LIC 12/22/80

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289 SP
	)	(Restart)
(Three Mile Island Nuclear Station, Unit No. 1)	)	
	)	

LICENSEE'S TESTIMONY OF

MR. ROBERT C. ARNOLD

REGARDING CLI-80-5,

ISSUE (1), ANGRY CONTENTION NO. IV, AND

SHOLLY CONTENTION NO. 14(a)

(LICENSEE'S COMMAND AND ADMINISTRATIVE STRUCTURE)

OUTLINE

The purpose and objective of this testimony is to respond to Issue (1) of Commission Order CLI-80-5, ANGRY Contention IV and Sholly Contention 14(a) insofar as they challenge the adequacy of Licensee's command and administrative structure for purposes of safely operating and managing TMI Unit 1. Since the accident at TMI-2, the GPU and Met Ed organizations have undergone enormous organizational and substantive changes. TMI-1 organization and management for operations and maintenance have been separated from the staffing for TMI-2. All of GPU's nuclear-related activities have been centralized under the overall management of one entity ensuring that adequate resources and technical capability are readily available to TMI-1 operations personnel. Extensive additional professional staff in both the management and technical areas have marked Licensee as a leader among utilities in the nuclear industry. Moreover, Licensee's renewed commitment to safety is clearly emphasized by the strong technical and management qualifications of its top management, the extension and revision of its quality assurance organization and program, its diversity of safety review groups, and the separation of key support organizations, such as radiation controls from unit operations.

INDEX

My name is Robert C. Arnold. I am a Senior Vice President of Metropolitan Edison Company (Met Ed) and Jersey Control Power & Light Company (JCP&L), a Vice President of GPU Service Corporation (GPUSC), and I head the GPU Nuclear Group (Nuclear Group) which includes organizational elements in each of those three companies. I am also the President of GPU Nuclear Corporation (Nuclear Corporation) which will supersede the Nuclear Group once all associated regulatory approvals have been obtained.

Following graduation from the University of Michigan with a Bachelor of Science in Science Engineering in 1959, I served for ten years in the U.S. Navy, with six of those years devoted to assignments involving nuclear power. Those assignments included responsibilities at various times for operator training, radiological controls programs and reactor operations and maintenance. During those assignments I qualified as a reactor operator and for assignment as an engineering department head on a nuclear powered ship. In 1969, I left the Navy and joined Met Ed. In 1977, I was reassigned from my then position as Vice President Generation at Met Ed to Vice President Generation at GPUSC, the position I held at the time of the TMI-2 accident in 1979. Two days after the accident I came to TMI to assist in the direction of the recovery activities at the site. About one week after the accident I was placed in overall charge at TMI, and I have remained directly involved in activities at TMI since that time.

Over the past year and a half, we have made many major technical modifications to TMI-1 and have completely revamped the organization which operates the plant. In my testimony, I will not cover the technical changes but will describe the Met Ed organization as it existed prior to the accident and provide an overview of the present command and administrative structure, at both the plant and corporate levels, responding to Issue (1) identified by the Commission in CLI-80-5. In so doing, I will address as well those aspects of contentions by Mr. Sholly and ANGRY which question the adequacy of the organizational relationships and the changes which we have made since the accident. Commission management issue (1) and these contentions specifically read as follows:

CLI-80-5, ISSUE (1)

> Whether Metropolitan Edison's command and administrative structure, at both the plant and corporate levels, is appropriately organized to assure safe operation of Unit 1.

ANGRY CONTENTION NO. IV

> The Licensee lacks the management capability to operate a Nuclear Generating Station without endangering the public health and safety.

SHOLLY CONTENTION NO. 14(a)

> The Licensee's management capability, in terms of organizational, staffing, and technical capabilities, is not sufficient. Specifically, the following deficiencies in Licensee's management capability are contended:

(a) Licensee's administrative structure, both at the plant and corporate levels, is not appropriately organized so as to assure safe operations of TMI-1 while conducting cleanup operations at TMI-2.

Other witnesses, for example, Mr. Hukill on CLI-80-5 Issues (2) and (5) with respect to the qualifications of the Unit 1 plant staff, Mr. Clark on Issue (7) with respect to safety review groups, and Mr. Wilson on Issue (11) with respect to the adequacy of technical resources, will describe in more detail the composition and functions of the individual components of the organization. I will identify in my testimony areas that will be covered by these and other witnesses in more detail and provide an overview, or roadmap, to our several inputs on management capability.

Let me begin by describing relative to Unit 1 the GPU corporate relationships as they functioned at the time of the accident. General Public Utilities, located in Parsippany, New Jersey, was the parent of three operating subsidiary utilities and one company which provided common administrative and technical support to the operating utilities. The three operating utilities, Met Ed, Pennsylvania Electric Company (PENELEC) and JCP&L shared undivided ownership interests of 50%, 25% and 25%, respectively, in both TMI-1 and TMI-2. Met Ed was the exclusive operator of the units with more than 500 Met Ed employees stationed at TMI. In addition, Met Ed's corporate staff in Reading, Pennsylvania was available to

provide administrative and technical support to the TMI operating personnel as well as to the other Met Ed generation and operating functions. GPUSC's resources were available to provide technical support, management review and oversight, and audit functions for the operation and maintenance of the GPU System plants, including the TMI units.

The Chief Operating Officer of Met Ed was its President who held the Vice President Generation accountable for the operation, maintenance, administration, quality assurance, and related technical engineering support activities associated with the various generating stations operated by Met Ed. In this regard the President required certain status reports from the Vice President Generation but did not become involved with the day-to-day detailed activities of plant operations. The Vice President Generation had six managers reporting directly to him.

The detailed development, direction, and overall coordination of the operational quality assurance plans for both nuclear and fossil stations was the responsibility of one of the managers reporting to Met Ed's Vice President Generation -- the Manager Generation Quality Assurance. He carried out these responsibilities through his quality assurance and quality control staffs at the corporate offices and at the station sites. In addition, he was responsible for licensing and regulatory affairs, generation technical training, and the nuclear generating station security program.

Another important position in the corporate staff was that of Manager Generation Engineering. That position was responsible for design control of operating plants including TMI and took the lead in the engineering and design of modifications. He provided technical support for operation and maintenance problems on request from the plant staff, provided corporate oversight and assistance in environmental and radiological controls programs and his department had a lead role in the performance of systematic independent reviews of TMI activities as required by the Technical Specifications and the Quality Assurance Program.

The operational control of Met Ed's Three Mile Island station was the responsibility of another of these managers -- the Manager Generating Station-Nuclear. He was responsible for assuring that the station was operated and maintained in accordance with Company policies, the requirements of the NRC license and the quality assurance program. His accountability included responsibility for proper conduct of station administration, testing, repair, refueling, radiological controls, environmental controls and emergency operations, as well as routine operation and maintenance.

Reporting to the TMI Station Manager were four superintendents: Superintendent TMI-1, Superintendent TMI-2, Superintendent Maintenance and Superintendent Administration. The Station Manager together with his superintendents and their respective personnel constituted the plant organization. Under

the NRC licenses, the unit superintendents were assigned direct responsibility for safe operation of the plants.

That briefly was the organization down through the level of the TMI unit superintendents at the time of the TMI-2 accident.

Prior to the accident the management of GPU recognized that our nuclear activities would benefit from expansion of our in-house technical capabilities, much greater involvement by the engineering groups active during plant design and construction with the technical functions necessary during plant operations, and a consolidation of the technical and management structures responsible for GPU's nuclear activities. In mid-1977, coincident with the reactivation of our Forked River Nuclear Station project, the GPUSC Generation Division embarked on a major program to both expand and strengthen the in-house capabilities of the organization. This program was envisioned to require about three years to accomplish and included not only building of our engineering staffs but also strengthening of the QA function, increased training of support functions, further development of maintenance management systems and improved management control systems. While planning was not complete for consolidation of the GPUSC and operating companies' organizations at the time of the accident, we expected to have those plans developed in detail and implemented in time to support the start up of the Forked River Station in 1982.

The first phase of this program was endorsed, after some minor modifications, in the report issued by Booz, Allen & Hamilton following their management audit of the GPU System companies in 1977.

The major objectives we believed we would achieve with this effort were:

- Improved in-house technical capabilities including the areas of analyses of systems dynamic behavior, reliability analyses, materials applications, and engineering mechanics.
- Continued and close involvement of the in-house engineering organization during plant design, startup and subsequent operations.
- Reliable and timely exchange of information between operating plants.
- Strengthened management systems for
  - plant configuration control
  - identification, resolution and correction of problems
  - control and support of plant operations and maintenance, and
  - providing visibility to management on status of nuclear activities

. A heightened awareness of the importance of safety and reliability of operations through development of a stronger organization whose role was appropriately reflected in the organizational structure of the system.

In the days and weeks following the accident the GPU System's resources were marshalled and focused to directly support TMI. Licensee's testimony by Dr. Long and Mr. Keaton on Issue (10) of the Commission's March 6, 1980 Order describes management's response to the accident. There was an infusion of hundreds of GPU System-wide employees to the site itself. Elsewhere within GPU, such as at the GPUSC offices in Parsippany, New Jersey, resources and technical backup were concentrated on supporting the activities at the site. In the months that followed, although the initial intensity of the total focused attention at TMI diminished somewhat, the basic approach to concentration of the resources did not. In fact, as a result of need for continued priority at TMI, the concentration and integration of management and technical resources was formalized in July 1979 by the formation of the TMI Generation Group under my direction as a Senior Vice President of Met Ed. Our objectives were to integrate the technical support capabilities available within the Met Ed and GPUSC Generation Divisions with the Met Ed operations and maintenance personnel for support of day-to-day plant operations, to augment the management of non-operating functions and to apply

additional technical and management skills to the activities at TMI. This group was nuclear-focused and essentially divorced from fossil and other generation or transmission and distribution utility engineering responsibilities. In addition to serving TMI, the Group was charged with continuing the GPUSC role of providing support to Jersey Central's Oyster Creek, the remaining nuclear plant in the GPU system.

Since its formation in July 1979, the Generation Group has been modified somewhat as the organizational roles have been more clearly defined, but only to further serve its basic purpose of consolidation and expansion of resources to support GPU's nuclear activities. The modifications and refinements have resulted from experience gained while working with this new concept, the recruitment of personnel necessary to staff the new organization and the recommendations of management consultants, and are consistent with NRC criteria. With the amendment of the TMI-1 operating license authorized by NRC in September, 1980, the Generation Group formally evolved into the GPU Nuclear Group. Figure 1 attached to this testimony reflects the GPU Nuclear Group's organization. I head the Group and am assisted by a deputy, Phil Clark, who is also an officer of Met Ed, GPUSC and JCP&L.

Mr. Clark, who will be testifying on Commission Issue (7) dealing with safety review groups, joined us as my deputy in January 1980, following some 25 years in Admiral Rickover's organization. Reporting to Mr. Clark and me are Directors in

charge of operations at each of the three nuclear plants in the GPU System, and six Directors in the areas of Technical Functions, Nuclear Assurance, Radiological and Environmental Controls, Maintenance and Construction, Administration and Communications. Each of the Directors will be an officer in the GPU Nuclear Corporation.

As mentioned earlier, the new corporate entity, GPU Nuclear Corporation, will supersede the Nuclear Group when various governmental approvals have been received, including that of NRC. Mr. Clark and myself, the Directors in charge of each of the units and those in charge of the several support divisions will have the same responsibilities in the Nuclear Corporation as we have in the Nuclear Group.

I would like to now generally describe each of the functional divisions and their interfaces within the organization.

TMI-1 Organization

The Director of TMI-1 reports to me and is held accountable for TMI-1 operations by me. In carrying out his responsibility for overall direction of day-to-day TMI-1 operations he is responsible for compliance with TMI-1 Technical Specifications and regulatory requirements, as well as direction of his managers in the execution of their respective responsibilities. Our Director of TMI-1 is Henry Hukill, who

joined GPU this past June. Mr. Hukill will be testifying on the details of his plant organization, and his personal qualifications. In short, he comes to us after more than 22 years of nuclear and management experience. He knows both nuclear power plants and people, having been qualified and served as a Chief Operator and Chief Engineer, having served for five years in command of a nuclear submarine, and having been directly involved for more than four years in the Navy's selection and training of all nuclear ship commanding officers.

Mr. Hukill's plant organization includes immediately under him three managers who function in the areas of operations and maintenance, plant engineering, and administration and services. The Operations Group under the Manager Unit 1 will be responsible for the day-to-day quality of operations and preventive and corrective maintenance activities associated with the unit. Within this group are the Unit 1 Operations Supervisor who directs the operations on each of six shifts through the assigned Shift Supervisors, Shift Foremen, Control Room Operators, Auxiliary Operators, and Maintenance Supervisors, and the Unit 1 Maintenance Superintendent who coordinates the TMI-1 preventive and corrective maintenance programs with tne daily operational needs of the facility. The Unit 1 Operations Supervisor also oversees TMI-1 Radwaste activities. The TMI-1 Plant Engineering Group under the Manager Plant Engineering includes lead engineers in nuclear, mechanical, electrical and instrument and control engineering

disciplines to whom other engineers and analysts assigned to TMI-1 report, as well as a TMI-1 Chemistry Department. The Manager of Administration and Services assists Mr. Hukill in the administration of TMI-1 programs, procedures, and personnel-related activities.

Technical Functions

Technical Functions is responsible for assuring the technical adequacy of all aspects of our nuclear activities to provide safe, reliable and efficient operations. It is headed by Richard Wilson, who will be testifying on the details of his organization and his background. Briefly, Mr. Wilson was graduated from the University of California at Berkeley with a BS and from the University of Michigan with an MS in Mechanical Engineering. In addition to his year at Three Mile Island as Acting Director for TMI-2, he spent four years with GPU Service Corporation, first as Manager of Quality Assurance and subsequently as Director of Technical Functions, two years as Manufacturing Engineering Manager for Offshore Power Systems, Jacksonville, Florida, and 20 years in a variety of supervisory and management positions at Atomics International Division of Rockwell International, his latest being as AI's Program Manager on the fast breeder program. Technical Functions has about 200 professionals. The vast majority of these individuals have received a Bachelor of Science degree in their

respective disciplines; many have received a Masters of Science degree. There are more than 1,350 accumulated man-years of nuclear engineering experience within Technical Functions.

Technical Functions under Mr. Wilson consists of six departments -- Engineering Projects, Systems Engineering, Licensing and Regulatory Affairs, Engineering and Design, Engineering Services, and Startup and Test. Mr. Wilson will be describing each of these departments and the collective expertise they contain. Within these departments, we have experts in a variety of disciplines including nuclear analysis and fuel, process computers, control and safety analysis, plant analysis, human engineering, reliability engineering, engineering mechanics, mechanical systems, mechanical components, electrical power and instrumentation design, and chemistry and radioactive waste.

Radiological and Environmental Controls

Prior to the accident, our health physics programs were administered through radiological controls personnel within the TMI station organization. With our change to the Nuclear Group we have elected to establish an organization entirely separate from the operating organization to expand and implement our radiological controls program. Our decision reflects the increased importance which we have placed on this function. Figure 1 depicts the structure of the separate Radiological and

Environmental Controls division of which Richard Heward is the Director. Mr. Heward has over 25 years of professional experience including a variety of management level positions directing design, safety analysis and construction activities in various positions during the past 13 years with GPU. Prior to joining GPU, he was employed by New York Shipbuilding Corporation where he was involved with that company's construction and start up of nuclear ships, responsible for organizing, qualifying and directing their radiological controls program. Mr. Heward is a graduate of Swarthmore College, Oak Ridge School of Reactor Technology and the Reactor Safety Course of the United Kingdom Atomic Energy Agency in Harwell, England. He possesses both the technical and management qualifications necessary to direct our Radiological and Environmental Controls program. In other testimony, Mr. Heward will detail his radiological controls organization and the program which it administers. Basically, under a Manager, the Unit 1 Radiological Controls organization provides for the areas of Radiological Control Program design, support, and enforcement as detailed in the approved Radiological Protection Plan, implementing procedures, and the Bioassay and Respiratory Protection programs. Additionally, Mr. Heward's division will conduct surveys and assessments related to protective controls in order to assure that radiological work is accomplished in compliance with approved procedures and applicable regulations and consistent with good radiological work practices.

Nuclear Assurance

The Nuclear Assurance Division has three basic missions: (1) to assure management that the operability, continuity and effectiveness of various operations essential to plant nuclear safety are given priority and visibility within operations; (2) to provide the key support function of Personnel Training; and, (3) to provide the key support function of Emergency Planning.

An effective Quality Assurance organization is essential to ensuring a successful nuclear power plant program. In recognition of its particular importance to management and to all of operations generally, we have reorganized and staffed QA so as to ensure it has the capability to be effective. My testimony provides considerable detail on the Quality Assurance Department of the Nuclear Assurance Division, while others will cover the Training and Education Department, the Nuclear Safety Assessment Department and the Emergency Preparedness Department of this Division.

Our Director of the Nuclear Assurance Division is John Herbein. Mr. Herbein is a graduate of the Naval Academy with over 20 years of professional experience, about 15 years of which have been in nuclear power. He was trained in the Navy's nuclear power program, and was Assistant Operations Supervisor at Yankee Rowe and Operations Supervisor at Saxton before coming to Three Mile Island in 1970, as TMI Unit 1 Engineering Supervisor. He has been TMI Plant Superintendent, Manager of

Nuclear Operations, and Vice President Generation at Met Ed. He is intimately familiar with the TMI facility and individuals in the organization and, as such, is particularly well qualified to head our Nuclear Assurance Division.

Nuclear Assurance's Quality Assurance Department is under the direction of the Manager of Quality Assurance who reports directly to Mr. Herbein. Nevertheless, the Manager of Quality Assurance has unencumbered access to me or Mr. Clark and to Mr. Hukill as head of TMI Unit 1 with regard to quality activities. The Manager of Quality Assurance and the head of Nuclear Assurance, Mr. Herbein, are independent of design, procurement, manufacturing, construction, operations and maintenance line responsibilities, and both report at a sufficiently high level to ensure the implementation of the Quality Assurance Program is not subjected to inappropriate production pressures.

The Manager of Quality Assurance has authority and responsibility to evaluate the manner in which all activities important to safety, both on-site and off-site, are conducted with respect to quality, by means of review, audit, monitoring, and inspection. He performs evaluations on a planned and periodic basis to verify that the Quality Assurance Program is being effectively implemented. He identifies quality problems, and initiates, recommends or provides solutions through designated channels and verifies implementation of problem resolution. The Manager of QA has authority to stop work or further processing, delivery, or installation of nonconforming

material, to stop work on nonconforming activities, to initiate unit shutdown recommendations and to obtain unit shutdown with appropriate upper management concurrence as described in applicable Quality Assurance procedures. To perform these functions, Quality Assurance personnel have been divided into five major sections as described in Figure 2.

The Design and Procurement Assurance Section with a quality engineering staff located both in the corporate headquarters and at TMI constitutes the main technical support section establishing quality programs and inspection requirements in support of design and procurement activities. The same group reviews quality related materials as well as product specifications and procurement requisitions to assure that the requirements have been established. Additionally, this group participates in the evaluation of specific vendors (contractors) and the adequacy of their programmatic controls in light of established requirements. An element of the on-site Design and Procurement Assurance Section has the responsibility of reporting quality trending and performing final verification and acceptance of installation/modification documentation packages before turnover to Records Storage.

The Manufacturing Assurance sub-section of the Design and Procurement Section has as its prime responsibility to perform those necessary post contract award activities required to assure that a vendor's product is designed, manufactured, and

tested in accordance with the specified quality requirements. Trend information supplied by this group weighs heavily in the maintenance of the vendor's classification list which affects future procurements.

The Modifications/Operations Section has two major sub-sections, Quality Control and Operational Quality Assurance. Quality Control is responsible for receiving inspection, and the inspection and/or monitoring activities related to corrective maintenance, modifications, installation or new construction. Operational Quality Assurance is responsible for monitoring functional testing and performing monitoring of all operations activities. The latter includes monitoring of plant operations, preventive maintenance, radiation protection and the processing, packaging and shipping of radioactive materials. Operational Quality Assurance is also responsible for the performance of nondestructive examinations associated with inservice inspection, and monitoring performance and results of pump and valve testing in accordance with the applicable requirements of ASME Section XI.

The Program Development and Audit Section is responsible for QA Department program development. It therefore coordinates activities associated with department procedures and indoctrination and training. Additionally, the group conducts independent evaluation and assessment of the program's implementation through the Quality Assurance Audit Program. This includes an evaluation of the effectiveness of the Quality

Assurance Program. Assisting in this assessment is a full time site audit group reporting to the Manager of Quality Assurance and the Director of Nuclear Assurance through the Corporate Program Development and Audit Manager, thus providing to management an independent assessment of the state of implementation and the effectiveness of the QA program. Additionally, both the on-site and off-site audit sections are available to administer timely close out and verification of problems identified by the audits.

The fifth section, Materials Technology, is an off-site section which has the responsibility of supporting design activities in the establishment and review of materials applications. Additionally, the group is available as a staff group to provide assessment and evaluation of identified materials technology problems. Their services include the capabilities to conduct nondestructive examinations, inservice inspections, materials engineering support and welding engineering.

The Met Ed QA organization before the accident had approximately 18 permanent QA personnel. This number was split between on-site personnel and those located at the Met Ed corporate office; moreover, QA had responsibilities beyond overseeing TMI-1. By contrast, the 1981 budget provides for approximately 44 equivalent people working on the TMI-1 Quality Assurance Program alone; of these 42 are expected to be our own employees. We currently have about 37 of our own employees working on the TMI-1 QA program along with 3 contractors.

A number of reasons contribute to the large increase in QA personnel. First, the scope of QA's responsibilities has been expanded. These now include systems and components not classified as safety related, but having functions important to safety. which have been added to the program. Second, the number of activities which have been classified as important to safety have been significantly increased. Additionally, QA activities previously the responsibility of other groups such as nondestructive examinations associated with inservice inspection, have now been added to the responsibilities of the QA Department.

In addition to the Quality Assurance function, Nuclear Assurance has other very important roles through its responsibilities for training and emergency preparedness and its Nuclear Safety Assessment Department (NSAD). The latter, NSAD, is independent of design, construction, operations, procurement and the Quality Assurance functions. In short, it has no line function. It involves a new concept employed by GPU to strengthen the safety of its nuclear activities. Thus, in addition to the safety review groups customarily employed by licensees and required by NRC to independently conduct reviews of specified plant activities, this Department has incorporated within it the resources and the assignment to conduct on their own initiative assessments of the safety implications of any and all facets of plant design and operation, to consider their potential for compromising nuclear safety and to provide

management with recommendations for improvements. This group additionally serves as an office of ombudsman for any employee having an individual concern regarding nuclear safety. It also is a place in the organization where the technical expertise is located to provide onsite independent reviews. The corporate staff of NSAD provides, as well, staff support for the General Office Review Board. NSAD adds a new dimension to our surveillance and assessment of nuclear activities, as is discussed further in Mr. Clark's testimony on GPU Nuclear's safety review groups.

The remaining facets of Nuclear Assurance's responsibilities are training and emergency preparedness. Each of these areas is addressed in considerable detail in testimony of other Licensee witnesses. Dr. Robert Long's testimony describes his centralized training organization and the component training departments at each of the plants, as well as the curriculum for operator and non-operator training. In addition to Dr. Long, Mr. Frank Kelly will testify. Mr. Kelly developed and administered for us a set of comprehensive operator exams which all of our operators took regardless of their prior qualifications. Dr. Eric Gardner, who was a member of a professional team who audited our operator accelerated retraining program (OARP), will describe the results of that audit and provide his views on the adequacy of our testing of operators. Finally, Dr. Julien Christensen will testify on the subject of operator stress and the extent to

which elements of our training program prepare licensed operators to cope with emergencies or upset plant conditions. While I leave to those witnesses the details, I want to observe that our objective has been to design and implement a training program that will be a model for the industry. We are steeped in highly competent and sophisticated professionals who run our training programs. These programs are comprehensive and the results are truly professional.

Other Divisions of the Nuclear Group

The remaining components of the Nuclear Group are the TMI-2, Oyster Creek, Communications, Administration and Maintenance and Construction divisions.

The TMI-2 organization is important in the context of Unit 1's restart, initially, because it exists. Whereas prior to the accident, TMI was regarded and therefore organized and staffed as a single station with two units and shared facilities, today TMI-2 is an entity distinct from TMI-1 not only physically but organizationally. It is headed by Gale Hovey, whom we selected for his particular expertise and experience. Mr. Hovey is a graduate of the U.S. Naval Academy with 25 years of professional experience. In addition to the year he has spent here at Three Mile Island, his experience includes five years at the Allied General Nuclear Services Fuel Reprocessing Plant at Barnwell, South Carolina, where he was Plant Manager,

10 years in a variety of supervisory and management positions at General Electric Company's Vallecitos Research facility, and about nine years of active duty in the Navy, the majority of which was in the Navy's nuclear submarine program.

Concern has been expressed that we are not appropriately organized nor sufficiently staffed to operate TMI-1 and cope with TMI-2 coincidentally. While others including Mr. Wilson of Technical Functions will be addressing our technical capability in detail, I want to emphasize our own early recognition of this concern and the steps we have taken to meet it. I have already pointed out that we have taken the most important step of separating the units organizationally. Our separation has been complete, with personnel assigned either to one unit or to the other throughout the various line organization components -- operations and maintenance. (Security has also been separately staffed within the Administration Division.) Each of the two unit organizations has been styled and staffed to perform its respective functions. In the case of TMI-2, this means the organization is designed to conduct the cleanup operations. From an operational staffing standpoint, we have assigned some 245 personnel exclusively to the Director of TMI-2. In addition, as Mr. Wilson will explain, he is providing from his Technical Functions division an additional 13 professionals to support the technical effort. These figures do not include over 600 additional employees and contractors engaged at TMI-2, some in line functions and others

in the areas of health physics, QA, security and administration. Finally, we have contracted with the Bechtel Power Corporation, one of the country's largest engineering firms with all its resources, to assist us in this effort.

The challenge we face at TMI-2 is unparalleled. No utility has ever faced a problem of the magnitude with which we are coping at that unit. We have, however, made the commitment and taken steps necessary to meet that challenge, and are convinced we have taken the steps organizationally and staffing-wise necessary for success. In any event, to the extent presently committed resources within GPU prove at times to need augmenting, we do not intend to rob TMI-1 of resources to meet that need. Rather, it is envisioned that any increased resources needed at TMI-2 would come from external sources, principally Bechtel.

The Oyster Creek organization, like TMI-1's, is designed to operate and maintain an operating nuclear facility. It is comprised of personnel committed to that facility which since the accident at TMI-2 have been augmented considerably. Organizationally we have upgraded the committed management resources by placing at the site in charge of the unit Ivan Finfrock, JCP&L's Vice President of Generation with responsibilities formerly not only for Oyster Creek but also for non-nuclear generation activities.

We have elected to create an entirely new division to meet GPU Nuclear's communications demands. Headed by William

Gifford, the Communications division will support development of positive relationships with our numerous publics including news media, government and elected officials, regulatory agencies, the business community, shareholders and employees. The importance we attach not only to performance but to ensuring that the public's concerns regarding that performance are met with adequate explanations and responses to the concerns is evidenced by both our creation of this separate division committed to this purpose and the caliber of the leadership we have attracted to manage the division. Before being named as head of communications in the GPU Nuclear Group at TMI, Mr. Gifford had more than 20 years of Washington service. After nearly ten years as administrative assistant to a Member of Congress, he served as a Special Assistant to the Secretary of Labor and as a Special Assistant to the President of the United States. Following his White House service he was confirmed by the U.S. Senate as Deputy Under Secretary of the Treasury. For six years he was Manager of Legislative and Executive Programs for the Washington Corporate Office of the General Electric Company. His government and industry service was devoted to legislative public affairs. He has a degree in journalism and strong news media experience.

The Administration division is responsible for supporting all the Nuclear Group's divisions in the areas of human resources, procurement and warehousing, security, facilities management and industrial safety, fiscal budgeting and cost

control, management information systems and legal services. Fred Glickman will head the division. Mr. Glickman holds degrees in Economics (AB Brooklyn College) and Business Administration (MS Columbia University). Over a 20-year career with GE in high technology electronics systems he formed and headed organizations in Contracts, Projects, Marketing and Applications Engineering. Prior to joining GPU Nuclear, he formed and headed GPU Service Corporation's Contracts Department, Materials Management Division.

The Administration division manages the recruiting and orientation of new employees and provides wage and salary, career progression planning, benefits development, EEO and other employee retention programs and supporting records, professional and bargaining unit personnel counseling, grievances review and union contracts negotiation and administration. It is responsible for the bidding, negotiation, award and administration of requirements for equipment, fuels, services, supplies and the warehousing and inventories control of spare parts and plant supplies. This division administers industrial safety programs, security and facilities (buildings, grounds, transportation and communication) services directed to creating a safe, convenient and protected work environment. Finally, it will be responsible for scheduling, receiving inputs for, issuing and regularly monitoring expenditures against the annual capital and O&M budgets and evaluating progress against principal milestones and goals.

The remaining division of GPU Nuclear is Maintenance and Construction, headed by Mr. Frank Manganaro. Mr. Manganaro joined GPU this past summer following completion of an extremely successful 33-year career in the U.S. Navy. A graduate of the U. S. Naval Academy, he also has a Masters degree from M.I.T. and post graduate work in management at Harvard University. His career includes 16 years in various engineering, design and repair facilities assignments, much of it associated with construction, maintenance, overhaul and refueling of nuclear ships. He was the Commander of the Puget Sound Naval Shipyard for four years, Chairman and Contracting Officer of the Navy Claims Settlement Board for two years following his election to flag rank, and served the last two years before retirement as Vice Commander, Naval Sea Systems Command.

Mr. Manganaro's division is responsible for establishing and monitoring uniform policies, practices and procedures for all maintenance, repair and construction activities at GPU's nuclear facilities. It monitors, evaluates and assures that maintenance activities at each of the nuclear units are being performed in accordance with established policies, procedures and good maintenance practices. In addition, Mr. Manganaro's division will plan, schedule and direct plant modifications, plant construction projects and major and specialized maintenance jobs. By providing a special group to plan, schedule, and direct major and special maintenance and

construction activities involved in planned and forced outages, the additional burden which otherwise would be placed on the unit operations and maintenance personnel is relieved.

GPU Nuclear Corporation

In my testimony to this point I have described the organizational components and interfaces between the divisions of our GPU Nuclear Group. It is our intention to carry our reorganization through one additional and important step.

GPU Nuclear Corporation, a new GPU subsidiary company, has been formed and will assume the responsibility for the operation and maintenance of all of the GPU Company's nuclear plants as well as to manage design and construction of modifications to those plants. This responsibility currently is that of the Nuclear Group and comprises the operation and maintenance of TMI-1 and Oyster Creek, the clean-up and recovery of TMI-2, and continuing plant modifications of these plants for safety, environmental or reliability enhancements.

The plants' ownership will continue to vest with the individual utility operating companies that comprise the GPU System. Thus, TMI will continue to be owned in the same 50%, 25%, and 25% undivided ownership interests, as at present. GPU Nuclear Corporation will under its corporate charter be providing the operations and maintenance functions for the owning utilities on an actual cost basis. GPU Nuclear Corporation will be NRC licensee for operation of the plants.

The objective of the formation of GPU Nuclear Corporation as a separate, independent, business entity is to accomplish a single-minded, full-time dedication to the safe and efficient operation of all GPU nuclear stations. GPU Nuclear Corporation will represent the consolidation into one company of the nuclear technological and management skills associated with the various GPU companies such as plant design, criteria development, systems, analytical and design engineering, and projects, construction, and procurement management. These skills and expertise will be integrated with the hands-on operations and maintenance experience in conducting plant operations. Moreover, the GPU Nuclear Corporation expands and customizes to the unique requirements of nuclear generating stations the administrative and support functions vital to effective plant operations in the area of procurement, personnel, security, facilities and budgeting.

The attached Figure 3 is an organization chart depicting the plant and support divisions of GPU Nuclear Corporation. It is functionally analogous in all respects to the GPU Nuclear Group. As a prerequisite to the functioning of GPU Nuclear Corporation, filings have been made (in addition to NRC) with three regulatory bodies: the Securities and Exchange Commission (SEC), the Pennsylvania Public Utility Commission (PA PUC) and the State of New Jersey Department of Energy, Board of Public Utilities (NJDEPU). The initial SEC filing was made on April 3, 1980 and approved by the SEC on September 5,

1980. The PAPUC and NJDEPU applications for approval were filed on June 4, 1980 and approval is expected in early 1981. Pending receipt of these approvals, we will continue to function as described for the Nuclear Generation Group.

One final element of our organization I would like to mention is the General Office Review Board (GORB). This safety committee will be discussed in more detail by Mr. Clark, but I think it is a significant indicator of our commitment to safety. This Board, which is comprised of senior experienced experts in a variety of disciplines, independently review significant nuclear and radiation safety issues. All of the regulatory required reviews of safety activities could be met without the use of this committee. Indeed, that was also the situation in 1974 when the original TMI-1 Technical Specifications were issued. Nevertheless, we elected at that time, and have continued to elect, to utilize this management aid. Indeed, it has been very valuable through the ten plus years it has been functioning, and we have taken steps to improve its capabilities through increased use of outside members, assignment of a full-time chairman and identification of specific resources for staff support. The Chairman of the GORB will have direct access to the Chief Executive Officer and the Board of Directors of GPU Nuclear Corporation.

Conclusion

I believe the command and administrative structure, which I have described in summary fashion, clearly is appropriately

organized, at both the plant and corporate levels, to assure safe operation of TMI Unit 1 while conducting cleanup operations at TMI-2. Further, without arguing the case for our management capability prior to the accident, I am firmly convinced that the management team we now have in place for direction of our nuclear activities is second to none. I believe that an objective assessment of the organization and individuals depicted by Figure 1 fully supports that judgment and I am confident that as the other management witnesses for the company provide their testimony, it will be clear that the experience, maturity and competence of the senior management of the organization are representative of the quality of the organization as a whole.

Before closing I would like to identify the objectives we have been addressing in the establishment of the organization and what we think are some of the essential characteristics of its design.

The objectives described on page 7 continue to be appropriate, and we have made substantial progress toward their achievement. Our efforts in those areas will be maintained until those objectives are fulfilled. But the learning gained from the accident has led to identification of additional requirements as we have completed the process of thinking through the optimum organizational structure for our particular circumstances. The major additional objectives we have identified as we have developed our present organization are:

- Separation of the organization responsible for our nuclear activities from responsibility for any activities that have the potential for diluting the concentration of management and supervision of nuclear activities.
- Provision within the nuclear organization of resources to carry out all the support functions which can significantly impact operational matters, e.g., staffing for development and implementation of personnel policies and practices.
- Assignment of sufficient management capability to the plant site to ensure adequate planning for, and direction of, day-to-day operations.
- Assignment of responsibilities to minimize potential conflicts between competing needs, or stated another way, elevating to the officer level in the organization the place at which judgment is exercised in making decisions when there are significant conflicts between competing needs.
- Substantial improvement in the scope, content and efficacy of the training program.

- Provision of sufficient dedicated resources to ensure adequate independent review of nuclear activities.

We are convinced that the steps we have taken have moved us well along the path toward realizing these additional objectives. While many of the details of the actions we have taken will be described in the testimony of others, I would like to point out some of the resulting characteristics of the organization we believe to be particularly noteworthy.

The first item I would highlight is the establishment of the Nuclear Assurance division. In this division we have aggregated those support activities which must be conducted through formal, structured programs to provide adequate assurance that they will be effective and reliable and which are subject to becoming "second class citizens," overshadowed by operational considerations, if too closely integrated into the line organizations. For similar reasons, we have provided a separate division for development and direction of the radiological and environment controls programs. A third item of significance is the very strong capabilities we have concentrated in Technical Functions and the extent to which we have enabled this division to truly fulfill its assigned responsibility for protection of the technical integrity of the plant through integration into, and adequate control of, all those activities which have the potential for violating that integrity. The final item I would note is we have maximized

the effectiveness of independent reviews, audits, and assessments of our nuclear acitivities by dedicating sufficient resources, giving those people free access to all aspects of our operations, making those same people available to all levels of the organization for confidential reporting of safety concerns, and providing those review groups unencumbered access to the Chief Executive Officer and the Board of Directors.

Having done all I have described, we still recognize that the performance of individual people is what determines the success or failure of our human endeavors. I have described the actions we have taken to enable the organization to function effectively. Whether the organization in fact functions effectively depends to a large measure on intangibles - on attitudes, perceptions, effectiveness of communications, and people's sense of their individual accountabilities. Those, and other intangibles, are shaped by the environment in which one works. We are also addressing this aspect of our management responsibilities as well as the more tangible aspects. First and foremost we have articulated, and communicated both directly and indirectly, that <u>safety</u> of operation is an absolute requirement for effective operation. We have identified in the missions for all elements of the organization their role in ensuring safety. We have structured the organization to provide routinely the requisite consideration of safety issues in the performance of our activities. We

have emphasized to the organization the personal responsibility everyone has for "doing their job right." And finally, we have put into positions of responsibility individuals with sufficient knowledge of the technology they are directing, and who have the personal qualities and capabilities necessary for making judgments and decisions reliably, that we create the proper environment for the total organization. This excellent management team, and the staff which they direct, will assure safety in all phases of the conduct of our nuclear program.

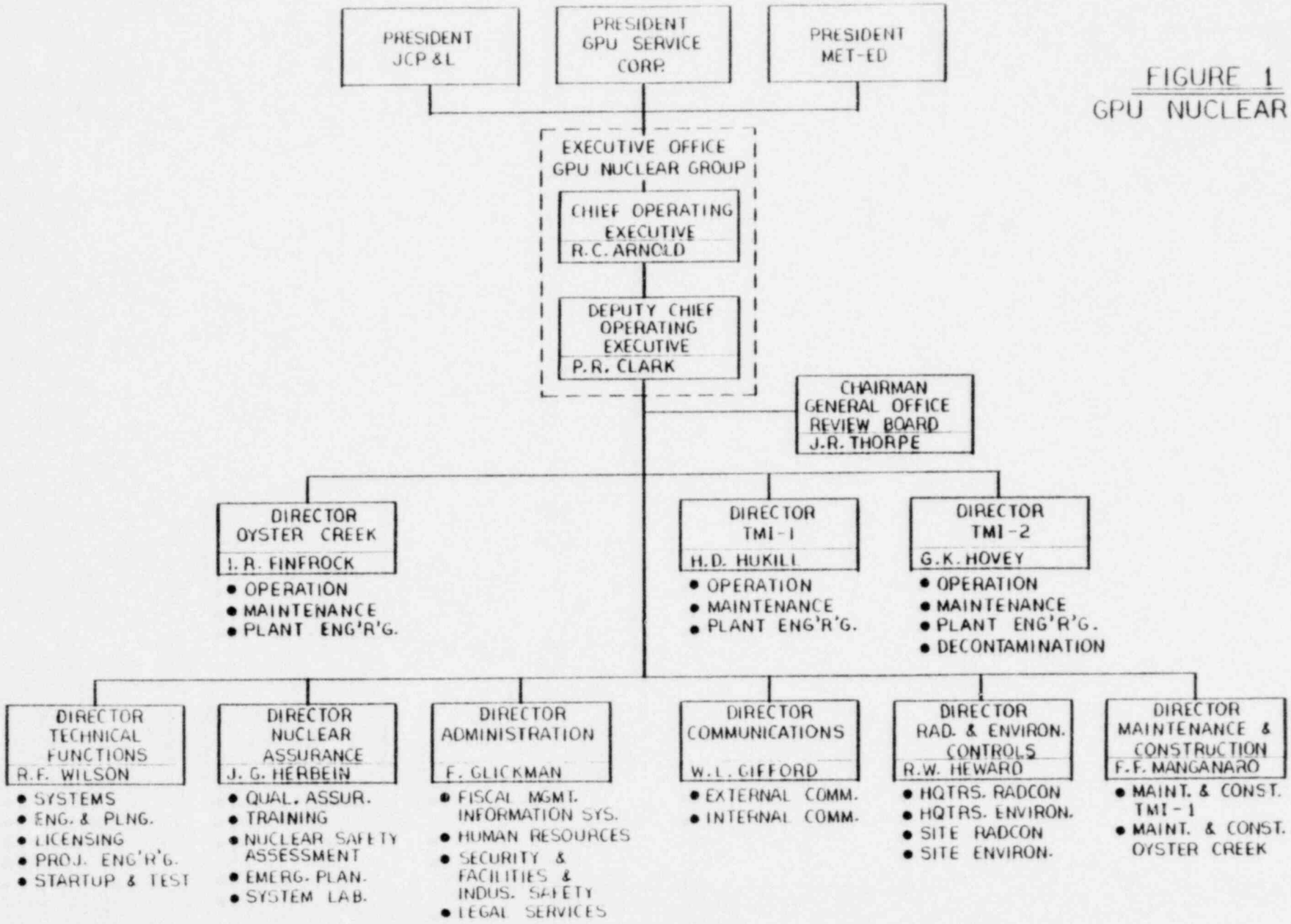

FIGURE 1
GPU NUCLEAR GROUP

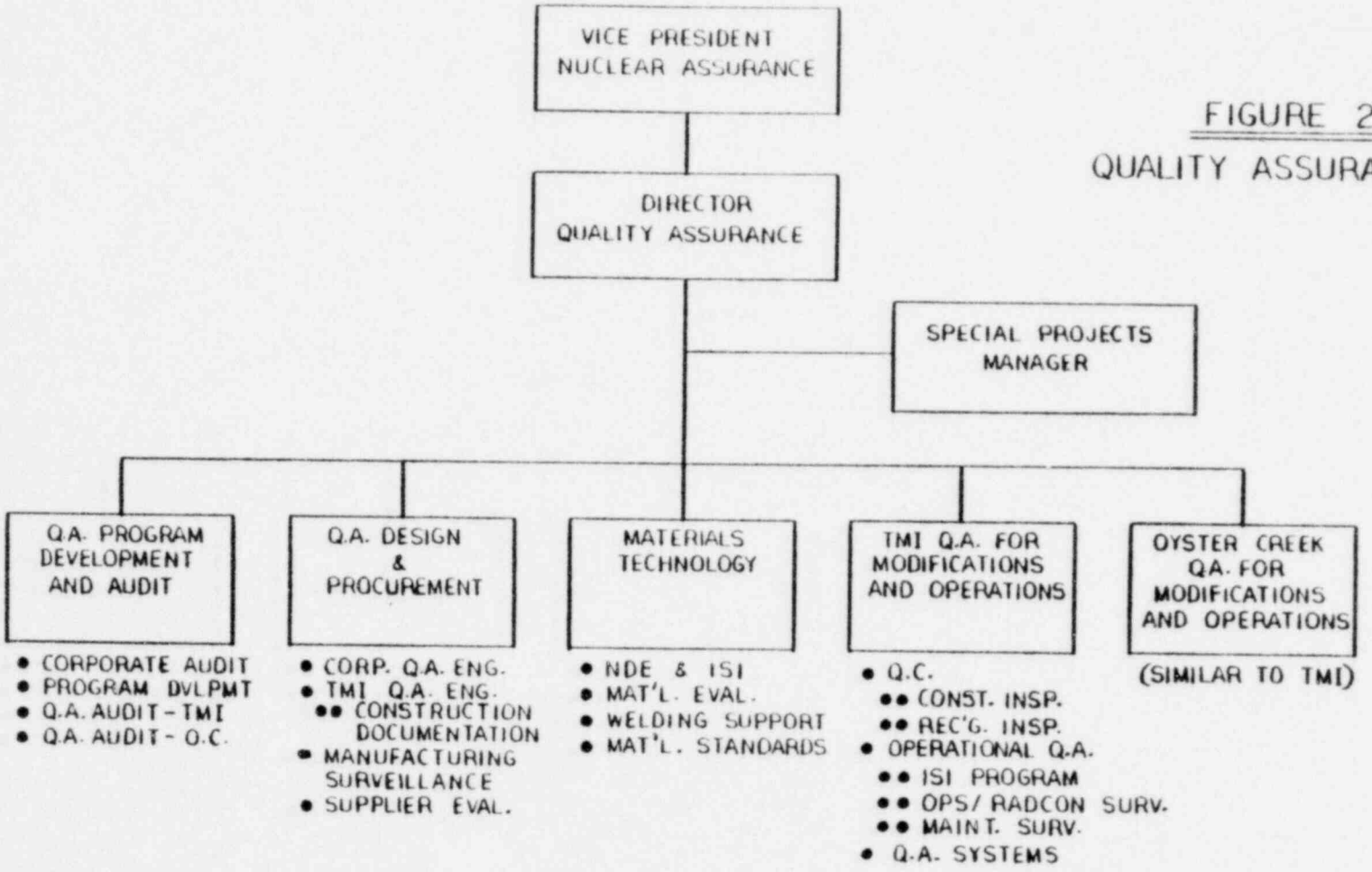

FIGURE 2

QUALITY ASSURANCE DEPT.

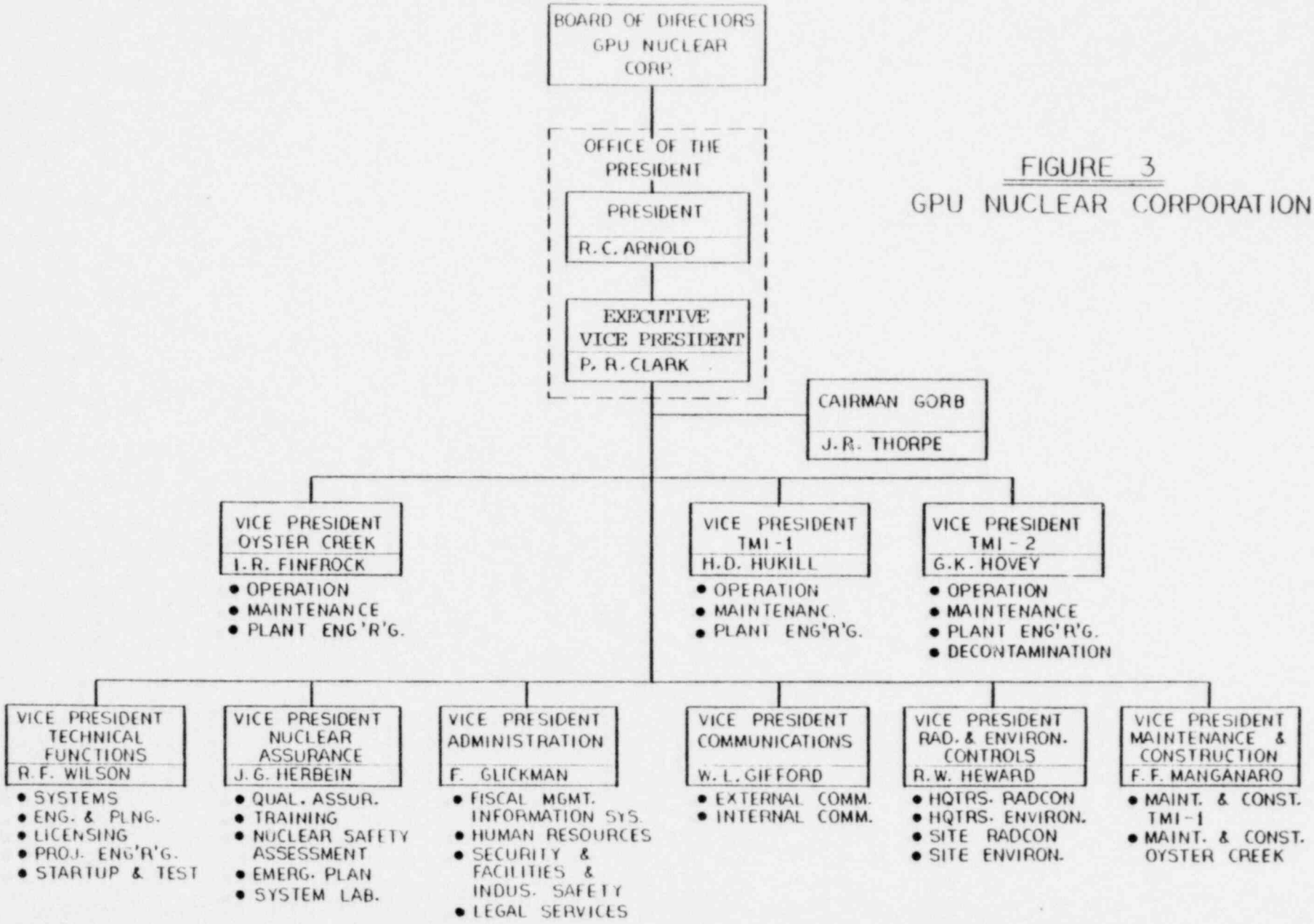

FIGURE 3

GPU NUCLEAR CORPORATION