RELATED CORRESPONDENCE

Before the
UNITED STATES
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD
Washington, D.C. 20555

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In the Matter of	)	
	)	
UNITED STATES DEPARTMENT OF ENERGY	)	
PROJECT MANAGEMENT CORPORATION	)	Docket No. 50-537
TENNESSEE VALLEY AUTHORITY	)	
	)	
(Clinch River Breeder Reactor Plant)	)	

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US NUCLEAR REGULATORY COMMISSION
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ANSWERS AND OBJECTIONS OF INTERVENORS, NATURAL RESOURCES DEFENSE COUNCIL, INC. AND THE SIERRA CLUB, TO NRC STAFF'S FIFTH SET OF INTERROGATORIES TO NRDC

1. Does NRDC presently maintain that the Applicant's ER and/or NRC's EIS inadequately assesses the consequences of programs and measures to prevent acts of "sabotage, terrorism, or theft"?

Yes.

a.) If answer is yes, state each and every consequence of the programs and measures to prevent acts of sabotage, terrorism and theft, which NRDC maintains is not adequately considered.

b.) With respect to each consequence identified in 1 a.) above, give the basis (identifying both individual experts and documentation relied upon) for NRDC's position that the consequence is not adequately considered in either the NRC's EIS or Applicant's ER.

(a) & (b). The ER does not assess the consequences of "programs and measures to prevent acts of sabotage, terrorism, and theft." See ER, Section 5.7.1.3. With

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respect to safeguards and security systems at the CRBR plant site, it refers the reader to the PSAR, Section 13.7. With respect to safeguards and security systems throughout the CRBR fuel cycle, it states, without analysis, that they are "expected to be effective in accounting for and protecting the SNM,". Id.

The PSAR, Section 13.7, is basically an outline of measures. To the extent there is any assessment of effectiveness of the system, it is purely conclusory. Thus, while the PSAR states that the physical security design will have certain effects, e.g., detection of unauthorized penetrations or apprehension in a timely manner of unauthorized persons, see PSAR, Section 13.7.2, the foundation for these conclusions is not presented, and no confidence levels are attached.

In the FES, the following "consequences" are inadequately considered:

- Section 7.3 - This section does not discuss the nature of the threat; does not explain how the threat levels are established which are used to judge the adequacy of physical security; does not set forth any basis for determining residual environmental risk; and ignores evidence of prior sabotage and theft. These inadequacies are reflected in the failure to consider and evaluate

theft at the NUMEC plant, see Office of the Inspector General, NRC, Inquiry Into the Testimony of the Executive Director for Operations (Feb., 1978); Fialka, "The American Connection: How Israel Got the Bomb," The Washington Monthy, Jan., 1979, at 50; Burnham, "The Case of the Missing Uranium," The Atlantic, Apr., 1979, at 78; 125 Cong. Rec. S.5736-51 (May 14, 1979); theft of uranium at Wilmington, N.C. in January, 1979, see 125 Cong. Rec. H.9219 (Oct. 16, 1979); sabotage of VEPCO Surry reactors, see Commonwealth of Virginia v. William E. Kurkendall and James A. Merrill, Jr., Circuit Court, County of Surry (circa 1980); sabotage of components for the Iraqi reactor while under fabrication in France, see Newsweek, 6/28/81, at 25; actions of Basque terrorists directed against Spanish nuclear facilities, see Energy Daily, 4/10/78; Nucleonics Week, 3/22/78; and the attack on the Super Phenix facility in France, see The Washington Post, 1/20/82, at A16. See generally, letter dated April 13, 1978, from Dr. Thomas Cochran to Senator John Glenn, Chairman, Subcommittee on Energy Nuclear Proliferation and Federal Services, Senate Committee on Governmental Affairs, with enclosures (copy attached at Tab A).

Further review and analysis of the following may result in the identification of additional incidents supporting Intervenors' conclusion: NRC, Preliminary Notification of Safeguards Events (through 1981); NRC, Summary Listings of Threats to Licensed Nuclear Facilities and Transport and Other Nuclear Threats (through 1981); DOE, Threats of Violence and Acts of Violence to Unlicensed Nuclear Facilities (through 1981).

The statement in the first paragraph on page 7-13 that "the NRC has no indication of any threat to domestic nuclear facilities that would endanger the public and safety", is inconsistent with the incidents cited, supra, pages 2-4, and our own analysis. See Tab A.

The statement in the first paragraph on page 7-14 that "historical evidence and current 'intelligence' fail to reveal any substantive threat" is factually incorrect. See incidents cited supra, pages 2-4.

The second paragraph on page 7-14 is no longer accurate because new NRC regulations have been issued. See 10 CFR pt. 73, as amended.

The third paragraph on page 7-14 is conclusory. It does not indicate what an adequate threat level would be, nor does it state what

additional requirements might be appropriate if threat levels changed. Finally, it does not mention that fuel cycle facilities may not be subject to NRC regulations.

- 7.3.1 - There is no explanation of the basis for the view that various functional elements will assure "effective implementation" of a safeguards program. Further, the discussion makes no reference to the fact that fuel facilities, at least initially, will not be subject to NRC regulatory requirements. Finally, this section does not describe residual risks, nor does it provide support for the proposition that residual risks would be minimal.

- 7.3.1.1 - Requirements summarized in Appendix E have been revised since release of the FES and consequently Appendix E must be updated.

7.3.2 - The statement that "compliance provides reasonable assurance that there will be no significant increase in the overall risk to the public from acts of sabotage, theft or diversion at a reactor site" is both vague and conclusory. No evidence is provided to support this statement. No effort is made to define what constitutes "reasonable assurance". Further, it is not clear

whether the phrase "reasonable assurance" reflects the current requirements of law. Lastly, the Staff does not indicate what a "significant" increase in risk would be.

- 7.3.2.1 - The conclusion in the first full paragraph on page 7-13 that acts of sabotage causing "substantial core damage and release of radioactive materials . . . while possible, are highly improbable" is vague. The basis for the judgment is not given, nor are any confidence levels attached to the judgment.

The statement in the carryover paragraph on page 7-16 that multiple barriers and backup safety systems "when combined with an appropriate safeguards program, provide adequate protection against the occurrence or effects of sabotage" is conclusory and unsupported. No definition is provided of an "appropriate" safeguards program. No effort is made to define what "adequate protection" is, or why, if it is the standard, chosen by the staff, it was so chosen and how it relates to other standards referred to in the FES, e.g., "reasonable assurance", "high level of protection".

The discussion of regulatory requirements in the second and third paragraphs on page 7-16 does not reflect changes in regulations. Threat levels referred to are no longer valid and have been upgraded. See 10 CFR §§ 73.1, 73.55, as amended.

The statement in the last paragraph on page 7-16 that technology and systems developed for current reactors can "in large part, be translated to the CRBRP" needs explanation. Are there elements that cannot be transferred? Does the possibility of initiating an explosion make the CRBR a more attractive target? Does the quantity of plutonium present at the CRBR make it a more attractive target?

The summary paragraph on page 7-17 is unjustified. No effort has been made to define what "minimal" means. Further, a determination cannot be made that a threat is "minimal" solely based upon absence of evidence "at this time". It is equally, if not more, important to determine what threat is likely to materialize in the future, see Mitre Corp., The Threat to Licensed Nuclear Facilities 91-97 (MTR-7022) (Sept. 1975), yet there is no discussion whatsoever of this issue.

- 7.3.2.2 - The discussion in this section sows confusion with respect to the kind of safeguards system the NRC Staff feels must be applied and the kid of assurance that system must provide. References in this section are to a "high degree" of protection, where as, elsewhere, as noted above, there are references to "reasonable protection" or "adequate protection".

  The conclusion in the summary paragraph that "the potential environmental impacts due to theft or diversion of SNM from the CRBR site are minimal" is conclusory. The process by which the judgment is reached is not explained.

- 7.3.3 - Since release of the FES, a considerably clearer picture has developed with respect to both the supply of fuel for the CRBR and the processing and disposition of spent fuel: DOE will likely provide both fuel and processing services. See Answer to Interrogatory No. 6, infra. Consequently, there are a limited number of facilities which need to be analyzed in order to determine fuel cycle safeguards impacts. The Staff should discuss, as it has not done, those specific facilities and determine the adequacy of safeguards at them.

- 7.3.3.1 - The discussion of fuel cycle activities fails to set out current views of the GAO and others regarding the safeguardability of bulk handling facilities. See General Accounting Office, Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons (EMD-80-38) (March 18, 1980); IAEA, Special Safeguards Implementation Report (1977). Further, the discussion of fuel loads is based on the homogeneous, rather than a heterogeneous reactor core. Finally, the Staff has not distinguished among fuel grade and reactor grade materials which may be obtained from DOE, as well as materials which might be obtained, at some point, from commercial sources.
- 7.3.3.2 - Determinations made in connection with safeguardability in GESMO proceeding in 1975 must be updated to reflect new developments. See General Accounting Office, Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons (EMD-80-38) (March 18, 1980).
- 7.3.3.3 - In the discussion of these programs, the Staff has not judged the adequacy of DOE safeguards

(both materials accounting and physical security). It has not identified inventory differences at a facilities likely to be utilized and the effect of such differences on assurances that safeguards are effective. And, it has failed to discuss current criticisms of DOE safeguards by other organizations, such as the GAO. See GAO, Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons (EMD-80-38) (March 18, 1980).

7.3.4.1.1 - This section neither reflects the fact that NRC requirements have been upgraded since 1977, nor the fact that NRC requirements are different from DOE requirements.

- 7.3.4.2.1 - The conclusion that there are "no known technical, logistic or societal impediments to producing a transit protection system that would be essentially undefeatable" is unsupported. There is no discussion of what the technical, logistic or societal impediments might be. Nor is there any discussion of who might operate such a transit protection system.

- 7.3.4.1.3 - The Staff cannot dismiss without discussion irradiated fuel as an attractive target

for theft. See answer to Interrogatory No. 4, infra.

- 7.3.4.2.4 - There is no basis shown for the conclusion on page 7-22, third paragraph from the bottom, that it is "highly unlikely" that individuals with the right combination of motivation and skills would attempt to steal nuclear material, fabricate an explosive device, and use or threaten to use it.
- 7.3.6 - The conclusions reflect a combination of all the inadequacies discussed above - failure to explain the basis for judgments; failure to use consistent terminology with respect to needed level of assurance; failure to analyze safeguards at likely DOE facilities; failure to acknowledge criticism of safeguards by the General Accounting Office and others; and failure to present an analysis applicable to projected future situations.

R2. Does NRDC presently believe that a "design basis threat" must include a specific number of attackers as part of that threat?

No. A range, rather than a single number, may make more sense.

a.) If answer is yes, does NRDC agree that this number must be kept classified in order to assure the maximum security for the CRBR facility?

Intervenors' position is that there must be enough information available to the public with respect to possible threat levels so that the public may be able to make an independent judgment as to the adequacy of facilities safeguards.

b.) Does NRDC agree that the appropriate design basis threat for acts of sabotage is the ability to defend against several persons with the attributes described in 10 CFR 73.1(a)(1)?

c.) Does NRDC agree that the appropriate design basis threat for acts of theft against strategic nuclear material is a small group of persons with the attributes described in 10 CFR 73.1(a)(2)?

d.) If the answer to 2b or 2c above is no, explain fully the bases for NRDC's disagreement with the statement. Identify any documents or individuals relied on as establishing the identified bases.

(b) & (d). No. The use of the term "several" is vague. The possibility of an internal conspiracy of more than one insider is not included. See Commonwealth of Virginia v. William E. Kurkendall and James A. Merrill, Jr., Circuit Court, County of Surry (circa 1980).

(c) & (d). No. The use of the term "small group" is vague. The definition should include collusion of more than one insider. See documentation re NUMEC incident, page 3, supra. The definition should include the use of suitable weapons larger than handheld weapons, e.g., rocket launchers, and groups larger than "small", e.g., ten-twelve. We believe DOD takes such threats into account when establishing threat levels. See Letter, dated February 19, 1980, from the General Accounting Office to Senator John Glenn (B-197548), entitled

"Assessment of Various Aspects of this Nation's Nuclear Safeguards Programs" (EMD-80-48).

(d). The basis for Intervenors' views is set forth more fully in Enclosure 2 to the letter of April 13, 1978, from Dr. Thomas Cochran to Senator John Glenn, Chairman, Subcommittee on Energy, Nuclear Proliferation and Federal Services, Senate Committee on Governmental Affairs (Tab A).

3. In view of the fact that the NRC has designated a design basis threat, does NRDC agree that compliance with the Commission's present regulations on safeguards, using the design basis threat, adequately protects against the environmental effects of sabotage, terrorism and theft directed against the CRBR site?

No.

a.) If the answer is no, explain fully the basis for NRDC disagreement including the actions NRDC believes must be taken to adequately address the effects of sabotage, terrorism, and theft directed against the CRBR. Identify any documentation of individuals relied upon for the identified basis.

The basis for Intervenors' position is found in (i) their answers to Interrogatory No. 1, where they explain why the Staff's analysis of the risks and consequences of sabotage, terrorism and theft is inadequate, and (ii) their answers to Interrogatory No. 2, where they explain why the current design basis threat for acts of sabotage and theft is not appropriate. Intervenors object to that part of this question which asks what action Intervenors believe needs to be taken. See Objection, infra.

4. Does NRDC agree that after irradiation the fuel for CRBR, due to its radioactivity, will be "self protecting" against theft, although measures must still be taken to prevent sabotage of the irradiated material?

No.

a.) If the answer is no explain fully NRDC's basis for disagreeing with the statement. Identify any documents or individuals relied upon for the identified basis.

The hypothetical possibility of theft or irradiated fuel cannot be dismissed as incredible. To the extent there is water transport of irradiated fuel over the open ocean, highjacking, and subsequent diversion to a national government for reprocessing, cannot be ruled out. See Letter dated February 21, 1979, from DOE to Thomas Cochran, with enclosures (attached at Tab B).

5. Does NRDC maintain that the effects of sabotage, terrorism, and theft for CRBR and the fuel cycle for CRBR cannot be adequately protected against under any circumstances involving operations of CRBR?

a.) If answer is yes, explain fully NRDC's basis for believing adequate protective measures are not available or cannot be developed. Identify both documentation and individuals relied upon for the identified basis.

It is Intervenors' position that there is no reasonable likelihood that in the foreseeable future adequate protective measures will be available or developed. The basis for this position is set forth in: GAO, Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons (EMD-80-38) (March 18, 1980).

6. Contention 9, subsection (a) states that the analyses of the environmental impacts of the model LMFBR and

fuel cycle in the Programmatic Statement and Supplement are based on a series of faulty assumptions.

a.) Identify each and every "faulty assumption" which Contention 9, subsection (a) is referring to.

b.) For each assumption identified give NRDC's view as to why the assumption is faulty.

c.) If NRDC has a position as to what they believe the correct assumptions should be for the alleged faulty assumptions, state those correct assumptions.

Reactor

The CRBR heterogeneous core fuel requirements are substantially different from the requirements of the AI follow-on design used as the model for the 1000 MWe reactor in the LMFBR EIS.

Fuel Fabrication

As indicated in the DEIS LMFBR Program Supplement (DOE/EIS-0085-D p. 75):

> The assumptions concerning model LMFBR fuel cycle facilities in WASH-1535 were based on commercial-sale fuel cycle capabilities sufficient to sustain about 80 large LMFBR plants. Present LMFBR program plans for developmental fuel cycle facilities are modest relative to these assumptions. Therefore, the environmental effects should be no greater than those projected in the PFES, WASH-1535.

The last statement is not supported by analysis. Moreover, it does not follow that the effluents/MT CRBR fuel would be less than previously projected. Assuming the DEIS LMFBR Program Supplement correctly identifies the CRBR fuel

fabrication facilities, effluents from and radiation exposures from CRBR fuel fabrication identified in the CRBR FES should correspond to these facilities.

Fuel Reprocessing

As indicated in the DEIS Supplement (DOE/EIS-0085D, pp. 75-81), the PFES (WASH-1535) described a model plant with a capacity of 5 MT/day (i.e., Barnwell) whereas under current plans the CRBR spent fuel will be reprocessed in the Development Reprocessing Plant (DRP) having a capacity of only 0.5 MT/day. Assuming the DEIS Supplement correctly identifies the CRBR spent fuel reprocessing facility, effluents and radiation exposures from this portion of the CRBR fuel cycle identified in the CRBR FES should correspond to the DRP.

The DEIS Supplement (p. 78) suggests that adequate supplies of plutonium are available, e.g. from DOE stocks, should commerical reprocessing falter. Intervenor's Contention 17 is a challenge to this assertion. Intervenor's position is based on testimony of Mr. Ronald Cochran, DOE, in unclassified portions of transcripts of a closed Briefing of the Subcommittee on Nuclear Regulation of the Senate Committee on Environment and Public Works, December 8, 1981, and unpublished NRDC analyses of the supply and demand of DOE fuel-grade plutonium.

The most likely alternatives for supplying plutonium fuel for the CRBR are 1) the Barnwell plant, 2) existing stocks of DOE fuel- and reactor-grade Pu; 3) adding a shear/leach head-end to one of the existing DOE reprocessing plants, most likely at SRP, and 4) obtaining Pu from the UK. Neither the DEIS Supplement, WASH-1535, nor the CRBR FES discuss the environmental (including safeguards) aspects of these alternative fuel sources.

Waste Disposal

The DEIS Supplement (pp. 173-185) discusses the DOE high level radioactive waste program for management and disposal of commercial wastes. It appears likely that the wastes from processing commercial spent fuel (for purposes of supplying fresh fuel for the CRBR) and wastes from processing CRBR spent fuel in DOE processing facilities (e.g. at one of the SRP chemical processing canyons following the addition of a shear/leach head-end facility) will be classified as defense wastes. The CRBR FES fails to discuss the DOE defense waste management program and any significant differences between the manner in which defense and commercial wastes may be managed.

Additional specific criticisms by Intervenors of the discussion of the LMFBR fuel cycle in the DEIS Supplement are identified in NRDC's "Comments on the Draft Environmental Impact Statement, Liquid Metal Fast Breeder Reactor Program",

letter to Wallace R. Kornack from Barbara A. Finamore, S. Jacob Scherr and Thomas B. Cochran, February 8, 1982.

Additional specific criticisms by Intervenors of the discussion of the LMFBR fuel cycle in WASH-1535 are identified in NRDC's Comments on the WASH-1535 Draft EIS (see, particularly, WASH-1535 PFES, Vol. 6, pp. VI.38-53 to 38-85 regarding Transportation and pp. VI.38-308 to 315).

With regard to management of commercial nuclear waste, see NRDC's filing in the Waste Confidence Proceeding, particularly NRDC's Statement of Position and Cross Statement.

7. Contention 9, subsection (b) states that the impacts of the CRBR fuel cycle will differ from those analyzed in the Programmatic Statement. That subsection then identifies 4 areas where NRDC believes the CRBR analyses are deficient. For each of those 4 identified areas give the following information:

a.) Identify each and every fact concerning the identified area on which NRDC bases its statement that the Programmatic Statement does not adequately cover the facilities planned to be used for the CRBR fuel cycle.

There are several items that are generic to subparts (1)-(4) of Contention 9(b);

i) The CRBR now utilizes a different core and fuel management scheme, i.e., the heterogeneous core.

ii) The CRBR may operate in the once-through fuel cycle mode for much if not all of its operation life.

iii) There may not be sufficient plutonium stocks available to operate on a plutonium cycle (See Contention 17).

iv) The CRBR annual fuel requirements are different from those of the AI follow-on design (See WASH-1535 Vol. 6, p. VI.4.5-2).

v) Intervenors believe the source term analysis in WASH-1535 at Vol. 2, Appendix II.G is nonconservative. See 1) NRDC comments on WASH-1535 (Draft) Re: Plutonium Toxicity reproduced in WASH-1535 (PFES) at pp. VI.38-2 to 19 in Vol. 6 of WASH-1535; 2) NRDC Comments on the DRAFT EIS Supplement (Supplement to WASH-1535) submitted in a letter from Barbara A. Finamore, et al. to Wallace R. Kornack, DOE, Feb. 8, 1982, pp. 60-68.

Additional specific differences between the Programmatic Statement and the CRBR fuel cycle as planned are identified in the response to Interrogatory 6 above under Fuel Fabrication, Fuel Reprocessing and Waste Disposal.

b.) If the basis for your answer in Part (a) is that there are differences between the discussion in the Programmatic Statement and the planned CRBR fuel cycle, explain specifically why those differences lead to environmental impacts beyond those already considered in the Programmatic Statement.

Intervenors do not claim at this time that differences between the planned CRBR fuel cycle and the

discussion in the Programmatic Statement lead to environmental impacts beyond those already considered in the Programmatic Statement.

There is insufficient information in Appendix D of the CRBR FES to determine how the Staff derived the estimates in Tables 24 (p. D-4 to 8) from data in WASH-1535 and other references (2-7) in the CRBR FES (at p. D-14). Furthermore, the CRBR FES must be updated to account for deficiencies identified in response to 7a. above. Consequently at this time we have no way of determining from the FES whether the environmental impacts from the CRBR fuel cycle are larger, smaller, or comparable to those of a model 1000 MWe LMFBR fuel-cycle as described in WASH-1535.

c.) For each area identified as being inadequately assessed state specifically what environmental impacts NRDC believes must be considered to make the analysis adequate.

The impacts that must be considered to make the analysis adequate are reasonably scoped in the Table of Contents of WASH-1535. (In responding to this Interrogatory, we are not making a judgment regarding the adequacy of the discussion under these sections of WASH-1535; rather we are identifying areas that should be addressed by an adequate analysis.)

TAB A

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April 13, 1978

Senator John Glenn, Chairman
Subcommittee on Energy, Nuclear Proliferation
and Federal Services
Committee on Governmental Affairs
Washington, D.C. 20510

Dear Senator Glenn,

This is in response to your letter of April 6, 1978 requesting comments on your two proposed amendments to S.2236, the Omnibus Anti-Terrorism Act of 1977 and the subjects covered in your hearings of March 22 and 23 dealing with the adequacy of safeguards measures imposed by DOE, DOD and NRC. I will begin by commenting briefly on the subjects covered in the hearings.

With regard to Mr. Rotow's efforts, the useful unclassified literature readily available to preform these kinds of exercises is far more extensive than indicated by the few documents utilized by Mr. Rotow. Certainly, the subset of NTIS documents identified by Mr. Urbach represent only the tip of the iceberg. I say this only because I believe your efforts to control the situation by withdrawing a few documents is likely to be counterproductive. At a minimum, it will place a premium on selected documents already widely circulated, and it will flag these particular documents as useful.

I would not dismiss on the basis of Rotow's testimony any concern regarding the extent to which the thermonuclear knowhow is seeping into the unclassified literature. The situation is far worse than you might believe. My immediate concern here is with nations that do not presently have thermonuclear devices, rather than the terrorists threat. I will be pleased to discuss this issue with you further privately if you desire.

Regarding the testimony of Drs. J. Carson Mark and Theodore B. Taylor, as you are probably aware these two gentlemen have some disagreements over just how easy it is to fabricate a nuclear device. In Enclosure 1, taken from my testimony before the Windscale Inquiry last September, I cite several references that address this issue. Enclosure 1 includes a quote from a chapter in an OTA report that was written by five nuclear weapons experts including Drs. Mark and Taylor. Also, I particularly call your attention to the last quotation in Enclosure 1, a view that I share.

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The bottom line to all this is that I agree with your conclusion that the only real control left is control over the SNM itself. Consequently I strongly support your efforts to strengthen the physical security at NRC facilities.

Turning now to the second day of hearings, while I do not have a copy of the transcripts of the hearings, I recall that Mr. Donald M. Kerr stated to the effect that physical security at all DOE facilities handling strategic quantities of SNM was comparable to the DOD physical security requirements for safeguarding weapons. Mr. Kerr's testimony conflicts with the testimony of Mr. Gossick of the NRC, when he appeared before the House Interior Committee, Subcommittee on Energy and the Environment on July 29, 1977. On page 31 of the Subcommittee's Hearing Record, the following exchange appears:

> Mr. Gossick: ... The level of protection that we are requiring now for licensed fuel cycle facilities - the 13 or so that you mentioned - is comparable to the protection provided by ERDA for its facilities handling the same materials. If I missed the point -
>
> Mr. Tsongas: What you are saying is that the safeguards at the 15 facilities are equivalent to the safeguards that ERDA has on its weapons facilities.
>
> Mr. Gossick: With the exception of those facilities handling completed devices or where they are being assembled, ERDA has different levels of security for those plants.

In other words, Mr. Gossick is saying NRC's safeguards are equivalent to DOE's and Mr. Kerr is saying DOE's are equivalent to DOD's. However, everyone recognizes that NRC's safeguards don't come close to DOD's. I believe Mr. Kerr has erred in stating that DOE facilities in all cases, particularly facilities that do not handle completed nuclear weapons, have the same level of protection as DOD facilities handling weapons. This discrepancy in the public record should be corrected. */

I will turn now to the two proposed amendments, taking them in reverse order.

The Comparability Amendment

NRDC heartily endorses this proposed amendment. As you may know, in February 1976, NRDC petitioned the NRC to strengthen its safeguards so they would be adequate against design threat

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*/ While the reports required under your proposed "Comparability" amendment to S.2236, if adopted, should clarify the situation, these reports may be classified.

levels that are considered credible. Our petition was denied by the NRC. To place our concern in perspective, I refer you to Enclosure 2, a discussion of the credible threat drawn largely from my Windscale evidence. From this discussion it can be seen that the majority of safeguards experts including consultants to the NRC and DOD agree that a credible external threat for safeguards purposes consists of "... a group of 10-12 dedicated, well trained and well equipped fanatics with light weapons and explosives," 1/ and a credible internal threat consists of 2-3 persons in collusion.

Enclosure 3, also taken from my Windscale evidence, is a discussion of the physical protection presently afforded NRC licensed facilities. It is clear from the chronology developed in Enclosures 2 and 3 that there is no rational basis for the current design basis threat levels adopted by the NRC, e.g., the 3 man external threat as opposed to the 10-12 man threat adopted by NRC consultants and other safeguards experts (and presumably DOD), other than it at best represented NRC's view of the nuclear industry's current capability to provide physical protection.

It is important to note that the greater level of physical protection required of NRC licensed facilities under your amendment could be achieved much sooner than the 15 month period you allow. In denying NRDC's petition for implementation of emergency safeguards measures adequate against the larger threat levels, the Commission in January 1977 did not argue that a much higher level of physical security was not desirable or could not reasonably be implemented, rather the Commission argued that the emergency relief we requested was "drastic" and that NRC's "current available information ... falls short of establishing a basis for emergency action" 2/, and what is called for is an "orderly strengthening of safeguards..." 3/ because the "licensees have safeguards programs which are adequate for the immediate term..." 4/.

In summary, we are pleased that you agree with us that the physical security at the NRC licensed facilities is not adequate now, much less "for the immediate term", and we believe your approach to strengthening the physical security at these facilities by beefing them up to the DOD level over a 15 month period is quite reasonable, except that we believe this could be accomplished much sooner.

1/ "Consideration of the Threat and Potential Threat to the U.S. Nuclear Power Industry", Willard Shankle, 1975.

2/ Petition of Natural Resources Defense Council for Adoption of Emergency Safeguard Measures or, Alternatively, for Revocation of Licenses, NRC Docket Nos. 70-8, et al., Memorandum and Order, January 21, 1977, p. 10.

3/ Ibid., p. 16.

4/ Ibid., p. 17.

Confidentiality of Safeguards Information Amendment

I have serious misgivings concerning this amendment. First, if it were fully implemented, it would have significant civil liberties implications. Second, even if it were implemented, it would not make a large impact on the threat. Third, it would tend to authorize the NRC to further abuse its privilege of withholding information from the public.

There are numerous good reviews of the civil liberties implications of safeguards. (See, for example, Enclosure 4.)

The classifications of information and the security clearance of personnel would involve a broad spectrum of firms and individuals. In addition to the employees of the facility itself, such a classification and security system would have to involve:

1. Contractor personnel involved in the maintenance and repair of the facility.

2. The architect/engineer firm involved in the design of the facility.

3. The various contracting firms involved in the construction or in bidding on the construction contracts.

4. The off-site response forces.

Securing the information within all of these various sources would be next to impossible. But even if this could be done for future facilities, there are some 130 reactors either operating or under construction. For these, the cat is out of the bag. Finally, classification and security clearances with all their civil liberties implications can not eliminate the internal threat wherein 1 or more employees, acting alone or cooperating with an external group could perpetrate a successful theft or act of sabotage.

In the past, the NRC has used its ability to withhold information as a critical mechanism for deluding the public and the Congress with respect to the adequacy of safeguards. Given a broader mandate, they could and probably would use this privilege to withhold information related to reactor safety since flaws in reactor design could be a point for sabotage.

Implementing the compatability amendment would significantly improve present safeguards. Implementing the confidentiality amendment would add little to safeguards but would

have significant civil liberties drawbacks.

In closing I might add that my experience in this area over the past two years leads me to conclude that it is far easier to design and fabricate a nuclear device than it is to get the NRC and the Congress to provide adequate physical security at facilities handling SNM.

Sincerely,

Thomas B. Cochran

Enclosures

The Relative Ease and the Likelihood of Success in Design and Fabrication of a Clandestine Fission Explosive

There is considerable confusion on this subject, in part because of the general limitation, and even supression of factual information. According to a recent US NRC report:

> An inherent technical problem associated with dissemination of CFE [Clandestine Fission Explosive] information is the difficulty in developing a definitive statement concerning the ease and likelihood of adversary success in constructing a CFE. Such an assessment involves judgment concerning the adversary's skills, resources and willingness to accept risk of failure, injury or death. There has been disagreement among experts, not only concerning their individual technical assessments, but also concerning the best way of expressing their conclusions. Thus, any attempt to express the "averaged opinion" of the experts is susceptible to challenge. A recent example of such an effort is contained in reference 69. 1/

Reference 69 refers to "Chapter VI, Nuclear Weapons" in the OTA report, Nuclear Proliferation and Safeguards. This chapter was written by the Task Force on Nuclear Weapons composed of five nuclear weapons experts who either are presently or used to be in the US nuclear weapons program.2/ According to this OTA Task Force:

> At the low end of the minimal range of effort, a small group of people, none of whom have ever had access to the classified literature, could possibly design and build a crude nuclear explosive device. They would not necessarily require a great deal of technological equipment or have to undertake any experiments. Only modest machine-shop facilities that could be contracted for without arousing suspicion would be required. The financial resources for acquisition on open markets need not exceed a fraction of a million dollars. The group would have to include a person capable of searching and understanding the technical literature in several fields, and a "jack-of-all-trades" technician. Again, it is assumed that sufficient quantities of fissile material have been provided.

1/ US Nuclear Regulatory Commission, Report of Task Force on Allegations by James H. Conran, April 29, 1977, p. 4-2.

2/ US Congress, Office of Technology Assessment, Nuclear Proliferation and Safeguards, July 1977, Chapter VI, "Nuclear Weapons", pp. 139-147. The experts, identified on page v of this report, are J. Carson Mark, Chairman, Los Alamos Scientific Laboratory; Thomas B. Cook, Sandia Laboratories; George B. Kistiakowsky, Harvard University; Robert W. Selden, Lawrence Livermore University; and Theodore B. Taylor, Princeton University.

> The actual construction of even a crude nuclear explosive would be at least as difficult as the design itself. The small non-national group described above would probably not be able to develop an accurate prediction of the yield of their device. The device could be a total failure, because of either faulty design or faulty construction. Here again, a great deal depends on the competence of the group; if it is deficient, not only is the chance of producing a total failure increased, but the chance that a member of the group might suffer serious or fatal injury would be quite real. However, there is a clear possibility that a clever and competent group could design and construct a device which would produce a significant nuclear yield (i.e., a yield much greater than the yield of an equal mass of high explosive). 3/

It is important to note here that the person capable of searching and understanding the literature also could be the "jack-of-all-trades" technician. Furthermore, literature searches of the type required are known to have been performed already by several people in order to ascertain the extent of the information that is available. In addition, the "fraction of a million dollars" referred to above could imply a small fraction, e.g. in the neighborhood of one thousand dollars or less.

Dr. Theodore B. Taylor, one of the weapons designers on OTA's Task Force on Nuclear Weapons, has publicly expressed the opinion that "design and fabrication of a successful CFE could be done by perhaps one man, using modest facilities and unclassified information." 4/ This conclusion appears to have been shared by Mr. Carl H. Builder at the time he was Director of the Division of Safeguards, US NRC:

> Returning to the subject of CFE's, it was Builder's position that he was convinced in the Fall of 1975 that it was "easy" to build a CFE and from that time on safeguards developments were based on that assumption. He felt that some didn't really want to believe it but Builder personally reviewed public statements on the matter and believed they were consistent from then on. He also informed Safeguards management and staff of this position. Builder discussed this issue with Ted Taylor personally and suggested that the

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3/ US OTA, Nuclear Proliferation and Safeguards, Op. Cit. pp. 140-141.

4/ NRC, "Task Force on Allegations by James H. Conran", Op. Cit., pp. 4-6. See, for example, Mason Willrich and Theodore B. Taylor, Nuclear Theft: Risks and Safeguards, (Ballinger, Cambridge, Mass.), 1974, pp. 20-21; John McPhee, "Profiles (Theodore B. Taylor)", New Yorker, Dec. 3, 10, and 17, 1973 (particularly Dec. 17, 1973, pp. 72-76 and 84-88 where simple crude weapons recipes are presented).

"simple recipes" for CFE's be voluntarily withheld from public dissemination until safeguards were improved. Taylor agreed with this position although both agreed that these recipes would eventually get out. Builder strongly disagreed with the suggestion that the safeguards staff made decision on any other basis than that CFE's are relatively "easy". 5/

5/ US NRC Note for Task Force Files, from J. Mark Elliott, Member Task Force on Allegations of James H. Conran, re Telecon with Carl H. Builder on April 19, 1977, pp. 2-3, par. 5. Mr. Builder resigned from the NRC in August 1976 to become the Director of Strategic Studies at the RAND Corporation.

Credible Threats

"It is generally recognized that the character of potential adversaries, i.e., the threat, is a major consideration in arriving at a benchmark for design and evaluation of safeguards systems." 1/

In April 1974 an independent review of the US AEC's safeguards program for licensed facilities was carried out for the US AEC's Director of Licensing by a group of consultants headed by Dr. David Rosenbaum. The authors of this report stated:

"THE THREAT

> Our estimate of the maximum credible threat to any facility or element of transportation handling special nuclear materials is fifteen highly trained men, no more than three of which work within the facility or transportation company from which the material is to be taken..." 2/

Because of the importance of the subject matter, the US AEC's Director of Licensing requested that the Rosenbaum Report be reviewed promptly by the staffs of the three regulatory directorates to assess its findings and recommendations. A May 9, 1974 Memorandum to the Director of Licensing from the three directorates contains the staff's evaluation. This memorandum states in part:

"STAFF COMMENT:

> We agree that the concept of design basis incidents can and should be applied to material protection. In anology with reactor safety, design basis incidents pose a range of threats such that a system designed to cope with design basis threats will by its nature protect against the lesser postulated threats." 3/

In early 1975, the NRC's Office of Special Studies commissioned the Mitre and BDM Corporations to do threat analysis studies. Shortly thereafter (in the summer of 1975) the Office of

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1/ US Nuclear Regulatory Commission, Report of Task Force on Allegations by James H. Conran, April 29, 1977, p. 4-25.

2/ US Atomic Energy Commission, Special Safeguards Study, by David M. Rosenbaum, John N. Googin, Robert M. Jefferson, David J. Kleitman, William C. Sullivan, 1974.

3/ US Atomic Energy Commission, Review of "Special Safeguards Study" by Donald F. Knuth, Director of Regulatory Operations; John F. O'Leary, Director of Licensing; and Lester Rogers, Director of Regulatory Standards, sent to L. Manning Muntzing, May 9, 1974.

Special Studies was merged into the Nuclear Material Safety and Safeguards (NMSS). In the fall of 1975, NMSS contracted with Colonel Willard Shankle 4/ to review the special studies' threat analyses and other relevant information and to produce the design threat position for the Special Safeguards Study. Shankle's Report, "Consideration of the Threat and Potential Threat to the U.S. Nuclear Power Industry" was also to provide input to the GESMO effort. While the design basis threat numbers in the Shankle report itself are still classified, they have been declassified in a recent US NRC Task Force established to review a number of allegations made by James H. Conran, an employee of the Division of Safeguards in the US NRC. One of Mr. Conran's allegations was that the design basis threat used by the US NRC 5/ was not conservative. The Task Force after conducting its review concluded:

> Mr. Conran is concerned that threats of terrorist, criminal or foreign groups, of up to 12-15 people, as well as disgruntled employees acting alone or possibly in collusion with other insiders or external groups, must be considered credible threat possibilities.
>
> The Task Force finds, principally on the basis of reference 64, that external threats up to 12 persons are sufficiently credible to warrant consideration in the development of safeguards acceptance criteria. Review of past actions of the NRC staff reveals that such threats have in fact been considered (34 and 64, for example), but the record is not sufficiently complete to demonstrate how such threats factored into the staff's ultimate recommendations on group size (91, 105, 106), although it is generally acknowledged that the selection of an appropriately conservative design basis threat is a highly judgmental process.
>
> The Task Force finds that the preliminary paper (64) prepared by an NRC consultant summarizing several studies in the Special Safeguards Study is relevant to this concern. That paper states, in part, that:
>
> > "... a group of 10-12 dedicated, well trained and well equipped fanatics with light weapons and explosives appears to be the level of terrorist capabilities which should be considered when establishing day-to-day security requirements for the nuclear power in industry,.... [in addition, an internal threat] of disgruntled or defective employees [should be considered].

4/ A noted authority with many years of experience in the Nuclear Weapon Protection Program and principal advisor to DOD on such matters.

5/ Memorandum from Carl H. Builder, Director, Division of Safeguards to Ronald A. Brightsen, Assistant Director of Licensing, Division of Safeguards, Jan. 19, 1976.

> The NRC provided these conclusions for comment to the Federal Bureau of Investigation, Central Intelligence Agency, Department of State, and Defense Intelligence Agency in October 1975. The response from those agencies lead the Task Force to conclude that these threat characteristics are sufficiently credible to warrant further consideration. Additionally the Task Force finds that there can be no assurance or detection of this level of threat prior to an attempted malevolent act on the basis of reference 64." 6/

The quotation from reference 64, "... a group of 10-12 dedicated, well trained and well equipped fanatics, etc." in the above quote is taken from the Shankle Report.

The last point, "... that there can be no assurance of detection of this level of threat [by a group of 10-12 dedicated, well trained and well equipped fanatics] prior to an attempted malevolent act..." is based on the US intelligence community view, 'that the intelligence community can provide no assurance or prior detection of adversary groups, unless group sizes become very large, that is "army size".'" 7/

It is perhaps worth noting here that the adversaries, i.e. the external threat, are conceded to have any of the following equipment: hand guns, semi-automatic and automatic rifles, shotguns, sub-machine guns, machine guns up to 50 caliber, hand grenades, dynamite, plastic explosives, shaped charges, light mortars, light anti-tank weapons, hand-held air-defense weapons, tear gas, mace, special purpose vehicles, fixed wing aircraft, helicopters, two-way radios (walkie-talkies) and citizens band radios.

In the fall of 1975, the NRC sent the Shankle Report to the FBI, CIA, State and DIA for review. The DIA response was as follows:

> This Agency concurs with the conclusions and recommendations set forth in the Shankle Report -- specifically that:
>
> a. The capabilities of terrorist groups must be considered in establishing security systems for the nuclear power industry;
>
> b. A minimum security system which will provide adequate protection against an adversary group comprised of approximately 12 dedicated, well-trained, well-armed personnel is an appropriate standard;

6/ US NRC Report of Task Force on Allegations by James H. Conran, Op. Cit. pp. 4-25, 4-26.

7/ Ibid. pp. 4-18, 4-19.

c. Close liaison must be continually maintained by installation security managers with law enforcement and intelligence agencies regarding terrorist matters.8/

None of the other agencies (CIA, FBI, State) indicated that the threat levels proposed by Shankle were too large as evidenced from Transcripts of a 1977 meeting of the Task Force on Allegations of James H. Conran.9/ Mark Elliott, of the NRC Staff and a Task Force member, stated, "Certainly none of those responses from the intelligence community [CIA, FBI, DOS, DIA] said the threat was too high." 10/

The 12 man threat is apparently the design basis threat used to judge the adequacy of safeguards at military facilities handling nuclear weapons. This can be seen from the following exchange between Roger Mattson, Chairman of the Task Force on Allegations of James H. Conran and James A. Powers of the NRC's Division of Safeguards. It would also be consistent with Shankle's experience as a principal advisor to DOD on matters related to nuclear weapons protection. Although the threat levels have been deleted from the unclassified, sanitized transcript (the deletions are indicated by the brackets []) it is evident from the Conran Task Force report and DIA letter which refer respectively to a 10-12 man and a 12 man threat level that Mr. Mattson in the following quotation is referring to this threat level.

> Mr. Powers: [ ] armed, dedicated violent commando-type could probably take over most ERDA or NRC facilities in the country.
>
> Mr. Mattson: Let me follow up on that. I am led to believe, in fact from these very same memos, the one from the Defense Intelligence Agency, that I would call a design threat at ERDA weapons facilities is [ ] well trained, dedicated lunatic types.
> I am also led to believe from that DIA classified memorandum that those characteristics and that level of threat were picked from a systematic approach to intelligence information and intelligence indicators of the type conducted by the Special Safeguard Study, namely BDM, MITRE, that kind of work. In fact, DIA goes on to encourage near the end of their letter, that this kind of work should be done.
> Accepting at face value that this is true -- I read it in the Washington Post and I read it in the DIA classified memorandum,

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8/ Dec. 1975 Memorandum to US NRC, Attn: Mr. Lee V. Gossick, re letter of 29 October 1975 from Richard L. Cary, Colonel, USA, Assistant Deputy Director for Counterintelligence and Security.

9/ Transcript of Proceeding, Meeting of Task Force on Allegations of James H. Conran, April 13, 1977.

10/ Ibid., p. 257.

and given those two sources I will accept for the moment that [] is the design threat for ERDA weapons facilities. That is to protect weapons, fabricated weapons.
Did you just -- I think you just said that [] dedicated, well-armed lunatic guys seven-feet tall, couid defeat the ERDA facilities.
Did you mean against that [ ] even though [] design threat is in place?

Mr. Powers: Yes.

Mr. Elliott: Just because there is a design threat in there doesn't mean that the facilities are protected to that level.
But, did you mean to imply -- did you mean weapons as well as fuel facilities when you made your statement?

Mr. Powers: Licenses as well as ERDA facilities. 11/

Under the Energy Reorganization Act of 1974 which split the US AEC into the NRC and the ERDA, the US Congress requested that NRC prepare a study to determine the need for and feasibility of establishing a Security Agency for the protection of special nuclear materials. A 1975 draft of the Executive Summary of this Security Agency Study prepared by the US NRC stated:

> Congressional concern for adequate safeguards was heightened as a result of a special safeguards study done for the Atomic Energy Commission in 1974. That study, by David Rosenbaum and others, ... described a variety of potential problems and short comings in the area of nuclear safeguards and made recommendations for their solution...
>
> The Rosenbaum report expressed concern about the adequacy of protection afforded SNM by the private industrial security systems of licensees. One aspect of concern was the level of threat to facilities and SNM. The authors postulated a maximum credible threat consisting of 15 highly trained men, three of whom might be "insiders", employed by the licensee target firm.
>
> * * * * *
>
> Threats to nuclear facilities and material can come from external or internal sources. External threats would include overt acts of theft and sabotage. They span a scale ranging from mischief and minor nuisance through coordinated attacks, which at some point would take on the character of a civil war. Internal threats are most often postulated as being covert and might involve diversion of material, the perpetration of hoaxes and, perhaps, sabo-

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11/ Transcript of Proceeding, Meeting of Task Force on Allegations of James H. Conran, April 13, 1977, p. 259.

tage. They span a scale from minor pilferage by individuals, through collusion, all the way through revolutionary conspiracies, in which entire plants might be covertly controlled.

* * * * *

"To estimate the credible threat, the office of Nuclear Materials Safety and Safeguards researched 19 relevant studies and conducted 9 interviews with individuals and groups of professional analysts from the FBI, the intelligency community, the Department of Defense and State and local law enforcement agencies.

"What emerged from this was a consensus estimate that an external threat group will probably number about 6-8 persons and very likely not exceed 12 persons . . .

"Interviews and studies yielded less upon which to base estimates of threats internal to the industry. In general, the internal threat was characterized as follows:

- o One person operating alone will probably remain undetected.
- o Instances of collusion involving 2-3 persons have been encountered in industry.
- o Most hijackings involve internal collusion.
- o Key internal persons can be influenced by threats against their families or other forms of blackmail.

As a result, a credible internal threat, for safeguards purposes, is estimated to consist of 2-3 persons in collusion." 12/

Similarly, a January 19, 1976 memorandum of Carl H. Builder, Director, Division of Safeguards, to Ronald A. Brightsen, Assistant Director for Licensing, Division of Safeguards, states:

"The design threats in the safeguards supplement to GESMO are divided into an internal (diversion) and an external (assault) threat. Many parameters or considerations must be taken into account in describing or specifying such threats. To simplify these descriptions, we have assumed that all of these parameters (e.g. motivation, training, arms, equipment, employment position, etc.) are fixed at worst-case values with respect to safeguards, and that the only remaining variable is the number of people involved in the threat. For a nominal or baseline threat, as a point of departure, we have assumed that the internal and external threats are two and six persons, respectively. The range of

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12/ Draft, Executive Summary of Security Agency Study, pp. 1, 2, 5, 6.

numbers suggested by threat researchers, expert opinion, and partisan comments generally lie within a factor of two, up and down, from this baseline specification. 13/

The US OTA in Nuclear Proliferation and Safeguards made the following assessment of the threat level in 1977:

> Current research at the RAND Corporation which involves a number of adversary events selected to be analogous to potential nuclear theft or sabotage shows that groups of 3 to 6 are common, that larger groups do appear, that a group size of 12 does appear to be somewhat of an upper boundary although there are a few cases in modern industrialized societies in which larger groups have been involved. More importantly, the RAND researchers argue that one must be extremely cautious in interpreting historical data regarding the number of attackers since the figures represent for the most part what the perpetrators, criminals or terrorists, perceived to be necessary to accomplish their mission, and in most cases what turned out to be sufficient. In other words, they came with as many as they needed to do the job, and no more. The fact that most came with a handful of persons, 3 to 6, thus does not represent an upper limit on their capacity to mobilize people. The upper limit would appear to be higher.
>
> Although the historical data are useful as a guide, an estimate of the number of attackers is inescapably a matter of judgment. Without speaking in terms of a "maximum" threat, the RAND studies suggest a range of anywhere from 7 or 8 to about 15 as a prudent estimate.
>
> Again although it is judgmental, military men and law enforcement officials would argue that more than this number might even by counter-productive. It is no mere coincidence that after 5,000 years of military history, the smallest operational unit of almost all armies is a squad composed of 9 to 13 men. Even 10 or 12 attackers would stretch to the limit the capacity of most known violent political extremist groups in this country. Moreover, although no one has attempted to determine precisely how many persons must be in a conspiracy to commit a serious crime before it is no longer a secret, the probability of discovery must increase rapidly in the higher ranges. The fear of leaks appears to be a principal consideration and constraint in assembling the personnel for a task force crime. 14/

This OTA assessment is based on the RAND Corporation report included as Appendix III-A in the OTA Report.

13/ Builder Memorandum, Op. Cit., p. 3.

14/ US Congress, Office of Technology Assessment, Nuclear Proliferation and Safeguards, July 1977, Chapter VIII, "Control of Proliferation" p. 197.

Adequacy of Physical Security at NRC Licensed Facilities

During 1973 and 1974 a number of reports were published that were highly critical of the existing US domestic safeguards. Prominent among these were two GAO reports, 1/ the book by Willrich and Taylor, 2/ and the AEC's Special Safeguards Study known as the Rosenbaum Report.

Prodded by these reports the AEC modified its safeguard regulations in 1974. However, the Rosenbaum Report, published after the regulations were changed, concluded with the following:

> Even though safeguard regulations have just been revised and strengthened, we feel that [the] new regulations are inadequate and that immediate steps should be taken to greatly strengthen the protection of special nuclear materials. We hope that this paper will contribute in a positive way to the speedy implementation of such steps.

As noted in Enclosure 2, the Rosenbaum Report was reviewed by the AEC Staff.

In an expression of its concern, the US Congress, in the Energy Reorganization Act of 1974, mandated that the newly created Nuclear Regulatory Commission undertake a one year study of safeguards, called the Security Agency Study. In conjunction with this study and the ongoing revision of generic environmental impact statements on plutonium recycle in LWR's, the reports of numerous NRC safeguards consultants have been made public during the past two years. Many of these reports are highly critical of existing US physical security.

It was in the last half of 1975 that the NRC contracted for and received the Shankle Report discussed in Enclosure 2. The Shankle Report was reviewed by the other Federal agencies in late-1975. Thus, in the following discussion one should keep in mind that this represented the current thinking as to what should be the design threats.

In a January 19, 1976 Memorandum, Carl H. Builder, Director of the NRC's Division of Safeguards, conceded that he was

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1/ U.S. General Accounting Office, "Improvements Needed in the Program for the Protection of Special Nuclear Material," (November 7, 1973) and U.S. General Accounting Office, "Protecting Special Nuclear Material in Transit: Improvements Made and Existing Problems," (April 12, 1974).

2/ Mason Willrich and Theodore B. Taylor, Nuclear Theft: Risks and Safeguards, (Ballinger, Cambridge, Mass.), 1974.

"not in a position to judge current safeguards [against nuclear theft] as adequate or inadequate." 3/ The Builder memorandum went much further, however. It states,

> I am concerned that some or even many of our currently licensed facilities may not have safeguards which are adequate against the lowest levels of design threat we are considering in GESMO (which are, for an internal [employee] threat, one person and, for an external threat, three persons). 4/

In short, the then head of the NRC's safeguards program was stating that he doubted that the safeguards employed at some or even many licensed facilities were adequate to prevent plutonium or similar materials from being stolen even when only small efforts are involved, such as a theft attempt by one employee or three armed intruders. This small threat of 1 to 3 individuals must be compared with the credible threat levels discussed in Enclosure 2.

By January 28, 1976, the NRC had completed a paper review of the adequacy of the physical security at 15 licensed facilities, 5/ to determine whether the physical security was sufficient to prevent, with a high degree of assurance, the theft of more than five formula kilograms of SNM by

a) an internal threat consisting of a single employee in any position, in any single theft or in any continuing series of thefts over a period of up to one year

and

b) an external threat consisting of a well planned and coordinated assault by three persons, one of whom may be an employee in collusion, having the equivalent of military training and equipment.

As seen from the January 28, 1976 NRC memorandum, 6/ 9 out of the 15 licensees were inadequate against the internal threat, and all but one had inadequate protection against the external threat. The NRC immediately began site reviews of all these facilities.

In March of 1976 ERDA joined in the safeguards review that NRC had begun in January. A joint ERDA-NRC Task Force was formed and charged with developing an action plan to assure confident control and protection of significant amounts of strategic special nuclear materials (SSNM) under government regulations and controls. The joint task force was directed

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3/ Memorandum from Carl H. Builder, Director, Division of Safeguards to Ronald A. Brightsen, Assistant Director for Liceinsing, Division of Safeguards, January 19, 1976, Subject:Adequacy of Safeguards.

4/ Ibid. p. 2.

5/ Memorandum from George W. McCorkle, Chief, Physical Security Licensing Branch, to Carl H. Builder, Director, Division of Safeguards, Jan. 28, 1976, Subject: Adequacy of Current Safeguards, and enclosure.

6/ Ibid.

by Mr. Builder. The ongoing NRC review was expanded to include three representative ERDA facilities to assure the parity of safeguards between NRC-licensed and ERDA-licensed exempt facilities.

The Joint Task Force completed its facility reviews in May 1976. 7/ According to its Final Report, with respect to the NRC licensees

> The results of the reviews indicated that improvements in physical protection and material control (containment measures and access controls as opposed to material accountability) would be needed at each facility in order to counter the threat level use defined for the evaluation.8/

The threat levels used here were an internal threat of one employee or an external threat comprised of three well-armed (with legally obtainable weapons 9/), well-trained individuals, including the possibilities of inside knowledge or assistance of one insider.

Similarly, according to the Joint Task Force the three ERDA facilities could not counter with a high degree of assurance the external threat if inside knowledge of assistance was assumed, and one of the three could not prevent with a high degree of assurance the diversion by one insider. In summary, although the fixed-facility licensees were found to have safeguards programs which were generally in compliance with existing regulations, nearly all the facilities were unable to defeat this minimum level of design threat.

After further upgrading the safeguards at these facilities, a second round of onsite reviews were conducted in September and October of last year. This time the review teams concluded that

> ...all facilities visited have the capability of meeting the postulated threat. However, as to several facilities, the site reviews have suggested that the level of assurance underlying that judgment was not as great as for the remaining facilities.10/

7/ An unclassified version "Joint ERDA-NRC Task Force on Safeguards (U)" Final Report, NUREG-0095/ERDA 77-34, July 1976.

8/ Ibid. pp. 9-10.

9/ In other words, hand guns, shot guns and rifles only.

10/ Nuclear Regulatory Commission, in the matter of LICENSEES AUTHORIZED TO POSSESS OR TRANSPORT STRATEGIC QUANTITIES OF SPECIAL NUCLEAR MATERIALS, Memorandum and Order, January 21, 1977, p. 9.

The current NRC position with respect to the external threat as expressed in testimony before the US Congress on July 29, 1977 11/, is that

> ...safeguards at all fuel facilities are adequate to protect against a postulated threat comprised of, at minimum, a determined violent assault by several persons, perhaps having inside knowledge or assistance.

It was brought out in these same Congressional hearings that "several persons" means "3 people". As seen from NRC's proposed safeguards rules 12/, the NRC is proposing to further upgrade the external threat level from "several" to "a small group", where the latter is meant to imply 6 people.

Thus, it is evident that present, and even proposed, physical security measures at US licensed facilities that handle strategic quantities of SNM are inadequate when judged against credible threat levels considered by safeguards experts, i.e. those reviewed in Enclosure 2.

11/ US Congress. House, Testimony of Lee V. Gossick, Executive Director for Operations, US NRC before Subcommittee on Energy and the Environment, Committee on Interior and Insular Affairs, July 29, 1977.

12/ NRC Physical Protection of Plants and Materials, Performance Oriented Safeguards Requirements, Federal Register, Vol. 42, No. 128, July 5, 1977, pp. 34310-34321.

Civil Liberties Implications of Safeguards

1. Ayres, Russell W., "Policing Plutonium: The Civil Liberties Fallout," Harvard Civil Rights- Civil Liberties Law Review, Vol. 10, No. 2, Spring, 1975.

2. Bartkus, Robert and Block, Gail, Rapporteurs' Report: Conference on the Impact of Intensified Nuclear Safeguards on Civil LIberties, Stanford Law School, October 17-18, 1975.

3. Barton, John H., Intensified Nuclear Safeguards and Civil Liberties, Paper prepared for the Nuclear Regulatory Commission, October 31, 1975.

4. Westin, Alan F., Congress of the U.S., Office of Technology Assessment, Nuclear Proliferation and Safeguards, Appendix Vol. II, Part One, (1977), "Civil Liberties Implications of U.S. Domestic Safeguards", pp. III-128-133.

5. American Civil Liberties Union, Memorandum of Special Committee on Nuclear and Other Energy Programs Affecting Civil Liberties, March 29, 1976.

6. Center for Science in the Public Interest, "Nuclear Power and Civil Liberties -- Countdown for 1984?," People and Energy, September, 1976.

7. The Plutonium Economy: A Statement of Concern, Governing Board, National Council of Churches, September, 1975.

8. Royal Commission on Environmental Pollution, 6th Report, Nuclear Power and the Environment, Chap. VII, "Security and the Safeguarding of Plutonium", Her Majesty's Stationery Office, London, 1976, pp. 128-129.

TAB B

Department of Energy
Washington, D.C. 20545

FEB 21 1979

Mr. Thomas B. Cochran
Natural Resources Council, Inc.
917 15th Street, N.W.
Washington, DC 20005

Dear Mr. Cochran:

This is in response to your Freedom of Information Act (FOIA) request to the Department of State (DOS #810679), your reference NRDC/TBC/78-19 dated March 6, 1978.

A total of nine (9) Department of Energy (DOE) originated documents were referred to us by the DOS for direct response to you. These documents are numbered 8, 9, 10 and 11 and include enclosures. We have reviewed the documents and determined that the following letters and/or memorandums are unclassified.

Enclosure #8 - C. J. Zoblocki from L. R. Kojoin, 2/6/76
C. J. Zoblocki from A. D. Starbird, 1/13/76

Enclosure #9 - J. Poor from R. Marble, 12/23/75

Enclosure #10 - Chairman Seaborg etc. from M. B. Kratzer, 1/27/70
To Files from M. B. Kratzer, 1/27/70

Enclosure #11 - Chairman Seaborg etc. from M. B. Kratzer, 12/23/69
M. B. Kratzer from R. G. Bradley, 12/19/69
Chairman Seaborg etc. from D. L. Crowson, 12/11/69

The questions and answers enclosed with the letter listed below contain a DOE deletion on page 3.

Enclosure #9 - Ray Marble from James C. Poor, 2/5/75

The information is being withheld pursuant to Exemption 3 of the Freedom of Information Act (5 USC 552(b)(3)) and DOE Regulations 10 CFR Part 1004.10(b)(3) and 1004.6. The legal basis for this exemption is the Atomic Energy Act

of 1954, as amended. I am the denying official.

If you disagree with the action that has been taken, you may file an FOIA appeal. You should appeal by submitting a written notice to the Office of Hearings and Appeals, DOE Headquarters, Washington, DC 20461, within 30 calendar days after receipt of this letter. The appeal should contain a concise statement of the grounds upon which it is brought and a description of the relief sought. A copy of the DOE letter that is the subject of the appeal should also be submitted with the appeal. Both the envelope and your letter must clearly identify that a Freedom of Information Appeal is being made (see 10 CFR 1004.8, Appeals from Initial Denials for DOE FOIA Regulations).

Sincerely,

for William A. Nash

John A. Griffin, Director
Office of Classification

Enclosures:
1. As stated
2. DOS Ltr - Treanor/Spruell, 3/30/78

OES 1018
= 8

CC
NEI
Declare -
HK 3/22/76

February 6, 1976

Honorable Clement J. Zablocki
Chairman
Subcommittee on International Security
and Scientific Affairs
2177 Rayburn House Office Building
Washington, D. C. 20515

Dear Mr. Chairman:

I regret for the delay in responding to your request for the enclosed material.

I hope the material meets your needs. If I can be of further assistance, please feel free to call.

Sincerely,

Leonard R. Koja
Assistant Director for
National Security/Controller
Office of Congressional Relations

Enclosure

bcc: G. Helfrich
H. Lyon
M. Kratzer
JCAE

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ISA:IANA w/cy 12B encl

Honorable Clement J. Zablocki
Chairman, Subcommittee on International
Security and Scientific Affairs
Foreign Affairs Committee
House of Representatives

Dear Mr. Chairman:

The enclosure to this letter responds to a request from Mr. George R. Bardes of your staff for information on an alleged loss of uranium oxide in 1960.

We have advised the Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, of your interest in this information because of their concern in the formulation of policy with respect to these matters. We have also advised the local representatives of the Democratic Secretary.

Retyped to respond to OCR letter

Sincerely,

[redacted]

Alfred D. Starbird
Assistant Administrator
for National Security

Enclosure:
Cy 1B of Responses to Questions
(S/RD)

bcc: ~~A. D. Starbird, NMS, w/cy 2B encl~~
~~E. B. Giller, DANS, w/cy 3B encl~~
H. E. Kratzer, w/cy 4B encl
R. E. Lyon, DSS, w/cy 5B encl
G. F. Helfrich, OIPI, w/cy 6B encl
J. G. Poor, ISA, w/cy 7B encl

a. Security clearance of addressee has been verified to be Top Secret.
b. Mr. George R. Bardes of the House Foreign Relations Committee staff is authorized to receive this letter for the addressee. He is Top Secret cleared.

ANS
ADStarbird
1/ /76

OCR
1/ /76

AC
PNSA

OFFICE	ISA:IANA	ISA:[illegible]/IANA	ISA:DIR	DSS:DIR	OIPI	DANS
SURNAME	MEBenson:mdh	FJChomatry	JGPoor	RELyon	CFHelfrich	EBGill
DATE	1/13/76	1/14/76	1/ /76	1/ /76	1/ /76	1/ /76

CONFIDENTIAL

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

9

December 23, 1975

MEMORANDUM

TO: James Poor, Director
Division of International Security Affairs

FROM: Ray Marble, Deputy Director
Office of Congressional Relations

SUBJECT: Meeting with Consultants of Subcommittee on International Security and Scientific Affairs

Request for information, from Chairman, Subcommittee on International Security and Scientific Affairs, House International Relations Committee, on alleged loss of 200 tons of uranium oxide in 1968, was made.

A meeting was held recently between Mr. George R. Berdes, Majority Staff Consultant, Mr. Donald Fortier, Minority Staff Consultant, (House Subcommittee on International Security and Scientific Affairs), and Mr. Len R. Kojm, OCR, at which alleged loss of Uranium Oxide during transport from Belgium to Italy was discussed. However, the real purpose of the meeting was to submit the following questions to ERDA for answers:

1. How and when did the loss take place?

2. When and how did the United States learn about it?

3. What did the United States do about it?

4. What could the United States have done about it?

5. What did Italy and/or Belgium do about it?

6. What was the significance of the loss of such a large quantity of uranium oxide at that time?

The Committee still is aware of the classification and sensitivity of the subject.

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UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

FEB 5 1976

9

Ray Marble, Deputy Director
Office of Congressional Relations

SPECIAL REQUEST, SUBCOMMITTEE ON INTERNATIONAL SECURITY AND SCIENTIFIC AFFAIRS

The answers to your questions submitted on December 23, 1975, are provided in the attachment.

We had delayed our answer in anticipation of some additional information concerning final action on the part of either or all of the foreign countries involved. A response to our inquiry may still be forthcoming; however, rather than delay further, we indicated in the attached that we will provide anything significant that we might obtain as a result of our inquiry.

I hope that George Berdes will understand that our delay was in his interest in the hope that more complete information could have been provided.

James G. Poor, Director
Division of International
Security Affairs

Enclosure:
As stated

When separated from enclosures, handle this document
as SECRET
(Insert proper classification)

Document Transmitted
Herewith Contains
NATIONAL SECURITY INFORMATION

SECRET

ENCLOSURE (9)

Questions concerning the disappearance of Source Material from the EURATOM safeguards control system in late 1968

1. How and when did the loss take place?

EURATOM officials indicated that in November 1968, 200 tons of natural uranium were shipped by a German firm from Antwerp by ship consigned to Genoa for ultimate non-nuclear use as a chemical catalyst in the petro-chemical industry. The natural uranium involved was from the Belgian Congo and had been bought from a firm in Belgium prior to the shipment. EURATOM security control was duly notified of the shipment in December 1968. When, after five months (as required by regulations at the time), no notification of receipt was received, an investigation was begun. The circumstances apparently involved a transfer of the material to another consignee by the ship's captain pursuant to instructions received while at sea. The ship did not call at Genoa and there were several changes in crew, ship's officers, and even ship registration around this time. When the ship next arrived at a European Community port, that portion of the ship's log covering the period in question was missing. It was concluded by EURATOM security control that the material probably had been transshipped to Israel.

2. When and how did the United States learn about it?

Representatives of the AEC, ERDA's predecessor, were orally informed of the matter on December 9, 1969, by the EURATOM representative in Washington, requesting that we treat the information as Confidential and Sensitive. It should be noted that since the material was not of US origin, EURATOM authorities really had no obligation to inform us of the matter, but did so in the spirit of cooperation which exists between EURATOM and the US. We had already been alerted to the incident and provided some of the details by way of an intelligence report received about the middle of November 1969.

3. What did the United States do about it?

a. The U.S. action was limited to expressing to EURATOM strong concern and to urging that corrective measures be taken to apply appropriate penalties against the violators.

b. Additionally, although the safeguards system had, in fact, performed its function of detecting a disappearance, the U.S. urged EURATOM to review its procedures, particularly with respect to improving the time schedule on which its safeguards function.

4. What could the United States have done about it?

Since it was an internal EURATOM matter, did not involve material of US origin, and involved only source material of relatively low strategic significance, any positive action in response to the incident did not appear appropriate. The US has worked and continues to work with EURATOM on safeguards policy and procedures with the goal of making them more effective.

5. What did Italy and/or Belgium do about it?

We have no information other than the statement that investigations were being conducted to establish a basis for possible criminal proceedings by the member states. EURATOM actions included:

a. The Commission sent letters to each of the member States proposing the development and harmonization of adequate national legislation to provide appropriate legal sanction against offenses of this sort.

b. The Commission's Legal Services examined the possibilities of legal recourse under the Treaty in this case. They concluded that such recourse was not available to the Commission. Moreover, there was a serious question based on the results of the investigation that a persuasive case could be developed against the principals identified even if legal recourse had been available under the Treaty.

c. EURATOM reviewed its regulations to determine what modifications would be appropriate to safeguard more effectively nuclear material in transit. In a related action, EURATOM requested a meeting of the US-EURATOM Joint Technical Working Group on Safeguards specifically to discuss transportation problems.

We are seeking additional information as to the final outcome and will provide anything significant to you.

6. What was the significance of the loss of such a large quantity of uranium oxide at that time?

This was the first known disappearance of tonnage quantities of safeguarded source material, but it was detected through standard follow-up procedures for such material transfers within EURATOM. The material in question was uranium oxide with an elemental uranium metal potential of about 168 tons. If the material did go to Israel as suspected, it was probably obtained for use in the nominal 26 MWt reactor at Dimona, which

is fueled with natural uranium. A single core loading requires 8-9 tons of uranium metal. Core life under normal research operation would be 2-3 years. [redacted].

It is possible that Israel, even without this shipment, would have had ample natural uranium from domestic or other sources for the operation of the Dimona reactor.

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

January 27, 1970

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Chairman Seaborg
Commissioner Ramey
Commissioner Thompson
Commissioner Johnson
Commissioner Larson

IRREGULARITIES IN TRANSFER OF NATURAL URANIUM

Attached is a memorandum to the files reporting on conversations in Brussels with individuals who provided additional information on the disappearance of natural uranium of Belgian origin. This matter was reported to you originally by my memorandum of December 23, 1969.

Myron B. Kratzer
Assistant General Manager for
International Activities

Attachment:
Memorandum to the files, 1/27/70

cc: Mr. Hollingsworth, GM
Dr. Reichardt, D/I
Mr. Crowson, D/SMM

464

GROUP 1
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January 27, 1970

Within

To the Files

On January 15th, I had discussions with Mr. Willi Schlieder concerning the disappearance of 200 tons of Euratom natural uranium. These discussions were undertaken at the direct authorization of Commissioner Haferkamp, who informed me earlier in the day, immediately before leaving the city, that he had asked Schlieder to provide me with all possible information on this subject.

On January 16th further discussion, including both Schlieder and Mr. Jacchia, Director of Safeguards for Euratom, was held on this subject.

Most of the information obtained during these discussions was by way of confirmation of that already received. However, the following additional details came up:

1. Schlieder offered to supply the names of all firms involved in the arrangements. The names which he provided confirmed the identifications previously obtained through intelligence sources.

2. The shipment which led to the disappearance of the material took place in 1968. Before this time, however, the Belgian shipper had consulted with Euratom's Supply Agency concerning an export license to a Moroccan firm and had been discouraged as to the possibility of obtaining such a license on the ground that the export of material to Morocco would not be in the best interest of Euratom and its Member States. Thereafter, the firm developed the arrangement for processing of the material in Italy, which, since it did not involve an export from the Community, was approved. Schlieder did not clarify whether, in connection with their application for this transfer, the Belgian firm had identified that the material, after treatment, would be reexported to Morocco.

3. The Italian firm which was to have converted the material to a catalyst form has close business connections with the Belgian firm. Schlieder stated that while nothing could be proved, it is his opinion that the Belgian firm might not have been entirely innocent of the ultimate destination of the material. He also noted that the Italian firm concerned had, in fact, never produced catalyst of the type which was supposed to be produced in this instance.

4. On the question of the actual destination of the material, Schlieder said that while they had no documentary evidence, they had essentially no doubt that the material had been delivered to Israel, although he was still unable to disclose to us all of their basis for reaching this conclusion. He did, however, make several interesting observations which at least partially answered this question, although there is apparently evidence of a more specific nature that he was not free to disclose:

a. The German firm which purchased the material for transfer to Italy and subsequent sale to a Moroccan company was owned by a Jewish family. Schlieder said that the owners were elderly people who quite possibly genuinely did not understand the significance of what they had done.

b. Schlieder said Commissioner Haferkamp had recently been informed by a high official in the Cabinet of Chancellor Willy Brandt that an Embassy representative in Bonn had called upon this official and asked whether it would be possible for Euratom to be called off from its continuing investigation of this matter. Schlieder said that while he was not so informed by Haferkamp, he had good reason to know that the Ambassador in question was the Israeli Ambassador.

c. Some time after the disappearance, and after Euratom investigations had begun, Commissioner Haferkamp received a call which he referred to Schlieder, from a German attorney in Wiesbaden whose name was Von Preusschen, who stated that while he would like to provide information on the whereabouts of the material, his principals felt that it was unwise to do so because of the possibility of a leak of the information. Nevertheless, he did want to provide assurances (a) that the material was not in Eastern Europe, and (b) that it was being used only for peaceful uses of atomic energy. Schlieder said that he attempted to persuade this attorney to go beyond his statements and disclose the whereabouts of the material by assuring him that Euratom had tight security control of sensitive information. (In the course of describing this, Schlieder explained to me for the first time that Euratom has a classification and security system for sensitive information to which only a few personnel, including Euratom inspectors, have access). He said that this security and classification system is normally employed only for classified patent applications disclosed to Euratom and for information from France

regarding the amount of material withdrawn from Euratom safeguards control for the French military program. He said that for this reason, Euratom safeguards records at Luxembourg were under a tight security control under the supervision not only of Euratom itself but of the French Deuxieme Bureau. However, although the attorney stated that he would consider this matter and return in a week to provide the additional information on the whereabouts of the material, he has never done so. Schlieder said that he had the impression, but was not certain that the attorney might also be Jewish.

5. Schlieder said that a further attempt to divert material was made in July 1969. This involved 232 kilograms of natural uranium bought by the same German firm from Nukem. The transfer was quickly identified by the Euratom safeguards staff and an investigation of it was immediately undertaken. According to Jacchia, in the course of this investigation which he participated in personally, "pressure" - including threats of imprisonment - which was not strictly legal, was brought on the owner of the firm. The owner became extremely emotional and concerned, and promised to return the material within three days and did so. Euratom believes that this material had actually left the country and had been returned. We discussed the obvious point that, after the successful diversion of 200 tons of material, the diversion of an additional 232 kilograms made no sense. While agreeing that this was so, Euratom had no explanation for the matter.

6. The Belgian owners of the 200 tons of uranium have a total quantity of approximately 4,000 tons on hand, representing the final production of their mine in the Belgian Congo, which was not purchased by the United States. This figure is commercially secret information which the firm involved considers extremely sensitive, since they believe knowledge of it might have an effect on the market price of uranium in Europe.

7. Schlieder said that Euratom has been searching assiduously for a means to apply sanctions, i.e., penalties to those responsible for the diversion but that they so far had been unable to do so. He explained that, in general, while Euratom had the responsibility for the operation of a safeguards system for the detection of diversion, the responsibility for criminal penalties against violators rested with the national governments. He made a point of noting that a similar situation applies as well to the IAEA. Moreover,

he said that the disappearance had been extremely cleverly planned for a period of more than a year before it actually was executed and that they faced the problem of lack of proof that any of the parties under Euratom jurisdiction were implicated in the ultimate diversion of the material. He also pointed out that the key parties in the diversion of the material were German nationals and that he regarded this as a deliberate element of the plant, since politically, it would be very difficult for Germany to take official action against Israel. He made this comment in response to my question as to whether the German Government should not consider whether, notwithstanding whether it had legally adequate proof, it should protest to the Israeli Government an obvious attempt to circumvent the spirit of German and Euratom laws and policies.

8. Notwithstanding the difficulties they are encountering on finding a basis for the application of penalties, Haferkamp is still anxious that there be some official action taken on this case. (While Haferkamp might hold this view, I got the distinct impression that it was not shared by the German Government.) In the meantime, Euratom, even though it has no charter to do so, is taking the initiative in working with the Member States to develop new criminal statutes and penalties for handling instances of this type. This is in addition to steps they have already taken with respect to tightening regulation for the transportation of material.

9. Schlieder and Jacchia also stressed, as they have in other conversations, that knowledge of this diversion and the investigative steps that followed came about only as a result of Euratom's safeguards systems, which had therefore accomplished its primary function of detecting diversions. Jacchia said that the investigations carried out by Euratom, which of course has no intelligence service as such, were extremely exhaustive and went well beyond, in many respects, Euratom's strictly legal powers.

Myron B. Kratzer

Myron B. Kratzer
Assistant General Manager for
International Activities

This document consists of 4 pages
No. 1 of 1 Copies, Series TSH

December 23, 1969

Chairman Seaborg
Commissioner Ramey
Commissioner Thompson
Commissioner Johnson
Commissioner Larson

IRREGULARITIES IN TRANSFER OF NATURAL URANIUM

Attached is a report from our Brussels office providing further details on the disappearance of natural uranium of Belgian origin which was reported to the Commission on December 12.

Original signed by
Myron B. Kratzer

Myron B. Kratzer
Assistant General Manager
for International Activities

Attachment:
Bradley ltr to Kratzer
dtd December 19, 1969

cc:
Mr. Hollingsworth, GM
Dr. Reichardt, Dir., I
Brig. Gen. Crowson, Dir., [illegible]

DIST: Chairman Seaborg, CY 1A
Commissioner Ramey, CY 2A
Commissioner Thompson, CY 3A
Commissioner Johnson, CY 4A
Commissioner Larson, CY 5A
Mr. Hollingsworth, CY 6A
Dr. Reichardt, CY 7A
Brig. Gen. Crowson, CY 8A

This material contains information affecting the [illegible]

OFFICE ▶	MBKRATZER/dms				
SURNAME ▶	AGMIA - CY	9A			
DATE ▶	12/ /69				

BRUSSELS OF CREDIT
U. S. ATOMIC ENERGY COMMISSION
U.S. MISSION TO THE EUROPEAN COMMUNITIES
23, AVENUE DES ARTS
BRUSSELS, BELGIUM

December 19, 1969

with

Mr. Myron B. Kratzer
Assistant General Manager
for International Activities
U. S. Atomic Energy Commission
Washington, D. C. 20545

LIMITED DISTRIBUTION

Dear Myron:

On December 18 Robert Kaufman and I met with W. Schlieder, Commissioner Haferkamp's Chef de Cabinet, in response to his expressed willingness to elaborate on the details of the illegal disposition of natural uranium which was of Belgium origin. Mr. Schlieder indicated that, the material being of non-U.S. origin, Euratom was under no obligation to make disclosures of this case. However, in a spirit of cooperation for which there existed a long history of working closely together on matters pertaining to the development and implementation of effective controls for nuclear materials, the European Commission wanted its U.S. counterpart to have the benefit of its experience in this case, recognizing that the incident could have occurred any place, including the U.S. Euratom is taking steps promptly which it hopes will minimize the probability of a recurrence of this sort. In this connection, Euratom hopes it can count on cooperation with the U.S. in assessing the problems associated with safeguarding nuclear materials in transit. The objective would be to modify existing Community regulations on these matters, particularly as they pertain to source material. Mr. Schlieder stressed that while in this frame of reference Commissioner Haferkamp was prepared to discuss this particular case with the U.S. Government, he must insist that it proceed under a cloak of strictest secrecy due to the highly sensitive problems in the case.

As to the details of the case which Mr. Schlieder revealed:

1. The natural uranium came from the stockpile of Societe Generale Miniere (SGM), a Belgian firm which has been a uranium supplier for many years. In accordance with the Community regulation, SGM filed an appropriate report of the shipment with Euratom. This regulation also stipulates that the consignee will file a report on receipt of the material within

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five months of the date of its shipment. The absence of this report on the required time schedule is what triggered an inquiry by Euratom's safeguards group and its subsequent investigation upon learning that the material had not arrived at its intended destination.

2. The material was ordered by a German firm (Schlieder did not identify) who was acting as an agent for another party, reportedly a petroleum processor in Morocco. The latter is of such meager holdings that it seems unlikely it was being purchased for its own use. The German firm had been viewed as a reputable one, at least up to about one year ago when it was dropped as a NATO contractor. The material was consigned to an Italian firm in Milan for processing. This firm has a business affiliation with SCM.

3. SCM had received an export license from the Belgian Government and had evidence that Italy had issued an import license. Moreover, SCM received payment for the material from a Swiss bank prior to actual shipment of the material. The transport of the material to Antwerp was arranged by SCM with, according to Schlieder, a very reputable firm.

4. The consignor, the German firm ordering the material, reportedly received specific shipping instructions including the necessary paper work from the party on whose behalf they were acting. These instructions stipulated that the material would be taken aboard a German ship at Antwerp which was enroute to that port from Hamburg. Euratom learned that ownership of this vessel changed hands while it was enroute from Hamburg to Antwerp and that within one hour after its arrival in Antwerp its registry was changed and it went under a Liberian flag. Moreover, there was a complete change of crew shortly upon its arrival in Antwerp. The new captain requested labels on the shipping drums which simply indicated that the contained material was said to be chemicals.

5. When this ship next made call at a Community port it was returning from Romania and had still a different crew. That portion of the ship's log covering its earlier trip from Antwerp was missing.

6. Early in its investigation Euratom called in the Ambassadors from Belgium, Italy and W. Germany and solicited their help in uncovering the facts of this case. Schlieder at one point indicated the Dutch Government was quite concerned about a leak in this case which was the only indication that another Member State had been brought in on the case. This apparently resulted from the fact that the ship made a call at a Dutch port after leaving Antwerp.

7. In an effort to avoid a recurrence of a situation of this type Euratom is taking the following action:

   a. The Commission has approved sending letters to each of the Member States proposing the development and harmonization of adequate national legislation to provide appropriate legal sanctions against offenses of this sort.

   b. The Commission's Legal Service has been examining the possibilities of legal recourse under the Treaty for the current case and its decision is expected soon. However, the results to date are not encouraging that such recourse is available to the Commission. Moreover, there is serious question based on the investigation to date that a persuasive case could be developed against the principals identified thus far even if legal recourse were available under the Treaty.

   c. Euratom has its regulations under review to determine what modifications may be appropriate to more effectively safeguard nuclear material in transit. In a related action, Euratom has requested a meeting of the U.S.-Euratom Joint Technical Working Group on Safeguards to discuss transportation problems. Euratom representatives would hope to be prepared for such a meeting by mid-January.

   d. Schlieder promised to keep us advised of any further developments in this case including any legal actions which the Commission or any Member States may undertake. At the moment it would appear that the greatest possibility for such action rests with the FRG, but it will be very difficult for the German Government to decide on specific action, if any, to take in view of the apparently deficient juridical basis and factual evidence on which to institute criminal legal proceedings. Moreover, there are serious political implications which could arise vis-a-vis the Soviets and Arab states in this situation.

Sincerely,

R. Glenn Bradley
Senior AEC Representative

P.S. Schlieder requested we avoid other closely [illegible] letting anyone know that [illegible] [illegible] [illegible].

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

DEC 11 1973

Chairman Seaborg
Commissioner Ramey
Commissioner Johnson
Commissioner Thompson
Commissioner Larson

THRU: Howard C. Brown, Jr.
General Manager

LOSS OF EURATOM SOURCE MATERIAL

In response to his request for an opportunity to brief the writers regarding a Euratom safeguards matter, Mr. Curt Heidenreich, Washington representative of Euratom, met with Myron Kratzer and Leonard Brenner (representing Delmar Crowson) at H Street on December 9. Mr. Heidenreich, Director, Commission of European Communities Washington Liaison Office, was accompanied by Mr. Felix Oboussier, Chief, Division of General Affairs and Internal Administration, Supply Agency, Commission of the European Communities, who was in Washington on other business. Mr. Heidenreich stated that he was under instructions to report to us on this matter from Commissioner Haferkamp, who is responsible for safeguards in the European Community Commission.

Mr. Heidenreich reported that 200 tons of source material (natural uranium) were shipped by boat from Antwerp to Genoa for ultimate non-nuclear use (chemical catalyst in the petro chemical industry) in Italy. The contract involved source material from the Belgian Congo, then located in Belgium. U.S. material was not involved. He added that Euratom safeguards personnel, in the normal course of their function, attempted to verify receipt of the shipment by the consignee in Italy and found it had not arrived. Euratom thus feels that the detection of the loss and possible diversion has been a significant demonstration of the effectiveness of their safeguard system, whose objective is to detect diversion since the loss might not otherwise have been discovered.

An investigation was initiated and is still in process by Euratom and its Member States. Heidenreich stated that Euratom would have preferred to advise us of the loss earlier, but was requested to withhold notification by its Member States pending completion of investigation. They have now decided to inform us, but requested that we treat the entire matter as sensitive and confidential. He also stated that if the loss had involved U.S. material, the U.S. would have been notified at once. Heidenreich indicated that we were under no restriction as to whom this information could be made available on a confidential basis, including the JCAE.

This [illegible] contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

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GROUP 3
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8289

Before the
UNITED STATES
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD
Washington, D.C. 20555

In the Matter of	)	
	)	
UNITED STATES DEPARTMENT OF ENERGY	)	
PROJECT MANAGEMENT CORPORATION	)	Docket No. 50-537
TENNESSEE VALLEY AUTHORITY	)	
	)	
(Clinch River Breeder Reactor Plant)	)	
	)	

OBJECTION TO INTERROGATORY 3(a)

Intervenors object to that part of Interrogatory 3(a) which asks that they "explain . . . the actions NRDC believes must be taken to adequately address the effects of sabotage, terrorism and theft directed against the CRBR." This question is irrelevant, and, further, seeks to elicit an opinion, rather than factual information.

Respectfully submitted,

Eldon V. C. Greenberg
TUTTLE & TAYLOR
1901 L Street, ~~N.W.~~
Washington, D.C. 20035
(202) 861-0666

Dated: March 29, 1982
Washington, D.C.

Before the
UNITED STATES
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD
Washington, D.C. 20555

In the Matter of UNITED STATES DEPARTMENT OF ENERGY PROJECT MANAGEMENT CORPORATION TENNESSEE VALLEY AUTHORITY (Clinch River Breeder Reactor Plant	)	Docket No. 50-537

AFFIDAVIT OF DR. THOMAS B. COCHRAN

I, Dr. Thomas B. Cochran, being duly sworn, depose and say:

1. I am employed as a Senior Staff Scientist by the Natural Resources Defense Council, Inc., and, as such, I am duly authorized to execute the foregoing answers to interrogatories.

2. The foregoing answers are true and correct to the best of my knowledge and belief.

Dr. Thomas B. Cochran

SUBSCRIBED and SWORN to before me
this 22nd day of April, 1982.

Notary Public

My Commission Expires April 14, 1982

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing ANSWERS AND OBJECTIONS OF INTERVENORS, NATURAL RESOURCES DEFENSE COUNCIL, INC. AND THE SIERRA CLUB, TO NRC STAFF'S FIFTH SET OF INTERROGATORIES TO NRDC was delivered by hand this 29th day of March 1982 to:

Daniel Swanson, Esquire
Stuart Treby, Esquire
Bradley W. Jones, Esquire
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U.S. Nuclear Regulatory Commission
Maryland National Bank Building
7735 Old Georgetown Road
Bethesda, Maryland 20814

R. Tenney Johnson, Esquire
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U.S. Department of Energy
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Washington, D.C. 20585

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Thomas A. Schmutz, Esquire
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And by mail, postage prepaid, to the following:

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Bethesda, Maryland 20814

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Office of the Secretary
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Lawson McGhee Public Library
500 West Church Street
Knoxville, Tennessee 37902

William E. Lantrip, Esquire
City Attorney
Municipal Building
P.O. Box 1
Oak Ridge, Tennessee 37830

Oak Ridge Public Library
Civic Center
Oak Ridge, Tennessee 37820

Mr. Joe H. Walker
401 Roane Street
Harriman, Tennessee 37748

Commissioner James Cotham
Tennessee Department of Economic
and Community Development
Andrew Jackson Building, Sutie 1007
Nashville, Tennessee 32219

Eldon V. C. Greenberg