive documentation and reports that have been submitted to the NRC Staff. Outstanding questions from the NRC Staff have been fully answered and documented in these reports. No requests for further information nor questions have been received from the NRC Staff.

Accordingly, Applicants at this time have no reason to believe that the NRC Staff is not fully satisfied with Applicants' ultimate opinion that the subsurface cavities caused by the temporary dewatering of the Site can have no unacceptable adverse effect on SONGS 2 and 3, including the capability of SONGS 2 and 3 structures and equipment to withstand the Design Basis Earthquake.

(e) The Subsurface Cavities Caused by the Site Construction Dewatering System Cannot Have an Unacceptable Adverse Effect on the Capability of Structures and Equipment of SONGS 2 and 3 to Withstand the Design Basis Earthquake.

The ultimate purpose of the extensive investigation, analyses, drilling and grouting programs as described

in the Hersh, Barneich, and McNeill affidavits was, in the words of Hersh, "to establish the maximum areal dimensions of all existing cavities; then based on this information to establish with maximum certainty that there will be no unacceptable adverse effects on the capability of the structures and equipment of SONGS 2 and 3, to withstand the Design Basis Earthquake as a result of the presence of the defined cavities located beneath the Site." (Hersh Affidavit, pp. 24-25.)

Barneich, Hersh and McNeill each conclude that analysis of the maximum effects of the detected cavities on the performance of Seismic Category I structures, considering static, as well as Design Basis Earthquake loading conditions, indicates that any cavities caused by the Applicants' construction-dewatering of the Site cannot adversely effect the capability of SONGS 2 and 3 structures and equipment to withstand the Design Basis Earthquake.

Barneich establishes the extreme conservatisms imposed by Applicants in accomplishing both the static and dynamic seismic analyses. For example, no credit was taken for the known supporting capacity of the cavity in-fill materials or the known soil stiffness parameters of the area within the most significant area around the cavity. Likewise, areas further away from the cavity were also

attributed less soil stiffness than known or shown to be the case in laboratory experiments.

Based on these conservatisms, the maximum effects of the most significant cavities on SONGS 2 and 3 structures were estimated by Barneich and concurred in by McNeill and Hersh. The dynamic analyses performed for the design of SONGS 2 and 3 Seismic Category I structures assumes a variation of ± 30 percent in soil structure interaction parameters, well within the maximum 8% variation attributable to the detected subsurface cavities. The originally estimated static settlements for SONGS 2 and 3 structures were on the order of 1/2 inch, substantially less than 1/10 inch settlements attributable to the detected subsurface cavities. Finally, the original factor of safety against bearing failure in the design of SONGS 2 and 3 was in excess of 100, making the maximum 8% reduction in bearing capacity attributable to the cavities of no significance. (Barneich, Hersh, and McNeill Affidavits.)

In sum, there is overwhelming evidence in support of each of the material facts submitted by Applicants in support of summary disposition of the Dewatering Contention. The totality of this evidence leads to the conclusion that summary disposition of the Dewatering Contention should be granted.

2. Discovery to Date Indicates FOE is Asserting No Genuine Issue of Material Fact.

Discovery relating to the factual bases for the Dewatering Contention has revealed that FOE lacks any objective facts, documents or witnesses in support of the Dewatering Well Contention.

(a). There is No Factual Basis for the Dewatering Contention.

FOE merely assumes that in the event of the .67g Design Basis Earthquake the presence of cavities caused by the Site construction dewatering system would cause the failure of SONGS 2 and 3 structures, system and components important to safety. FOE provides no factual basis for this assumption.

FOE also contends that because of the small sub-surface cavities caused by the dewatering wells, all plant structures, systems and components important to safety should be reinforced or replaced with items sufficient to withstand vibratory ground motion of .75g. Again FOE provides no factual basis or reference for this assumption, except to say that it is based on "standard generally accepted seismic design base calculations."

(b). Many of The Documents Purportedly Relied On By FOE Have Nothing To Do With Contention 1a.

FOE for the most part has stated it is relying on the very documents and reports which are reported and referred to by affiants Hersh, Barneich, and McNeill herein. The other documents mentioned by FOE have nothing to do with subsurface cavity formation and Applicants assume FOE is not seriously relying on these other documents.

(c). FOE Does Not Intend To Present a Direct Case.

FOE has not identified any person on whose writings, opinion or testimony they base their contention. FOE has only revealed that it plans to cross-examine Barneich, McNeill, and Hersh should they be called to testify by Applicants. Thus, FOE apparently cannot specify any witnesses they would call in support of their contention, but merely reserves the right to subpoena and call Barneich, McNeill, and Hersh.

(d). The Pertinent Documents Relied Upon By FOE Support Summary Disposition of Contention 1a.

In making this motion for summary disposition, Applicants are relying in large part upon the expert professional opinions of Barneich, McNeill, and Hersh, who are the authors and persons principally responsible for the pertinent reports and documents upon which FOE relies in

asserting the Dewatering Contention. None of the other documents relied upon by FOE have any plausible relationship to resolution of the Dewatering Contention. Moreover, the very documents that have been made available by Applicant to FOE pursuant to FOE's request for production of documents under 10 C.F.R. § 2.741, are the same documents relied upon in the affidavits submitted herewith by Applicants in support of summary disposition of the Dewatering Contention.

Thus, it appears from discovery the FOE merely seeks to cross-examine Hersh, Barneich, and McNeill at the hearing on the Dewatering Contention. Such a purpose has been recognized as an insufficient basis upon which to oppose summary disposition. Gulf States Utilities Company, supra, 1 NRC, at 248.

B. SUMMARY DISPOSITION OF THE URANIUM FUEL COSTS CONTENTION (FOE CONTENTION 9) IS APPROPRIATE AT THIS TIME.

Applicants' accompanying statement of material facts regarding the Uranium Fuel Costs Contention is fully supported by the affidavits of Seymour Jaye and Robert H. Bridenbecker. The evidence in these affidavits pertaining to each statement of material fact is summarized as follows:

1. Applicants' Projected Levelized Fuel Costs For SONGS 2 and 3 in 1977 Uses Reasonable Base Prices for Uranium and Appropriate Escalation Indices.

Applicants rely on the accompanying "Affidavit of Robert H. Bridenbecker in Support of Motion for Summary Disposition of Friends of the Earth, et al. Contention 9 (Uranium Fuel Costs)".

Bridenbecker establishes that the base $42./lb value for uranium concentrates in 1977 was a reasonable and adequate price to cover the costs of development of new mines and provide a reasonable return on investment for developers of uranium mines. Further, Bridenbecker establishes that an annual 7% escalation factor to be applied to uranium prices over the life of SONGS 2 and 3 is, based upon the observed performance of relevant wage and price indices for the uranium mining and development industry, both conservative and reasonable.

2. Applicants' 1977 Projections of Uranium Prices Were Performed Using Techniques Generally Accepted in the Nuclear Industry and Resulted in Values That Were Conservative, Reasonable, and Consistent With Projections Performed Using Independent, Equally Valid Techniques and Such Comparison of Results in 1980 Confirms Their Validity.

The methods employed by Applicants in 1977 to project fuel costs for SONGS 2 and 3 were methods generally accepted in the nuclear industry. The resulting projections are both reasonable and conservative in comparison with

similar projections utilizing other generally accepted methodologies. Applicants' projections still appear conservative in 1980 using 1980 fuel cost assumptions and methods of analysis. Applicants rely on Bridenbecker and the accompanying "Affidavit of Seymour Jaye in Support of Motion for Summary Disposition of Friends of the Earth, et al's Contention 9 (Uranium Fuel Costs)."

Jaye supports the position that Applicants' analysis and projection of fuel costs utilizing the FUELCOST IV computer code was both reasonable and prudent in 1977. Jaye also verifies that utilizing the SAROS computer code for analysis of uranium fuel costs, a code owned by the S.M. Stoller Corporation and also generally accepted in the nuclear industry, yields projected fuel costs for SONGS 2 and 3 which exhibit remarkable consistency with those of Applicants.

When the fuel cost projections for SONGS 2 and 3 are evaluated in the light of uranium market conditions existing in 1980 and looking to the future, Jaye again supports the projections of Applicants for SONGS 2 and 3.

The results of the two independent methods of analysis, FUELCOST IV and SAROS, agree to within .2 mills/kwh, which is for all practical purposes, unanimity in the results obtained by the two techniques. Also, a comparison of the May, 1980 NUEXCO exchange value with

Applicants original uranium cost projections for 1980 verifies the conservatism of the Applicants' methodology. (Bridenbecker Affidavit.)

3. Applicants' Projection of Uranium Costs Considered Relevant Factors in the Uranium Market Which Validate Applicants' Confidence in the Validity of the Long-Term Projections.

Jaye evaluates the relevant market considerations which affect the future cost of mined uranium concentrates, U308, in the context of attracting investment in the mining activity through a reasonable rate of return on investment. These considerations are reduced to a model utilized by the S.M. Stoller Corporation which thus incorporates the effects upon future uranium prices of these market considerations. Utilizing this model, Jaye confirms that small but continuous annual increases in U308 prices in excess of inflation should be expected to reflect higher production costs associated with deeper ore bodies and declining ore grades. Jaye describes a market where in the short-term, minor fluctuations in the cost of uranium concentrates are likely but in the long-term, supply and demand will achieve reasonable balance reflective of a mature supply industry.

Applicants can thus assert that traditional market forces such as supply and demand, return on investment, and production costs will determine future uranium costs. Such factors are capable of evaluation and have been evaluated by

uranium market experts. Dramatic increases, or decreases, in uranium costs for unforeseen reasons are not likely to occur, over the life of SONGS 2 and 3.

4. Even if Applicants' Projections of Uranium Prices Are Not Precise, the Resulting Cost-Benefit Analysis Would Not be Materially Altered.

Bridenbecker shows that because the uranium cost component is a relatively small component in the determination of relevant costs of overall power costs, even a doubling or trebling of the uranium price projection would not materially alter the resulting cost-benefit analysis.

Thus, even though the evidence is overwhelming that the Applicants have adequately accounted for the escalation of uranium prices, being off by even a factor of 3 would not disturb the validity of the cost-benefit analysis.

5. The Cost-Benefit Analysis Performed by the Staff of the U.S. Nuclear Regulatory Commission Employed Uranium Price Projection Values Less Conservative Than the Applicants' Projections Which Nonetheless Supported Operation of SONGS 2 and 3.

Jaye also reflects the technique employed by the NRC Staff in its Draft Environmental Statement for SONGS 2 and 3 (NUREG 0490) to project U308 prices over the period 1975 to 2000. The evaluation performed by the NRC Staff appears to be much less conservative than the evaluation performed by Applicants. However, even with that less

conservative fuel cost for SONGS 2 and 3, the cost-benefit analysis results in a determination favoring construction and operation of SONGS 2 and 3.

6. Applicants Adequately Accounted For Escalation of Uranium Prices in Projected Fuel Costs for SONGS 2 and 3 and the Cost-Benefit Analysis is Not in Error.

The ultimate conclusion reached by Jaye is that after thorough and exhaustive evaluation of the Applicants methodologies, including computer aided comparison of the Applicants methods with other nuclear industry accepted techniques for evaluating fuel costs, is that the Applicants adequately accounted for the escalation of uranium prices for the life of SONGS 2 and 3.

Applicants thus contend that there is no defensible method by which uranium costs can be projected so as to affect the projection of fuel costs over the life of SONGS 2 and 3 which would alter the cost-benefit analysis conclusion in favor of operation of the facilities.

In sum, as more fully described above, there is substantial evidence in support of each of the material facts asserted by Applicants. This evidence, when taken together, leads to the conclusion that summary disposition of the Uranium Fuel Costs Contention is appropriate at this time.

IV.

CONCLUSION

Based on the foregoing reasoning and legal authorities, the attached statements of material facts upon which Applicants submit there is no genuine issue to be heard, the attached affidavits in support of this motion and the exhibits thereto, FOE's answers to the first sets of interrogatories propounded by the NRC Staff and the Applicants, and the record and filings otherwise before the Board, Applicants submit that FOE's Dewatering Contention (Contention 1a) and Uranium Fuel Costs Contention (Contention 9) should be disposed of on the pleadings and the attached order to this effect entered without further need of hearing.

DATED: June 6, 1980.

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of SOUTHERN CALIFORNIA EDISON COMPANY, et al. (San Onofre Nuclear Generating Station, Units 2 and 3).	)	Docket Nos. 50-361 OL 50-362 OL LIST OF PROJECT REFERENCES IN SUPPORT OF MOTION FOR SUMMARY DISPOSITION OF INTERVENTOR FRIENDS OF THE EARTH, ET AL.'s CONTENTION 1a (DEWATERING WELLS).

LIST OF PROJECT REFERENCES

For ease of reference, avoidance of unnecessary duplication, and the convenience of the parties, each of the documents referenced, or attached and incorporated as an exhibit, in the accompanying affidavits of Lucien Hersh,

John A. Barneich, Robert L. McNeill, and Kenneth P. Baskin, or any of them, with the exception of Exhibit A to the Affidavit of Robert L. McNeill have been identified, (or parenthetically cross-referenced), in said affidavits by the following reference number as specified and enumerated below:

REFERENCE NO.	TITLE

Final Reports

Volume 1

1. Bechtel Power Corporation, August 1978, Report on Deep Exploration Drilling Program Dewatering Well No. 8, San Onofre Nuclear Generating Station, Units 2 and 3.

2. Bechtel Power Corporation, August 1978, Report on Shallow Exploration/Grouting Program Dewatering Well No. 8, San Onofre Nuclear Generating Station, Units 2 and 3.

Volume 2

3. Bechtel Power Corporation, February 1979, Report on Deep Drilling Program Dewatering Well No. 6, San Onofre Nuclear Generating Station, Units 2 and 3.

4. Bechtel Power Corporation, February 1979, Report on Exploration/Grouting Program Dewatering Well No. 6, San Onofre Nuclear Generating Station, Units 2 and 3.

Volume 3

5. Bechtel Power Corporation, June 1979, Report on Deep Drilling Program Dewatering Well No. 7, VOLUMES I AND II, San Onofre Nuclear Generating Station, Units 2 and 3.

6. Bechtel Power Corporation, Volume 4, June 1979, Report on Exploration/Grouting Program Dewatering

REFERENCE NO. (cont.) TITLE (cont.)

Well No. 7, San Onofre Nuclear Generating Station, Units 2 and 3.

Volume 5

7. Woodward-Clyde Consultants, August 1978, Report on the Results of Analyses Performed on Well 8 at the SONGS Units 2 and 3, San Onofre, California.

8. Woodward-Clyde Consultants, July 1979, Report on Exploration/Demobilization of Wells 4 and 5, San Onofre Nuclear Generating Station, Units 2 and 3.

Volume 6

9. Woodward-Clyde Consultants, July 1979, Summary Report of the Investigation/Demobilization of Construction Dewatering Wells, San Onofre Nuclear Generating Station, Units 2 and 3.

Volume 7

Status Reports

10. Southern California Edison Company, Status Report on Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, February 14, 1978.

11. Southern California Edison Company, Interim Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, March 10, 1978.

12. Southern California Edison Company, Report on Settlement Observation Program, San Onofre Nuclear Generating Station, Units 2 and 3, March 22, 1979.

13. Southern California Edison Company, Status Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, April 28, 1978.

14. Southern California Edison Company, Status Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, May 26, 1978.

REFERENCE NO. (cont.) TITLE (cont.)

15. Southern California Edison Company, Status Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, September 21, 1978.

16. Southern California Edison Company, Status Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, October 27, 1978.

17. Southern California Edison Company, Status Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, November 30, 1978.

18. Southern California Edison Company, Status Report on the Investigation of Dewatering System, San Onofre Nuclear Generating Station, Units 2 and 3, Units 2 and 3, March 1979.

Volume 8

Maps & Graphs

19. Plot Plan of Dewatering Well System, San Onofre Nuclear Generating Station, Units 2 and 3.

20. Typical Cross Section of 30 Diameter Deep Dewatering Well, San Onofre Nuclear Generating Station, Units 2 and 3.

21. Plans and Section Views of Dewatering Well No. 6 Cavity, San Onofre Nuclear Generating Station, Units 2 and 3.

22. Plan and Section Views of Dewatering Well No. 7 Cavity, San Onofre Nuclear Generating Station, Units 2 and 3.

23. Plan and Section View of the Dewatering Well No. 8 Cavity, San Onofre Nuclear Generating Station, Units 2 and 3.

24. Contour Map of Cavity Area and Borings Surrounding Dewatering Well No. 6.

REFERENCE NO. (cont.) TITLE (cont.)

25. Contour Map of Cavity Area and Borings Surrounding Dewatering Well No. 7.

26. Contour Map of Cavity Area and Borings Surrounding Dewatering Well No. 8.

27. Plan Section of Cavity and Pore Pressure Ratios for Dewatering Well 8.

28. Plan Section of Cavity and Pore Pressure Ratios for Dewatering Wells 6 and 7.

29. Maximum Interpreted Effect of the Cavity on the Tunnel Structure.

Tables

30. Summary of Well Maintenance, San Onofre Nuclear Generating Station, Units 2 and 3.

31. Summary of Investigation/Demobilization of Dewatering Wells, San Onofre Nuclear Generating Station, Units 2 and 3.

32. Investigation at Well 6, San Onofre Nuclear Generating Station, Units 2 and 3.

33. Investigation at Well 7, San Onofre Nuclear Generating Station, Units 2 and 3.

34. Investigation at Well 8, San Onofre Nuclear Generating Station, Units 2 and 3.

35. Exploration Prior to Exploration/Grouting Program, San Onofre Nuclear Generating Station, Units 2 and 3.

36. Exploration/Grout Program Summary, San Onofre Nuclear Generating Station, Units 2 and 3.

37. Summary of Maximum Effects of Cavities on Structures, San Onofre Nuclear Generating Station, Units 2 and 3.

REFERENCE NO. (cont.) TITLE (cont.)

Models

38. Photographs of three-dimensional stick models of San Onofre Nuclear Generating Station, Units 2 and 3, showing cavaties and borings associated with Dewatering Wells 6, 7 and 8.

A set of the eight volumes of the documents listed above as Project Reference Nos. 1 through 38 have been made available by Counsel for Applicants as a convenience to the parties and the members of the Atomic Safety and Licensing Board herein.

DATED: June 6, 1980.

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