



OFFICE OF THE
CHAIRMAN

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

August 30, 1978

Distribution:
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EDO 4261
HDenton
Millie Groff
DRMuller
ECase
RDeYoung
SECY 78-1104

Mr. S. David Freeman
Chairman
Tennessee Valley Authority
Knoxville, Tennessee 37902

Dear Mr. Freeman: *David*

I welcome your letter of July 27, 1978 in which you discuss the feasibility analysis that TVA is planning for the utilization of waste heat from the Watts Bar Nuclear Power Plant. This use of waste heat for an industrial and residential park is an application that, as you suggest, may be a useful approach to save at least some energy that would be otherwise wasted.

The Nuclear Regulatory Commission's regulations do not have any specific requirements that would preclude the contemplated use of waste heat that you are proposing. Of course, any such activity must be conducted within the framework of applicable regulations to assure the public health and safety and to assess environmental impacts that may be associated with such activities and, accordingly, may be subject to review by the NRC.

The NRC has encouraged the development of methods that would utilize waste heat, in keeping with the national policy of energy conservation, by cosponsoring an International Conference On Waste Management and Utilization in 1976. Also, NRC staff will participate in the forthcoming Edison Power Research Institute/Tennessee Valley Authority Workshop on "Factors Affecting Power Plant Waste Heat Utilization" November 29, 1978, at Atlanta, Georgia.

We agree that it is constructive to view waste heat as a potentially marketable commodity. It is certainly within the range of current engineering capability to design and build systems that would utilize the heated water normally discharged from nuclear reactors. Thus far, no applicant has submitted a proposal for such usage as part of a reactor license application, nor are we aware of any proposal to purchase this "commodity" from a nuclear utility. One of the principal reasons for the absence of heat utilization applications is the question of economic feasibility.

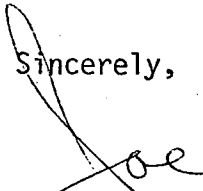
MA 4
SD

Mr. S. David Freeman

- 2 -

We would be glad to meet with representatives of your staff to discuss this subject and any limitations that might result from our regulations. I suggest that your representative contact Richard DeYoung, Director, Division of Site Safety and Environmental Analysis (301/492-7017). He will be pleased to arrange a mutually acceptable meeting time, place and agenda.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. Hendrie", written over a large, loopy flourish that extends upwards and to the left.

Joseph M. Hendrie
Chairman

AUG 18 1978

not reproduced

For: The Commissioners

From: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Thru: Executive Director for Operations (Signed) Lee V. Gossick

Subject: PROPOSED LETTER TO CHAIRMAN S. DAVID FREEMAN,
TENNESSEE VALLEY AUTHORITY [redacted]

Purpose: Approval of letter responding to S. David Freeman's letter concerning arrangements for a meeting to discuss the use of waste heat from TVA nuclear power plants.

Discussion: Incoming letter and the suggested response are self-explanatory.

Recommendation: That the Commission review and approve the draft letter prepared by the staff.

Coordination: The Office of the Executive Legal Director has concurred in the paper.

S
Harold R. Denton, Director
Office of Nuclear Reactor Regulation

- Enclosures:
1. Proposed Response
 2. Ltr from S. David Freeman
dtd 7/27/78

Contact:
D. R. Muller, DSE
49297017

MJM 8/10/78
DMC 8/10/78

OFFICE →	DSE	OELD	NRR	EDO		
SURNAME →	DRM Muller:af	Denton	HR Denton	[Signature]		
DATE →	8/8/78	8/9/78	8/11/78	8/10/78		

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



OFFICE OF THE
CHAIRMAN

Mr. S. David Freeman
Chairman
Tennessee Valley Authority
Knoxville, Tennessee

Dear Mr. Freeman:

Your letter of July 27, 1978, in which you discuss the feasibility analysis that TVA is planning for the utilization of waste heat from the Watts Bar Nuclear Power Plant for an industrial and residential park is an application that, as you suggest, may be a useful approach to save at least some energy that would be otherwise wasted.

The Nuclear Regulatory Commission's regulations do not have any specific requirements that would preclude the contemplated use of waste heat that you are proposing; however, any such activity must be conducted within the framework of applicable regulations and would be subject to review by the NRC to assure the public health and safety and to assess environmental impacts that may be associated with such activities.

The NRC has encouraged the development of methods that would utilize this waste heat in keeping with the national policy of energy conservation by cosponsoring an international conference on waste heat management and utilization in 1976, and by NRC staff participation in the upcoming Edison Power Research Institute/Tennessee Valley Authority Workshop on "Factors Affecting Power Plant Waste Heat Utilization" November 29, 1978, Atlanta, Georgia.

We agree that it is constructive to view waste heat as a potentially marketable commodity. It is certainly within the range of current engineering capability to design and build systems that would utilize the heated water normally discharged from nuclear reactors. Thus far, no applicant has submitted a proposal for such usage as part of a reactor license application, nor are we aware of any proposal to purchase this "commodity" from a nuclear utility. One of the principal reasons for the absence of heat utilization applications is the current status of economic feasibility.

^{Mr.}
~~The~~ Honorable S. David Freeman - 2 -

We would be glad to meet with representatives of your staff to discuss this subject and any limitations that might result from our regulations. I suggest that your representative contact Daniel R. Muller, Acting Director, Division of Site Safety and Environmental Analysis (301-492-7017). He will be pleased to arrange a mutually acceptable meeting time, place and agenda.

Sincerely,

Joseph M. Hendrie
Chairman

OFFICE >						
SURNAME >						
DATE >						

MISSISSIPPI VALLEY AUTHORITY
KNOXVILLE, TENNESSEE

July 27, 1978

OFFICE OF THE BOARD OF DIRECTORS

Mr. Joseph M. Hendrie, Chairman
Nuclear Regulatory Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Hendrie:

USE OF WASTE HEAT FROM TVA NUCLEAR POWER PLANTS

Over the past several years, TVA has been deeply involved in developing methods for utilizing power plant waste heat. By the mid-1980's, the TVA electric power generation program will be producing approximately 10^{15} Btu's per year of waste heat. If only one-tenth of this energy could be used, the energy-equivalent savings could be 160 million barrels of crude oil per annum.

Nuclear power plants are especially attractive as potential sites for commercial usage of waste heat because of the quality of the waste heat, the reliability of supply, and the large quantity of heat available in areas of good environmental quality. For these and other reasons, TVA is conducting a feasibility analysis for a waste heat industrial and residential park at the Watts Bar Nuclear Plant near Spring City, Tennessee.

As you are aware, there are several regulatory questions which must be addressed in regard to developing waste heat parks at nuclear facilities. We will be addressing these questions over the next six months, and we would like to work closely with NRC staff members to ensure adequate coverage of all factors. The purpose of this letter is to inform you of the Watts Bar waste heat utilization program and to elicit your interest, cooperation, and support of the effort. We would like to set up a meeting with members of your staff in the near future to discuss how NRC can aid us in this most important endeavor.

Sincerely yours,



S. David Freeman
Chairman

FROM: Tennessee Valley Authority S. David Kresson, Chairman		ACTION CONTROL	DATES	CONTROL NO.
TO: Chairman Kresson		COMPL DEADLINE	6/11/78	04261
DESCRIPTION <input type="checkbox"/> LETTER <input type="checkbox"/> MEMO <input type="checkbox"/> REPORT <input type="checkbox"/> OTHER		ACKNOWLEDGMENT		DATE OF DOCUMENT
Key meeting with staff to discuss support and assistance in a better air waste heat utilization program		INTERIM REPLY		7/27/78
CLASSIFIED DATA		FINAL REPLY	5/11/78	PREPARE FOR SIGNATURE OF:
DOCUMENT/COPY NO.		FILE LOCATION	5/30/78	<input checked="" type="checkbox"/> CHAIRMAN
NUMBER OF PAGES		SPECIAL INSTRUCTIONS OR REMARKS		
POSTAL REGISTRY NO.		Incoming and reply to be put in PMS simultaneously		
ASSIGNED TO:		LEGAL REVIEW		<input type="checkbox"/> FINAL <input type="checkbox"/> COPY
DATE	6/11/78	ASSIGNED TO:	DATE	<input type="checkbox"/> NO LEGAL OBJECTIONS NOTIFY:
				<input type="checkbox"/> EDO ADMIN & CORRES BR
				EXT.
				COMMENTS, NOTIFY:
				EXT.
		EAC Notification Recommended: <input type="checkbox"/> YES <input type="checkbox"/> NO		

FROM: Tennessee Valley Authority S. Curtis Freeman, Chairman		ACTION CONTROL		DATES		CONTROL NO. 04261	
TO: Chairman		COMPL. DEADLINE		7/11/79		DATE OF DOCUMENT	
		ACKNOWLEDGMENT				7/12/79	
		INTERIM REPLY					
		FINAL REPLY				PREPARE FOR SIGNATURE OF:	
DESCRIPTION <input type="checkbox"/> LETTER <input type="checkbox"/> MEMO <input type="checkbox"/> REPORT <input type="checkbox"/> OTHER		FILE LOCATION				<input checked="" type="checkbox"/> CHAIRMAN	
						<input type="checkbox"/> EXECUTIVE DIRECTOR	
				OTHER: Chairman			
DESCRIPTION <input type="checkbox"/> LETTER <input type="checkbox"/> MEMO <input type="checkbox"/> REPORT <input type="checkbox"/> OTHER Day meeting with staff to discuss report and assistance in a water bar waste heat utilization program.		SPECIAL INSTRUCTIONS OR REMARKS Incoming and reply to be put in file simultaneously.					
CLASSIFIED DATA							
DOCUMENT/COPY NO.		CLASSIFICATION					
NUMBER OF PAGES		CATEGORY					
POSTAL REGISTRY NO.		<input type="checkbox"/> NSI <input type="checkbox"/> RD <input type="checkbox"/> FRD					
ASSIGNED TO:		DATE		INFORMATION ROUTING		LEGAL REVIEW	
S. C. Freeman		7/11/79		Asst. Dir. Oper. Plans		<input type="checkbox"/> FINAL <input type="checkbox"/> COPY	
						NO LEGAL OBJECTIONS NOTIFY:	
						<input type="checkbox"/> EDO ADMIN & CORRES BR	
						EXT. _____	
						COMMENTS, NOTIFY:	
						EXT. _____	
						JCAE NOTIFICATION RECOMMENDED: <input type="checkbox"/> YES <input type="checkbox"/> NO	

FROM: Tennessee Safety Authority G. Dale Freeman, Chairman		ACTION CONTROL		DATES		CONTROL NO. 04261	
TO: Chairman's Office		COMPL DEADLINE		7/11/75		DATE OF DOCUMENT	
		ACKNOWLEDGMENT				7/21/75	
		INTERIM REPLY					
		FINAL REPLY				PREPARE FOR SIGNATURE OF:	
DESCRIPTION <input type="checkbox"/> LETTER <input type="checkbox"/> MEMO <input type="checkbox"/> REPORT <input type="checkbox"/> OTHER		FILE LOCATION				<input checked="" type="checkbox"/> CHAIRMAN	
						<input type="checkbox"/> EXECUTIVE DIRECTOR	
				OTHER: <u>Robert</u>			
DESCRIPTION <input type="checkbox"/> LETTER <input type="checkbox"/> MEMO <input type="checkbox"/> REPORT <input type="checkbox"/> OTHER		SPECIAL INSTRUCTIONS OR REMARKS					
New meeting with staff to discuss support and assistance in a letter for state health education program		Incoming and reply to be put in for simultaneous					
CLASSIFIED DATA							
DOCUMENT/COPY NO:		CLASSIFICATION					
NUMBER OF PAGES		CATEGORY					
POSTAL REGISTRY NO.		<input type="checkbox"/> NSI <input type="checkbox"/> RD <input type="checkbox"/> FRD					
ASSIGNED TO:		DATE		INFORMATION ROUTING		LEGAL REVIEW <input type="checkbox"/> FINAL <input type="checkbox"/> COPY	
Robert		7/21/75		District Director		ASSIGNED TO: DATE	
						NO LEGAL OBJECTIONS NOTIFY:	
						<input type="checkbox"/> EDO ADMIN & CORRES BR	
						EXT. _____	
						COMMENTS, NOTIFY:	
						EXT. _____	
						JCAE NOTIFICATION RECOMMENDED: <input type="checkbox"/> YES <input type="checkbox"/> NO	

No. 1104

Logging Date 7/2/78

NRC SECRETARIAT

TO: Commissioner _____ Date _____
 Exec. Dir./Oper. _____ Gen. Counsel _____
 Cong. Liaison _____ Solicitor _____
 Public Affairs _____ Secretary _____

Incoming: S. David Freeman
From: Tennessee Valley Authority

To: Hendrie Date 7/27/78
Subject: Use of waste heat from TVA ~~nuclear~~
nuclear power plants

Prepare reply for signature of:
 Chairman _____
 Commissioner _____
 EDO, GC, CL, SOL, PA, SECY _____
 Signature block omitted _____

 Return original of incoming with response

~~For direct reply~~ * Susp. Aug. 11

For appropriate action
 For information
 For recommendation

Rec'd Off. EDO
Date 8/3/78
Time 12:45

Remarks: Cy s to: RF

For the Commission: DAVIS

*Send three (3) copies of reply to Secy Mail Facility

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE

July 27, 1978

OFFICE OF THE BOARD OF DIRECTORS

Mr. Joseph M. Hendrie, Chairman
Nuclear Regulatory Commission
U.S. Nuclear Regulatory Commission
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S. David Freeman
Chairman