

**TORREY PINES TECHNOLOGY**

P.O. Box 85608
San Diego, California 92138
Telephone: (619) 455-2654

A Division of **GA Technologies Inc.**

March 18, 1983

TPT:CG&E-001

PRINCIPAL STAFF	
RA	Lee
D/RA	ECG
A/RA	PAC
DPRP	SLO
DRMA	RC
DRMSP	
DE	
ML	
OL	FILE

Long + 3

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Mr. W. H. Dickhoner
President and Chief Executive Officer
Cincinnati Gas and Electric Company
139 East Fourth Street
Cincinnati, Ohio 45202

Dear Mr. Dickhoner:

Torrey Pines Technology (TPT) is pleased to provide the enclosed responses to NRC's request for additional information on TPT's proposal for independent review of Zimmer 1 NPS Project Management.

Please contact me at (619) 455-2580 or George Wessman (619) 455-2654 if you have any questions concerning these responses.

Sincerely,

A. J. Neylan
Project Manager

Copy: Mr. J. G. Keppler - NRC

DESIGNATED ORIGINAL
Certified By *L. E. Spedden*

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RESPONSE TO NRC'S REQUEST FOR
ADDITIONAL INFORMATION

ANSWERS TO QUESTION NO. 1

The scope of work in each of the recently completed independent design and construction reviews of four nuclear plants (San Onofre, Palo Verde, Shoreham, and Waterford) is given below.

San Onofre

Torrey Pines Technology (TPT), a division of GA Technologies, Inc. (GA) was engaged by Southern California Edison Company (SCE) to conduct an independent review of the seismic design for SCE's San Onofre Units 2 and 3, including an assessment of the effectiveness of the quality assurance program for design.

The program was structured to verify that the design process adequately converted the seismic design basis specified in the Final Safety Analysis Report (FSAR) into the design documents that were transmitted to the constructor or the fabricator. All procedures used in the design process were reviewed to determine that the basic process was adequate. A selection of points was reviewed to ensure that the procedures were indeed implemented as they should have been. Finally, a selection of design documents, which are the products of the design process, was technically reviewed. This entire program, taken together, gave a discerning basis on which the adequacy of the seismic design was judged.

Two aspects of the construction process were also reviewed. The plan for field audits and the as-built configuration of a segment of pipe were reviewed.

In this program, 40 manuals and 2100 documents were reviewed, and some 33,000 checks were made of procedural implementation. Over a four-month period, approximately 177 man-months were applied to this program.

Palo Verde

TPT was engaged by Arizona Public Service Company (APS) to conduct an independent quality assurance evaluation of the Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2 and 3 in the areas of organization, management, quality assurance, design, and construction activities.

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The program was structured to evaluate whether the APS nuclear project management organization, policies and quality assurance program have been adequately and appropriately structured, organized and implemented, from project organization to fabrication and construction, to assure that the high quality standards expected of nuclear power plant design and construction have been met. The review effort included technical review of selected safety-related features and physical verification of selected construction and installation details. All work was done in accordance with a program plan which was prepared early in the program and approved by the Nuclear Regulatory Commission (NRC).

The program reviewed the activities of APS, Bechtel Power Corporation (BPC) and Combustion Engineering Corporation (C-E). Over 1500 documents were reviewed, and over 15,000 checks were made of procedural implementation. Over a six-month period, approximately 102 man-months of effort were applied to this program.

Shoreham

TPT was engaged by Long Island Lighting Company (LILCO) to conduct an independent review of the construction of LILCO's Shoreham Nuclear Power Station. The review, conducted May through September 1982, reviewed the complete construction process beginning with procurement of items according to design requirements (the design requirements were assumed to be adequate for purposes of this review) and traced the activity through final construction inspection and turnover to startup. The review also included an assessment of the effectiveness of the quality assurance (QA) program for construction (those actions taken during the construction phase to ensure a product of adequate quality).

The program was structured to determine whether the construction process converted the specified design requirements into sound plant systems. Procedures used in the construction process were reviewed to determine if the basic process was adequate. A selection of specific components was reviewed to ensure that the procedures were indeed implemented as they should have been. Finally, a selection of hardware and systems that are the products of the construction process was physically inspected to determine if the product as constructed met design requirements. The entire program taken together provided a discerning basis on which to judge the adequacy of construction.

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An on-site contingent of 60 engineers and technicians applied more than 33,000 manhours to this program during a four-month period. The program included reviewing more than 11,000 documents, inspecting more than 6000 components and structures, and checking about 150,000 documentation and hardware particulars (individual facts, points, circumstances, or details).

Waterford

TPT was engaged by Louisiana Power and Light (LP&L) to conduct an independent design review of the Emergency Feedwater (EFW) System for the Waterford 3 Steam Electric Station (Waterford 3 SES).

The program was structured to evaluate if the design control process for the EFW system was adequate and properly converted the design basis specified in the FSAR into a design that meets requirements. The review included the selection of a portion of the EFW installation to verify the construction conforms to the requirements of the design drawings and specifications.

The review established the associated design activities of LP&L, Ebasco Services Incorporation (Ebasco), Combustion Engineering Corporation (CE), Dravo and Bergen-Paterson (B-P). Over 660 documents were reviewed, and over 2300 checks were made of procedural implementation. The program involved 38 man-months effort for a period of six months.

In addition to the foregoing recent independent reviews, GA has direct construction project management experience with a number of types of nuclear facilities. As a division of GA, TPT will utilize the corporate resources developed on the projects as appropriate.

Fort St. Vrain

GA was responsible for overall management of the construction of the 330 MW Fort St. Vrain nuclear power plant, provided to Public Service of Colorado on a turnkey basis. Responsibilities included design, licensing, construction, A/E and constructor interfacing and control, preoperational testing, and cost and schedule control on the plant.

TRIGA Research Reactors

GA has supervised construction and initial startup of over 80 TRIGA research reactors around the world.

Nuclear Fuel Fabrication Facility

GA managed the design, construction, startup, and current operation of the HTGR fuel fabrication facility on GA's San Diego site.

Personnel

GA personnel have experience in various phases of design, construction, licensing, startup, and operation of numerous domestic and military nuclear power facilities.

ANSWER TO QUESTION NO. 2

A quality assurance program document (QAPD) will be prepared specifically for this TPT project to define the quality assurance program for the project. It will identify the organizational structure and key personnel and identify the interface between TPT and CG&E.

The QAPD will define how the NRC-approved GA QA manual is applied for this TPT project. Elements of the GA QA manual and cross references to 10CFR50 Appendix "B" will be identified. Requirements for instructions and procedures, document control, audits, control of nonconformance, corrective action and QA records will be specified.

ANSWER TO QUESTION NO. 3

The proposal statement that less than \$100,000 annual revenue had been received over the past two years was based on the fact that no significant revenues had been identified at the time of the proposal. A detailed review of financial records since the proposal has shown that zero revenue was received by GA from CG&E, Columbus & Southern Ohio Electric Company, Dayton Power & Light, Sargent and Lundy, or Kaiser. Revenues of \$102,700 were received from General Electric Company in 1981 for fabrication of a demineralizer vessel that was not for the Zimmer project. 1982 revenue from General Electric was zero.

GA has not been able to identify any contacts with any companies relating to the Zimmer project over the life of the Zimmer project other than the general marketing contacts to present our engineering service capabilities that were described in the proposal. A general presentation on radiation monitoring systems was made to S&L in the 1977 timeframe. However, this was not specific for Zimmer, nor did it result in a request for bid on the Zimmer project.

ANSWER TO QUESTION NO. 4

An example of the statement of independence that each individual involved on the Zimmer management review will sign is attached. These statements will be filed under oath or affirmation. The statements will address the additional five companies as well as CG&E, as listed on page 5 of TPT's proposal. Work experience will be related to all six companies and not limited to the last three years.

ANSWER TO QUESTION NO. 5

All personnel, including those referred to on Fig. 2 of TPT's proposal as "independent reviewers" will complete the independent statements in 4 above. The responsibilities and contribution of any personnel having previously performed work for CG&E will be limited as stated in TPT's proposal. At this date, none of the staff expected to be assigned to this project has any prior work experience with CG&E or on Zimmer. We will notify you of our intent prior to using any such people on this project.

ANSWER TO QUESTION NO. 6

We affirm that all communications between TPT and CG&E will conform to the "Protocol Governing Communications Between CG&E and Independent Organizations Conducting Reviews or Audits under the Commission's Order" which was transmitted to CG&E by letter dated March 2, 1983. We confirm that TPT has separately received a copy of the Protocol from NRC.

ANSWER TO QUESTION NO. 7

CG&E has not requested TPT to perform any services on the Zimmer Project in addition to the independent management review, nor have there been any discussions between TPT and CG&E regarding that possibility.

Attachment

FROM A. J. Neylan
TO Distribution
SUBJECT Project Directive No. 2
Independence of Individuals

IN REPLY
REFER TO 2474.002:C3
Proj. 2474
DATE 3/9/83
Rev. A 3/11/83
Rev. B 3/18/83

The project requires that individuals involved in this program will be free of substantive conflict of interest.

Substantive conflict of interest is defined as:

1. For key personnel, any work experience or association with the William H. Zimmer Nuclear Power Station (Zimmer), or with the Cincinnati Gas & Electric Company (CG&E).
2. Current activity on any other Zimmer or CG&E work or work for any of the other participants in the Zimmer 1 project.
3. For personnel other than key project personnel, with past Zimmer or CG&E work experience or association within the past three years, a level of effort on this project which exceeds a half time level for the duration of the project.
4. An immediate family member who is employed by CG&E or any of the other participants in the Zimmer 1 project.
5. A cumulative ownership and creditor interest in CG&E or any of the other participants in the Zimmer 1 project which exceeds 5% of their gross family annual income.

Support personnel including secretaries, report editors and typists, graphic artists, draftsmen, and project schedules are not included in these restrictions since they are not in a position to influence the program review and its results.

To demonstrate compliance with the conflict of interest requirements all individuals assigned to work on this project shall fill out the attached Forms 2 and 3. All previous versions of Forms 2 and 3 are to be discarded and replaced with the new forms attached. The Task Leaders shall be responsible for obtaining the completed forms from the individuals and return them to my office. There are three notary publics in the Legal Department who can notarize Form 2: Brenda Dawson (X-2124), Lori Rogers (X2170), and Joanne Rojek (X-2124).

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Distribution

S. D. Bresnick	T. R. Colandrea	L. D. Johnson	G. L. Wessman
S. J. Brown	K. Dance	R. E. Vollman	P. Yensuang
F. D. Carpenter	M. Gitterman	A. A. Schwartz	

FORM 1

PERSONNEL GUIDELINES FOR PROJECT 2474

In order to qualify as an independent reviewer for the Management Review of the Zimmer 1 Nuclear Plant Project (TPT Project 2474), all personnel assigned to the project must comply with the following:

1. Key project personnel shall have no present or past work experience with the Zimmer 1 plant or with Cincinnati Gas & Electric Company (CG&E).
2. Project personnel shall not be active on any other current CG&E plant or CG&E work, or those of any of the other participants* in the Zimmer 1 project.
3. Project personnel, other than the key personnel, with prior work experience relating directly to Zimmer 1 or CG&E within the past three years shall not participate on this project at a level of effort that exceeds a half time level for the duration of the project.
4. No project personnel shall have members of their family** who are employed by CG&E or the other participants in the design or construction of Zimmer 1.
5. During the term of this project no project personnel shall have cumulative ownership interest in CG&E or the other participants in Zimmer 1 which exceeds 5% of their gross family annual income.

*For these purposes, the other participants in the Zimmer 1 project are:

Columbus & Southern Ohio Electric Company
Dayton Power & Light
Sargent & Lundy
Kaiser Engineers
General Electric Company

**For these purposes a family member is defined as one of the following:

Spouse	Stepbrother	Son-in-law
Child	Stepsister	Daughter-in-law
Stepchild	Stepmother	or, if related by
Mother	Stepfather	blood:
Father	Mother-in-law	Uncle
Grandparent	Father-in-law	Aunt
Brother	Brother-in-law	Nephew
Sister	Sister-in-law	Niece
Grandchild		

FORM 2

PROJECT 2474 PERSONNEL QUESTIONNAIRE

After first being duly sworn _____ hereby deposes and
says: (print or type name)

1. I have no work experience relating to Zimmer 1 Nuclear Power Station (Zimmer) or Cincinnati Gas & Electric Company (CG&E), or for any of the other participants* in the Zimmer 1 project except as noted on the reverse side.
2. No member of my family** is presently employed by CG&E or any of the other participants engaged in the design or construction of Zimmer 1 except as identified on the reverse side.
3. I have no financial interest in CG&E or any of the other participants except as noted on the reverse side.

*For these purposes, the other participants in the Zimmer 1 project are:

Columbus & Southern Ohio Electric Company
Dayton Power & Light
Sargent & Lundy
Kaiser Engineers
General Electric Company

**For these purposes a family member is defined as one of the following:

Spouse	Stepbrother	Son-in-law
Child	Stepsister	Daughter-in-law
Stepchild	Stepmother	or, if related by
Mother	Stepfather	blood:
Father	Mother-in-law	Uncle
Grandparent	Father-in-law	Aunt
Brother	Brother-in-law	Nephew
Sister	Sister-in-law	Niece
Grandchild		

I hereby affirm that the above is true and correct to the best of my knowledge.

(signature)

(date)

Subscribed and sworn to before me on this _____ day of _____, 1983.

My commission expires: _____
Notary Public

FORM 3

PROJECT 2474 PERSONNEL AGREEMENT

I _____ (print or type
name) hereby agree that:

1. I will treat all information revealed to me in the course of my work on this project as confidential and will not disclose it to others not involved in the project except as directed by the Project Manager or my task leader.
2. I will notify the Project Manager if during the term of this project I, or any member of my family** acquire any financial interest in Cincinnati Gas & Electric or any of the other participants* in the Zimmer 1 project.

*For these purposes, the other participants in the Zimmer 1 project are:

Columbus & Southern Ohio Electric Company
Dayton Power & Light
Sargent & Lundy
Kaiser Engineers
General Electric Company

**For these purposes a family member is defined as one of the following:

Spouse	Stepbrother	Son-in-law
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Father	Mother-in-law	Uncle
Grandparent	Father-in-law	Aunt
Brother	Brother-in-law	Nephew
Sister	Sister-in-law	Niece
Grandchild		

(signature)

(date)