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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Dr. W. Reed Johnson
Howard A. Wilber

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH
October 2, 1984
(ALAB-786)

SERVED OCT 3 1984

In the Matter of)
)
LOUISIANA POWER & LIGHT COMPANY)
)
(Waterford Steam Electric Station,)
Unit 3))

Docket No. 50-382 OL

Carole H. Burstein, New Orleans, Louisiana, for Joint
Intervenors Oystershell Alliance and Save Our
Wetlands, Inc.

Bruce W. Churchill, Washington, D.C., for Applicant
Louisiana Power & Light Company.

Sherwin E. Turk for the Nuclear Regulatory Commission
staff.

MEMORANDUM AND ORDER

Last December in ALAB-753, 18 NRC 1321 (1983), we
denied Joint Intervenors' motion to reopen the record in
this operating license proceeding on their original
Contention 22 concerning safety-related concrete
construction at Waterford.¹ Joint Intervenors had claimed

¹ At the same time we dismissed another motion for lack
of jurisdiction and completed our sua sponte review of the
Licensing Board's partial initial decision on the adequacy
of applicant's emergency planning brochure, LBP-83-27, 17
NRC 949 (1983). In an earlier decision, we resolved all
issues raised on appeal from the Licensing Board's principal
(Footnote Continued)

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that hairline cracks and associated water seepage in the concrete basemat on which Waterford is built, discovered in May 1983, raised questions about the integrity of the plant's design and safe operation of the facility. After review of several reports and analyses submitted by applicant Louisiana Power & Light Company (LP&L)² and the NRC staff, we concluded that "the cracking and related moisture do not now present a significant safety concern respecting the integrity of the foundation mat at Waterford 3." Id. at 1328 (footnote omitted). We went on, however, to endorse the staff's recommendation of "a surveillance program to assure the continued validity of this conclusion." Ibid.

Several days after issuing ALAB-753, we received Joint Intervenors' "Amended and Supplemental Motion to Reopen Contention 22."³ LP&L and the staff oppose the motion. As explained below, we are unable to dispose of this motion on the basis of the material now before us. Hence, we defer

(Footnote Continued)
decision in this proceeding. See ALAB-732, 17 NRC 1076 (1983).

² Specifically, two reports by Harstead Engineering Associates, Inc.: Harstead Report No. 8304-1 (Sept. 19, 1983) and Report No. 8304-2 (Oct. 12, 1983).

³ Apparently this motion, filed December 12, 1983, and ALAB-753, issued December 9, crossed in the mail. No party contests our jurisdiction to decide the December 12 motion.

our ruling, pending receipt of additional information we request from the staff.

1. We explained in ALAB-753 that a successful motion to reopen must be timely and address a significant safety or environmental issue. It must also show that a different result might have been reached had the newly proffered material been considered initially. We stressed as well the need for more than bare allegations, and we observed that a newspaper article alone does not provide a basis for reopening a closed adjudicatory record. Id. at 1324-25.⁴ The burden of satisfying these requirements is on the proponent of a motion to reopen and it is a "heavy" one.

⁴ We subsequently addressed this matter further in another proceeding:

At a minimum, therefore, the new material in support of a motion to reopen must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10 CFR 2.714(b) for admissible contentions. Such supporting information must be more than mere allegations; it must be tantamount to evidence. And, if such evidence is to affect materially the previous decision (as required by the Commission), it must possess the attributes set forth in 10 CFR 2.743(c) defining admissible evidence for adjudicatory proceedings. Specifically, the new evidence supporting the motion must be "relevant, material, and reliable."

Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-775, 19 NRC ____, ____, (June 28, 1984) (footnote omitted) (slip opinion at 7-8). See also id. at __ n.18 (slip opinion at 8 n.18).

Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978).

There is little doubt that Joint Intervenors' motion itself fails to meet this standard. The entire pleading consists of one paragraph, in which Joint Intervenors allege that the applicant and staff studies on the basemat cracking "rely on falsified documents." Joint Intervenors merely direct our attention to an attached article from the December 10, 1983, edition of Gambit (a New Orleans weekly newspaper) as providing support for their charge. We recognize that the motion, as filed, was intended as a supplement to Joint Intervenors' earlier motion on basemat cracking, which, presumably unbeknown to Joint Intervenors, had already been denied. See note 3, supra. We thus construe the pleading generously and do not expect it to stand fully on its own. But even viewed as a supplementary filing, the motion lacks an explanation of the safety significance of the attached Gambit article. It is simply served up to us as *res ipsa loquitur*.

The article, however, does not speak for itself. It contains ostensibly serious charges but very little else in the way of specifics. For instance, the article begins with a reference to "massive deficiencies in records detailing potential flaws in the construction of the foundation." Ridenhour, Records Inspections Blocked at Waterford III, Gambit, Dec. 10, 1983, at 21 (hereafter Gambit). It then

lists the categories of record keeping irregularities: missing documents, some of which have been replaced by "phony" documents; other documents that have been altered; "possible forged signatures" on safety inspections of, primarily, cadwelds;⁵ the absence of proper certification for numerous construction inspectors; and failures to follow approved procedures and criteria for accepting completed work. Id. at 22. Gambit claims that "[s]ome or all of these deficiencies were found in nearly every records 'package'" -- namely, those involving the compaction of the soil and crushed shell base, placement of waterstops, cadwelds, and concrete pouring. Ibid. The article identifies its two principal sources, both former supervisors of the records review team of Ebasco Services Incorporated (Waterford's architect-engineer), and notes the opinion of one that "Waterford's problems are worse than those he saw" at Zimmer, a (now-terminated) nuclear plant in Ohio plagued by quality assurance deficiencies. Ibid.

The article goes on at length to repeat these charges again and again in several sidebars, but conveys virtually no more specific information that would permit a realistic appraisal of the safety significance of such record keeping

⁵ A cadweld is a splice between two pieces of the reinforcing steel bars found within concrete.

irregularities.⁶ Nor does the article's repetition make true the broader allegation of a connection between the basemat cracking and the documentation deficiencies. We highlight this not as journalistic criticism but by way of an elucidation of what Joint Intervenors' motion to reopen lacks. To be sure, as did an earlier Gambit report, the December 10 article "suggest[s] a basis for further inquiry." ALAB-753, supra, 18 NRC at 1325. Joint Intervenors themselves should have at least attempted such a pursuit in order to supply the necessary foundation for its motion.

Thus, if we had nothing more before us than Joint Intervenors' motion and convincing replies in opposition, we would likely be compelled to find that the request to reopen does not raise a significant safety issue and thus would deny the motion. This case, however, presents the unusual (if not unique) situation where the material filed in opposition to a motion to reopen raises more questions than it answers. Specifically, the staff's reply, in conjunction with other recent staff statements and action concerning Waterford, precludes us from determining whether a significant safety issue inheres in Joint Intervenors'

⁶ E.g., the location of the cadwelds that have inspection reports with "forged" signatures.

motion. Our dilemma can be resolved, we think, by deferring our ruling on the motion and seeking supplementary and clarifying information from the staff.⁷

2. The staff's answer to Joint Intervenors' motion is extremely tentative and conditional. Although it urges us to deny the motion, it concludes:

In sum, the civil/structural allegation review team has identified certain items relating to the base mat as having potential safety significance, and further efforts on the part of the Applicant are required to satisfactorily resolve these matters. However, the Staff believes that to the extent that these items relate to the base mat, they are likely to be resolved in a satisfactory manner and will not be found to have any safety significance; accordingly, these items are considered to be confirmatory in nature. Further, subject to the satisfactory resolution of these items, the Staff believes that the manner in which the base mat was constructed has not rendered the design assumptions invalid. Pending satisfactory completion of these items, the civil/structural allegation review team has concluded that the issues which it reviewed concerning the foundation base mat do not raise a significant safety or environmental issue.

NRC Staff's Answer (Aug. 7, 1984) at 5-6 (citations and footnotes omitted; emphasis added). See id., Affidavit of Robert E. Shewmaker at 13-15. The staff's conclusions concerning the review of the basemat design (as opposed to

⁷ In view of the seven additional months the staff required to produce its reply to Joint Intervenors' Motion, we take this step reluctantly -- recognizing, however, that it presents the only satisfactory way of proceeding at this point.

construction) are similarly tentative. See id. at 6-7. We are unable to decide an adjudicatory matter on the basis of such speculative statements.

A number of inconsistencies and discrepancies in the various documents submitted to us in connection with Joint Intervenors' motion further illustrate the problem. Foremost are the staff's conflicting statements on the alleged irregularities in inspector certification records. In a recent letter to LP&L, the staff stated that it had found that four of the five inspectors from the firm responsible for Waterford's concrete construction (J.A. Jones) "failed to meet the applicable certification requirements related to relevant experience." Noting that this involved "safety-related activities," the staff found that "the fact that [the inspectors] may not have been qualified to perform such inspections, renders the quality of the inspected construction activities as indeterminant [sic]." Accordingly, the staff requested LP&L to review its records and to demonstrate either the qualifications of each such inspector or the impact on safety of such inspector's work. Letter from D.G. Eisenhut to J.M. Cain (June 13, 1984), Enclosure at 7-8 (hereafter "Eisenhut Letter").⁸ But

⁸ This important document was provided to us by letter from staff counsel, dated June 15, 1984. While we
(Footnote Continued)

in its filing before us, the staff states that "this situation cannot be associated with any specific item of safety significance" and does "not appear to have had any impact on the quality of the base mat." Staff's Answer, supra, Shewmaker Affidavit at 12. The quality of safety-related construction cannot be both indeterminate and lacking in safety significance. It is incumbent on the staff to clarify its position.⁹

(Footnote Continued)

appreciate counsel's efforts, this is precisely the sort of information that the staff itself should have submitted to us promptly and directly by way of a Board Notification. We are at a loss to understand why we were not thus served (as were the parties to this proceeding) with a document so clearly relevant to the matter pending before us. While in some instances there may be legitimate dispute as to the need and propriety of invoking the Board Notification procedure, this is not one of them.

LP&L is expected to provide the staff with responses to the 23 areas of concern addressed in the Eisenhut Letter. By our comments here on Board Notifications, it should be clear that we expect the staff to apprise us of any information it receives that is relevant to the basemat issue before us. We note, in this regard, our receipt on September 28, 1984, of Board Notification No. BN-84-158 (Sept. 26, 1984). This Board Notification consists solely of a 171-page transcript of an August 17, 1984, meeting between the staff and LP&L (and accompanying viewgraphs) concerning the 23 matters raised in the Eisenhut Letter. We view BN-84-158 as both untimely and wholly unsatisfactory in content. Provision of this transcript without any summary or discussion of its relevance to the specific matters pending before us is on the same footing as Joint Intervenors' submission of the Gambit article without benefit of any explanation. See pp. 4-6, supra.

⁹ The integrity of the concrete inspection program is, of course, critical to the quality assurance program and
(Footnote Continued)

A similar inconsistency is apparent in the staff's position(s) on the soil backfill at Waterford. The Eisenhut Letter states that the records for the in-place density test of backfill in Area 5 are missing. It characterizes these documents as "important because the seismic response of the plant is a function of the soil densities." It therefore directs LP&L to review all soil package records "for completeness and technical adequacy" and, where records are missing, to verify by testing and analysis that soil conditions do not impair the structural capability of the plant under seismic loads. Eisenhut Letter, supra, at 6. In its filing with us, the staff acknowledges that the matter of these missing soil backfill documents "leaves open a question as to the adequacy of backfill placement and compaction." Nonetheless, it states that it "does not believe that the fact that soil records are missing will have any impact on plant safety, due to the limited soil volumes involved and the absence of any reason to believe that compaction results were obtained in those areas which

(Footnote Continued)
safety of the facility. That this is so is evident from the report of the staff's principal consultant on Waterford's concrete construction, Robert E. Philleo, which relies on "the high degree of inspection on the project." Memorandum from L.C. Shao to D. Crutchfield (May 21, 1984), Enclosure at 2 (hereafter "Philleo Evaluation") (attached to NRC Staff's Motion for Additional Extension of Time (June 14, 1984)).

were significantly different from the compaction results reflected in other records." Staff's Answer, supra, Shewmaker Affidavit at 11. No mention is made of the records' importance for the plant's seismic response capability, stressed in the Eisenhut Letter. See id., Shewmaker Affidavit at 13-15.¹⁰

Other parts of the material presented to us and relied on by the staff raise unanswered questions. For example, according to the BNL Review (see note 10, supra), the basemat cracking discovered in May 1983 "is most probably caused by dead loads acting on elements already cracked due

¹⁰ On a related point, the staff asked the Brookhaven National Laboratory (BNL) to perform a structural analysis of the Waterford basemat. BNL's overall conclusion is that the safety margins in the design of the basemat are adequate. It recommends, however, that the analyses in several areas be refined. Included are the (i) dynamic coupling between the reactor building and the basemat for seismic stresses resulting from the vertical earthquake input, and (ii) the dynamic effects of lateral soil/water loadings. BNL "Review of Waterford III Basemat Analysis" (July 18, 1984) at 14-17, 27 (hereafter "BNL Review"). The staff agrees with BNL's recommendations but believes that such "confirmatory" analyses need not be completed until restart following the first refueling outage at the facility. The staff is satisfied with this schedule because BNL's experts believe the additional analyses are not likely to change significantly the existing results. Staff's Answer, supra, Affidavit of James P. Knight at 21-23. But because some "important" documentation on backfill relevant to seismic response is missing, we question whether BNL's and the staff's temporary satisfaction with existing analyses is well-founded. Further, we wonder whether the refined analyses can be performed without the missing information.

to normal thermal and shrinkage effects." BNL Review, supra, at 12. These cracks "would be expected to have occurred after construction of the superstructure, but before placement of the backfill." Id. at 11. In reaching this conclusion, BNL disagrees somewhat with the earlier analysis of the Harstead Reports (see note 2, supra), which attributed the cracking solely to "'benign'" factors, like shrinkage, differential soil settlement, and temperature changes. Id. at 3, 4. See ALAB-753, supra, 18 NRC at 1326-28. The staff has reviewed BNL's conclusion and embraces it as a "reasonable explanation of the cracking that has been observed in the base mat." Staff's Answer, supra, Knight Affidavit at 11. What neither BNL nor the staff explains, however, is why the cracks were not discovered before May 1983. Assuming that the backfill has been in place for some time,¹¹ the cracking as explained by BNL's analysis should have been wider and therefore more evident prior to placement of the backfill.

The staff's presentation to us also reveals possible gaps in its overall consideration of the allegations raised

¹¹ Our assumption may well be invalid. The BNL Review (at 11) simply refers to "a period before dewatering was stopped and before the backfill was placed when a substantial portion of the superstructure was in place," but does not give a date. We would expect, however, the backfill to have been placed at least several years ago.

by Joint Intervenors' motion and the Gambit article. None of the affidavits attached to the staff's reply to the motion and none of the other documents previously submitted to us reflect that the staff interviewed the two primary sources for the Gambit article. See p. 5, supra. After the staff completed its review of, for example, the cadweld records, one would expect the staff to have made some contact with at least one of the individuals identified in the article for the purpose of determining if the information uncovered by the staff fully addresses the individual's expressed concern.¹² Perhaps the staff did so, but it has not informed us of that fact.

Nor has the staff informed us of the current views of the two individuals (Drs. John S. Ma and Raman Pichumani) upon whose affidavits it relied in opposing Joint Intervenors' first motion to reopen on basemat cracking. See ALAB-753, supra, 18 NRC at 1327-28. The staff makes passing reference to their original views and notes that new information subsequently came to light that required further evaluation. Staff's Answer, supra, Knight Affidavit at 2-6. It is reasonable to expect some statement from Drs. Ma and

¹² One such pertinent inquiry would be whether the various "nonconformance reports" reviewed by the staff (and LP&L and its consultants) reflect all of the irregularities alleged by the Gambit sources.

Pichumani as to what effect, if any, that further evaluation has on the position they espoused earlier.¹³

Similarly, the current views of the staff's independent concrete consultant, Robert E. Philleo, would be useful. As stated above at note 9, the staff submitted Mr. Philleo's evaluation of the adequacy of the basemat's construction in June 1984. Since then, nondestructive testing (NDT) of the basemat has been performed and the preliminary results obtained. The staff requested its other consultant, BNL, to reevaluate its earlier analysis on the basis of the NDT results. Staff's Answer, supra, Affidavit of Morris Reich, et al. The staff should do likewise with regard to the Philleo Evaluation, especially inasmuch as the staff relies on Mr. Philleo's earlier, pre-NDT conclusions. See id., Shewmaker Affidavit at 9-10.

We also note an apparent discrepancy in the analysis submitted as an attachment to Applicant's Answer to Joint Intervenors' Amended and Supplemental Motion (Jan. 13, 1984). Appendix II to Report No. 8304-3 (Jan. 9, 1984),

¹³ We recognize that, as a general matter, the NRC's Executive Director for Operations (EDO) determines which staff personnel testify at hearings. See 10 C.F.R. § 2.720(h)(2)(i). In this instance, the EDO made the determination that Drs. Ma and Pichumani would "testify" (in affidavit form) on the basemat cracking issue. We seek now simply an updating of their views in light of the further analyses performed on that same subject.

prepared by Harstead Engineering Associates (see note 2, supra), contains information about cadweld tensile strength tests. Cadweld No. 2W120 is shown as located in concrete production (or pour) area 16. But according to Appendix I of the same document (at C-6), area 16 contains no cadwelds.¹⁴ This discrepancy may be insignificant or in the nature of a typographical error; or perhaps we have misread the document. But given that the allegations before us concern record keeping irregularities and their possible effect on basemat integrity, we believe it is important that any such discrepancies be accounted for to the maximum extent possible. We thus request the staff to review this matter and to determine if the discrepancy noted is indicative of broader problems with the reliability of the data supplied to Harstead by LP&L's contractors.

3. The staff should provide us with its responses to our inquiries and any other relevant information¹⁵ by no later than November 14, 1984. We recognize that the staff's


¹⁴ This is denoted by "NS" ("no mechanical splice in this pour," per Appendix I at C-2) for Document No. 11 (cadweld locations, per Appendix I at C-1). In this connection, we find somewhat surprising that, on the basis of our interpretation, there are no cadwelds in eight adjacent sections of the basemat. See Harstead Report No. 8304-3, Appendix I at C-6, C-7.

¹⁵ E.g., the Task Force report mentioned in Staff's Answer, supra, Shewmaker Affidavit at 3. See also note 8, supra.

review in some of these areas is ongoing, but we believe six weeks is an adequate time for this response. If it is not, however, we expect the staff so to inform us and to provide us with a realistic date as to when it can supply the information we need to rule on Joint Intervencrs' motion. Any party may file a reply to the staff's submission (properly supported by affidavits) within three weeks thereafter.

It is so ORDERED.

FOR THE APPEAL BOARD


C. Jean Shoemaker
Secretary to the
Appeal Board