III B Organization for Technical Support

The senior engineering personnel from GPUSC, Met-Ed, JCP&L and Pickard, Lowe, & Garrick, Inc. reporting to the site on March 28 and 29 to assess the situation determined the need for the round the clock technical support. Twelve (12) hour shifts were started on the evening of March 29, and while the resources are different, and the organizational structure somewhat altered, this around the clock technical support function has been maintained ever since. As ~~resources~~ reported to the site during the first seven days after the accident (Phase I), they were assigned to one of the two shifts. Initially, all ~~resources~~ ~~were~~ utilized to solve immediate technical problems as discussed in Section II. It gradually became apparent that the workload ~~was unmanageable~~ could be compartmentalized and subgroups sprang up to write procedures, investigate system problems, interface with operations, interface with outside organizations and to plan. By Sunday, the ad hoc technical support organization ~~appeared like Figure IX~~. Gradually the basic organizational responsibilities were defined, and it is during this period that the whole concept of the organization for the technical support organization became apparent. It was a creation of the necessities of the situation. For this reason the ultimate development of the technical support organization (Phase II) is really seen in retrospect to be quite suited to the problems at hand, and while implementation problems abounded throughout the development over the first month, the concept was never questioned or for that matter even doubted as the proper organizational concept for trying to manage the resources available.

The first phase (the first seven days) is important for this reason and for several others.

1. It is during this period that the capability of the General Public Utilities System was brought to bear, and it was the only available capability on such short notice. The technical expertise immediately assigned was

considerable and many of the initial team members assumed the responsible positions in the long term technical support group that handled the major organizational problems and technical problems until the plant was stabilized on natural circulation in late April.

The remaining GPUSC & JCP&L nuclear resources were effectively organized at GPUSC headquarters to add additional support.

2. Most, if not all of the technical problems that would need to be solved within the next thirty days were identified, and assessed as to their significance and their priority for solution. These priorities were clearly transmitted between the shifts that initially worked and then ultimately between the groups that developed during the Phase II technical group development as well as to the management organization which was being created and to the NRC so that all were in concert.

3. It was during Phase I that the need for extensive communication interfaces was determined and action was taken immediately to establish these interfaces.

4. As discussed before, within the first two days, the magnitude of the problem, the imbalance between the number of problems to be solved and the resources at hand and therefore, the need for extensive and very powerful technical resources was discovered and transmitted to off-site organizations so that the industry-wide manpower mobilization could be started.

5. It was recognized that all of the available resources were being absorbed into near term problem solving and that very little time was being spent on planning.

6. The need for contingency plans was realized and generalized ones were created that became the framework for extensive contingency plan and emergency procedure development later on.

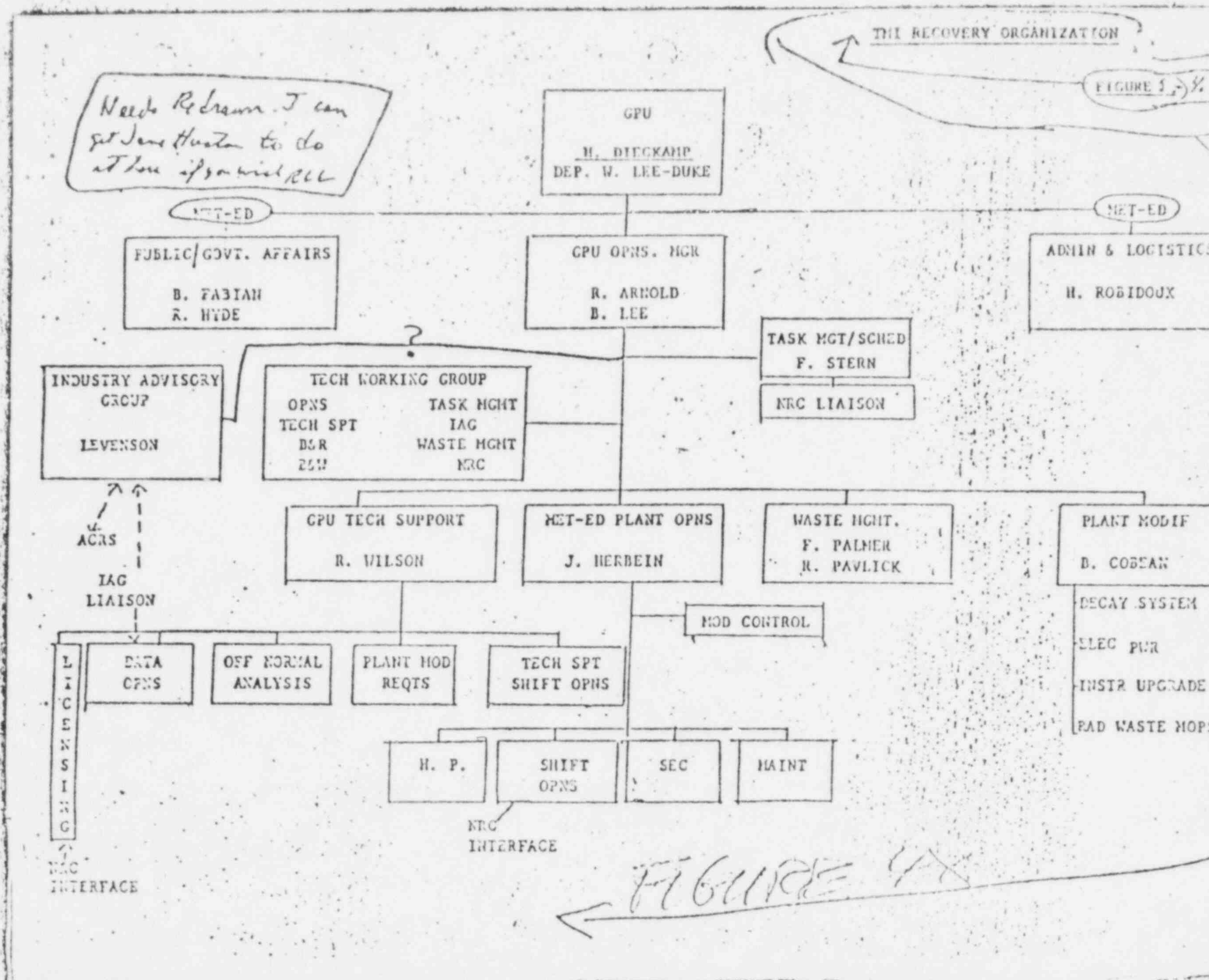
Figure 3X

Phase I ad hoc
Technical Support to Jerusalem Water

(See WW Lowe or
TG Broughton for
chart)

1309

8 4 1 3



TMI RECOVERY ORGANIZATION
GPU
H. DIECKAMP
DEP. W. LEE-DUKE
MET-ED
MET-ED
PUBLIC/GOVT. AFFAIRS
B. FABIAN
R. HYDE
GPU OPNS. MGR
R. ARNOLD
B. LEE
ADMIN & LOGISTICS
H. ROBIDOUX
TASK MGT/SCHED
F. STERN
NRC LIAISON
INDUSTRY ADVISORY GROUP
LEVENSON
TECH WORKING GROUP
OPNS
TECH SPT
B&R
B&W
TASK MGMT
IAG
WASTE MGMT
NRC
ACRS
IAG LIAISON
CPU TECH SUPPORT
R. WILSON
MET-ED PLANT OPNS
J. HERBEIN
WASTE MGMT.
F. PALMER
H. PAVLICK
PLANT MODIF
B. COBEAN
DECAY SYSTEM
ELEC PWR
INSTR UPGRADE
RAD WASTE MOPS
MOD CONTROL
LICENSING
DATA OPNS
OFF NORMAL ANALYSIS
PLANT MOD REQTS
TECH SPT SHIFT OPNS
H. P.
SHIFT OPNS
SEC
MAINT
NRC INTERFACE
NRC INTERFACE

All of these factors contributed significantly to the organizational concept for the formal Recovery Organization (Phase III). But even before the TMI Recovery Organization (See Figure 4X) was implemented on April 4, a number of steps had been taken towards that end.

On March 31, Task Forces were set up in the offices of the three remaining NSSS vendors, General Electric, Westinghouse, and Combustion Engineering, and direct-line phone connections and telecopying equipment were established between them and the Technical Support Organization (Tech Support). B&W's resources had been so organized since the first day and the direct communication had been established by March 30.

Office facilities immediately off-site with the necessary communications, power, eating, security and other needs were being rapidly established into the now well known Trailer City.

High powered technical resources were being organized into an independant "think tank" eventually known as the Industrial Advisory Group (IAG) and were being housed in a building remote from the site. Their purpose was to brainstorm the plant situation to better define the plant status, identify potential problems, and courses of action, and to review planned evaluations for unexpected problems. By Saturday, March 31, the IAG consisted of about 30 people from 10 organizations. Eventually, over 110 people participated and while the majority were from nuclear industry suppliers and consultants, 29% were from research and educational institutions, 12% were from utilities and 7% were from government. This group functioned as an integral part of the TMI Recovery Organization dissolving once it was established and was not disbanded until May 6, after the plant was stabilized in natural circulation mode.

As discussed in the previous section on manpower resources, the call had gone out and the nuclear industry was responding with talented technical personnel. The

organizational structure was formally announced by the President of GPU on April 4, and the TMI Recovery Organization commenced (i.e. Phase II). Figure 4X identifies the organizational components.

The Plant Modification Group designed, engineered, procured and installed modifications identified by the other groups. The make up of the group included engineers, designers, construction supervision and craft labor.

The Waste Management Group was responsible for the control and processing of those radioactive wastes isolated in tanks and for the monitoring and reduction of those being continuously or intermittently released to the atmosphere.

The Met-Ed Plant Operations Group consisted of the TMI-2 operating staff, significantly augmented by TMI-1 staff and other personnel, and they were responsible for continued operations, maintenance, health physics and security. The normal review and approval of modifications, conducted by operations continued to be done on an expedited basis.

The GPU Technical Support Group continued the functions previously being performed in Phase I as discussed earlier. Expanded responsibilities included licensing, formal modification design criteria specification and technical planning.

The Technical Working Group was a management control mechanism consisting of representatives from each organizational unit, plus B&W and the NRC, and was headed by the GPU Operations Manager. This group met twice daily for briefings on current status and planned ~~evolutions~~ actions. All input necessary to permit decisions by the GPU Operations Manager was made available and reviewed, and the decisions on approved evolutions were made at these meetings. In this way all input necessary as well as all requirements for action, or support or cooperation were identified for all. A continuing task assignment and scheduling activity supported this Working Group.

Within the GPU Tech Support Group and the Waste Management Group substructures, GPU personnel became the mainstays as other organizations' personnel were rotated in and out as necessary. Task groups were assigned responsibility for the technical problems discussed above and specific technical input and analyses were requested from organizations throughout the country by means of a technical communications center within the GPU Tech Support complex. Finally, the need for technical planning and contingency planning identified in Phase I became the responsibility of a Technical Planning Group ~~under~~ within the GPU Tech Support Group. Specific resources were assigned to these ~~tasks~~ functions and more than 100 contingency plans and emergency procedures were developed. An example of these technical technical planning activities is contained in Section _____, Base Plan for Cooldown.

This Recovery Organization, concieved out of necessity, was effective because sufficient thought was given to provide a logical problem solving framework and simply defined functions. While there were constant problems of rapidly changing manpower resources, constant demands for data for the government and the public, some duplication of effort due to evolving understanding of functions and significant stress caused by technical and personal concerns, the organization was able to keep pace with the demands for problem solving for the plant recovery and at the same time commit enormous resources to the problem of contingency planning, procedure development, training, documentation, equipment procurement, system design, accident assessment, radioactivity containment, radioactivity discharge monitoring, and all of the logistics associated with this enormous manpower buildup and problem solving activity. While GPU has not received much public credit for what it accomplished in those first few weeks after the accident, the authors believe that a true study of the accomplishments of the GPU ~~resources~~ personnel and other ~~resources~~ manpower brought to bear during that period will speak well of the capability of the General Public Utilities System, and we are proud to have been a part of what we consider a highly professional and effective effort under the worst possible circumstances.