UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

4/1/76

Honorable John E. Moss
U.S. House of Representatives

Dear Mr. Moss:

Your letter of February 2, 1976, asked for available data on the allegations made before the Senate Government Operations Committee that the Tarapur Reactors in India pose a major radioactive danger. These allegations have been studied by the NRC in the context of general review of available information on the Tarapur site.

The allegations were largely the result of an article by Paul Jacobs in a new magazine called Mother Jones and centered around visits to India by Mr. Jacobs in 1975, by Mr. Walker of the Bechtel Corporation in 1973, and Dr. C. K. Beck, then of the AEC Regulatory Office, in late 1972. Detailed comments by the NRC staff on this article are enclosed for your information.

Information on the situation at the time of the visit of Dr. Beck (December 1972) indicates that the Indians were indeed having operating difficulties at Tarapur, which was of a very early BWR design. These difficulties included higher-than-planned effluent radiation levels and maintenance crew radiation exposure problems. These difficulties were publicly discussed in good technical detail by the IAEA symposium report of the three Tarapur health physicists (given to Mr. Jacobs by NRC and referred to in Mr. Jacobs' article). Similarly, the Walker trip report (November 1973) indicates the continuation of some serious operating problems, but certainly it does not indicate a pending disaster as claimed in the article. Mr. Jacobs, for example, failed to note that it is repeatedly stated in the IAEA paper and in the Walker report that allowable exposures, release rates, and population doses were not being exceeded.

Our review of this matter has not reflected any need for changes in current licensing standards and procedures, nor has any implication or action been identified on other reactors such as Rancho Seco I. This particular aspect will continue to receive our attention, however, and should there be later developments, we will let you know.

Although our information on the current status of Tarapur is not complete and some operating difficulties continue, it appears that the Indian authorities have taken and are continuing to take prudent steps to solve their problems. Recent reports from Tarapur indicate that the original fuel elements have been replaced and Tarapur continued to play an important role in the energy supply of the Bombay region.

I/S

If you need additional information, I will be happy to arrange a meeting with the NRC staff to discuss these matters in more detail.

Sincerely,

Lee V. Gossick
Executive Director
for Operations

Enclosure:
NRC Staff Comment on
Jaworski Article

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Mr. George F. Murphy, Jr.
Executive Director
Joint Committee on Atomic Energy
Congress of the United States

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Sincerely,

Lee V. Gossick
Executive Director
for Operations

Enclosure:
NRC Staff Comment on
Jacobs' Article

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NRC STAFF COMMENTS ON ARTICLE BY
PAUL JACOBS

Entitled

"at You Don't Know May Hurt You:
The Dangerous Business of Nuclear Exports"

1. Summary

a. The article is characterized by the use of alarmist terms and unproven allegations rather than solid facts and verified references.

b. The author writes in alarmist terms about radiation exposures. However, he fails to point out that the two most thorough technical reports which he referenced stated repeatedly that permissible exposures, release rates, and population doses were not being exceeded. We found no evidence that these limits have been exceeded. This contradicts the dramatic allegations of radiation deaths and other disastrous effects of the Jacobs article.

2. Jacobs says Beck saw Indian workers using bamboo poles to operate the Tarapur reactor's radioactive waste system. In fact, Beck was not inside the Tarapur reactor; and no document from Dr. Beck reports such an event.

3. Jacobs says Beck saw drums of radioactive waste "stored long after they should have been removed." In fact, though Beck mentioned this storage problem in his report, he did not make this judgment about length of storage; he could not have seen it, since he did not visit Tarapur proper.

4. Jacobs quotes Beck correctly as saying that (presumably for Jan-Nov. 1972) 1300 workers had "burned up" their maximum allowable dosages of radiation. In fact, data received from Indian government officials indicate that the average exposures of these persons (1558 in all of 1972) was only about one-fourth of the maximum annual dosage recommended by ICRP. These figures are also reported in the Abraham IAEA paper, which Jacobs had

when he wrote this article.

When extensive maintenance work at reactors must be done in the presence of high radiation levels, relatively large numbers of maintenance workers are often used to divide up the work in order to keep individual doses below regulatory limits. This is the safety procedure which Jacobs calls "burning up." Dose records from Tarapur indicate that average dose levels to individuals during 1972-1974 were about twice the U.S. levels in those years; but both levels are far below allowable regulatory values.

5. Jacobs quotes Beck in several places as saying that Tarapur is a "prime candidate for a nuclear disaster." Beck says he never said this. The Beck trip report does not say this.

6. Jacobs says that U.S. reactors "theoretically" undergo rigorous and constant inspections, but that no such guarantees exist overseas. The excellent safety record of the many overseas plants would tend to indicate that some sort of effective safety control system is being implemented and is working well. The figures on exposures and doses of Tarapur seem to indicate that is the case there.

7. Jacobs says Beck's report was sent to "files," which... "means that no action is to be taken but that those responsible are protected against future blame." In fact, as was pointed out to Mr. Jacobs prior to his writing the article, there was no point in publishing the Beck report since the report by the "three Indian health physicists" (the Abraham paper) was published at a conference in Julich, Germany, February 5-9, 1973. The date of the Tarapur report was December 27, 1972. Before distribution it was assembled into a report of his whole trip dated January 10, 1973, which received a wide distribution within AEC. So the information was not hidden, but was, in fact, published about a month after completion of the Beck report. Also, it was not ignored by AEC. Several high-level meetings were held to discuss the report. AEC continued its contacts with Tarapur, exchanging information on operational problems in Tarapur and other LWRs, which continue today. Additionally, at their request, information on the Tarapur problems was provided to the Joint Committee in 1972.

8. Jacobs implies that the report by the three Indian health physicists several months after Beck's return, "filtered out among the nuclear fraternity." In fact, this report by Abraham, Pattnaik, and Soman, was published on February 5, 1973, after Dr. Beck's return in mid-December. As was pointed out to Jacobs when he was given the Abrahams paper by NRC, the paper essentially confirms the Beck report and the two together do not describe an alarming situation, but simply some practical operational problems requiring attention.

9. Information provided by the Indian Atomic Power Authority (IAPA) indicates the most highly exposed neighboring population has received annual doses from Tarapur of about 12 percent of their permissible dose limit (250 millirem) and that this is only about half as much as the natural background level (60 millirem) in the Tarapur area before the startup of these reactors. This information further indicates a value of 12.5 millirem/year for whole body dose resulting from intake from land and water sources and whole body dose of 17.5 millirem/year from air emission. While these dose levels are higher than permitted under the U.S. criteria that radioactive effluents be "as low as reasonably achievable", they are a fraction of the U.S. maximum permissible dose limits as specified by regulation (10 CFR 20) and are well within generally acceptable levels for assuring adequate protection for public health and safety.

In several places, the Abraham report, and the Walker trip report which Jacobs also referred to, say that the various radioactivity release rates were within allowable limits. Jacobs failed to note this in his article.

10. Jacobs cites several of the problems described in the Walker trip report and the IAEA Symposium (Abrahams) paper. He fails to note that solutions to most of these problems are being undertaken, as described in these reports.

11. Jacobs quotes from the December 28, 1973, internal Bechtel memorandum of W. Kenneth Davis to claim that Davis was taking an "alarmed" view of the situation. After Davis read the Walker trip report, in his memo he suggested a meeting with Walker "to make sure we understand the problems and see what should be done next, if anything." In the memorandum, Davis seems to largely discount the possibility of a "major nuclear disaster," but to be concerned that the problems resulting from the fuel leaking could cause Bechtel adverse publicity. This public relations problem is what Davis says "doesn't sound good."

12. Jacobs says a secret Indian government report says that Tarapur is an imminent danger to the surrounding area. A spokesman for the IAEC advises that there is no such report and that all Indian Government evaluations of safety of Tarapur have been affirmative.

13. Jacobs says there is no way for the U.S. to learn of safety problems in foreign reactors that are similar to ours. In fact, as Jacobs was told when he visited NRC, there is a network of information exchange in reactor safety problems, interlocking the NRC with safety authorities of all countries now operating U.S.-type light water reactors. In the case of Switzerland, there was some delay in receiving detailed information on the problems of the Swiss reactor. However, in general we have had excellent experience with information exchange between the NRC and other countries (in both directions) on experience with operatational safety problems. We also exchange information and advice with the Indians.

14. Jacobs stated erroneously that U.S. companies like Westinghouse and GE are not required to report safety defects of U.S. reactors that they learn about from foreign experience. The Energy Reorganization Act of 1974 (Section 206) does require them to report such defects in U.S. plants.

15. The facts and figures received from the Indian authorities show no cause for alarm, and tend to show that the Indians are taking prudent measures to overcome earlier problems. Whether the measures being taken will be adequate to clean up the system and reverse the trend toward increasing occupational exposures (still about one-fourth annual permissible levels) is not yet clear.

16. We do not know precisely what Jacobs means by saying that the Koreans want a change in the design of their U.S.-supplied reactor. It is true, however, that a foreign utility (and any other purchaser) usually contracts for a defined design. If any safety improvements are to be made that were not contemplated at the time of the purchase, the contract might have to be changed to reflect these improvements. However, a foreign government might not insist upon a change demanded by NRC for a U.S. reactor.

17. In a very sensational passage, Jacobs says the inevitable result of the "continual state of affairs at Tarapur" is that "people were dying a slow, painful death of radiation-induced cancer." No evidence is presented by Jacobs or in the other reports we have seen to support this conclusion. In this regard, the only support Jacobs cites for these assertions is an uncorroborated conversation with an unidentified Indian physicist. In contrast, the Indian Ambassador to the United States, in a formal rejoinder to the Jacobs article sent to Senator Alan Cranston, has stated that "there has been no instance of death or illness attributable to radiation exposure either of workers at Tarapur or of any member of the general population in the villages surrounding the Station." (See Congressional Record, 94 Congress, Second Session, vol. 122, pp. S;686-87, February 17, 1976).