

NASA NDE WORKING GROUP (NNWG)

OVERVIEW

in April 1993, a group of more than 200 specialists representing all the NASA Centers have met at the Johnson Space Center (JSC) in Houston Texas and formed the NASA NDE Working Group (NNWG). This meeting was initiated by the former NASA Headquarter NDE Manager, Mr. Robert Burdine, with the assistance of Dr. Ted Lynch of Vitro and was sponsored by the NASA Code Q, Missions Safety and Quality. Further, they agreed to develop a Charter, Policy Documents, Standard operating Procedures and a Newsletter. The goal of NNWG is to create a forum for direct communication, collaboration and technical interchange across NASA and outreach to the technical societies and industry as well as the international community. Mr. Robert Neuschaefer from Marshall Space Flight Center (MSFC) was elected the first Chairperson and Ms. Marie Prebilsky from JSC the Vice-Chairperson (V.C.). The position is for one year and the V.C. becomes the Chairperson after election of a new V.C. in a NASA wide voting process. Recently, Ms. Prebilsky became the Chairperson and Dr. Yoseph Bar-Cohen, from Jet Propulsion Laboratory (JPL), was elected the V.C. of NNWG.

To assure the most effective use of NASA Headquarters (HQ), Code Q, research and development funding a Standing Committee was established, with one-center mm-vote, to advice proposals funding. Mr. Hector Delgado, Kennedy Space Center (KSC), was elected the Chairperson of the committee. Dr. Bar-Cohen was elected as the editor of the NNWG Newsletter and it was agreed to publish it on a quarterly basis. For better use of NASA resources in manpower and facilities, a Directory has been established that includes all Centers specialists, capabilities and related contractors. Mr. John Larson, from Kennedy Space Center (KSC), was appointed to compile the NNWG Directory. Mr. Richard Russell, KSC, was encharged on drafting the NNWG Standard Operating Procedures.

Since the formation of the Working Group, there were several changes of NDE managers at the NASA Headquarters. Mr. Norman Schulze was appointed for a short period to take Mr. Robert Burdine position and currently the NDE manager is Mr Joseph Siedlecki. The NDE Working Group served as a continuation body for the Headquarters allowing the maintenance of contacts and technology responsibility.

CODE QW COMMITTEE

NASA sponsored internal research and development programs in the form of "1991" (Research and Technology Objectives and Plans). RTOPs are directed to solve specific problems and contribute to the Agency goals of performing its function more effectively, more quickly, and increase its efficiency. Proposals are submitted annually to NASA HQ, reviewed and funded according to priority of the effort and availability of resources. Technology transition from the

laboratory to the operational environment as well as the industry is receiving a growing attention by the committee.

The NNWG elected committee for code QW have been assigned the responsibility to assist the I IQ in establishing review criteria and then perform and rank the RTOPs on a peer review basis. The established review criteria were selected on a consensus across all NASA Centers regarding the implementation of the NASA goals with emphasis on "Cheaper, faster and better". In its first year, the Code Q Standing Committee reviewed 33 proposals and ranked them by priority. The funding of the proposals is expected to follow the priority list and the available budget will dictate how far down the list of RTOP programs will be supported.

NNWG NEWSLETTER

The NNWG Newsletter, which is published quarterly, is serving as a forum of communication and technical interchange among the NASA NDI³ community and increasingly reaching the non-NASA community. The Newsletter format has continued to evolve with slight modifications as the fourth issue was published in April this year. Dr. Bar-Cohen has been responsible for the input to the Newsletter using state-of-the-art in texts communication technology. The format reflects the desire to share information and to reduce duplications among the Agency. The Newsletter starts with a statement from the NASA Headquarters, and the NNWG Chairperson/Vice-Chairperson., then updates on the NNWG action items and news that affects the space NDI³ community are given. Input from individual centers is given briefly with the name and phone number of the responsible person for further information.

Some of the inputs are sent via fax from all the NASA Centers and Headquarters directly to Dr. Bar-Cohen's fax/modem of his computer. An OCR (Optical Character Recognition) software is used to convert the fax to actual text which is incorporated into the Newsletter. Taking advantage of the growth in information superhighway, e-Mail notes are sent via Internet and are cut and pasted directly into the Newsletter. The electronic network is expected to be the leading form of communication as more users are subscribed to it. Pictures of events, individuals and X-Ray radiographs (See Figure 1) are transferred across the country in fractions of seconds and are included in the Newsletter.

Volume 2 issue 2, which was published in April includes a statement from Mr. Frederick Gregory who is the Code Q Associate Administrator. An input from a high ranking NASA administrator gave the Newsletter and the Working Group a significant boost in recognition within the NASA community. The Newsletter is currently distributed to all the members of the NASA NDI³ Working Group as well as to a list of companies on the West Coast who are on the JPL/Industry/Academia Materials, Processes and NDI³ Communication forum. NASA is currently, in the process of expanding the distributions of the Newsletter.

NNWG DIRECTORY

To optimize the utilization of NASA resources, an NNWG Directory has been formed which includes all the NASA NDI³ specialist and their alternates with capabilities and (inscription of organization responsibility and of the facilities. The input to the Directory, which is expected to

be published in June 1994, was compiled and published by Mr. John Larson, KSC. The Directory includes description of the organizations to which the NDI individuals are affiliated with complete address information and e-mail. To allow manageability of the Directory only on-site contractors are listed and there are no current plans to expand the Directory to include vendors.

NASA-WIDE NDE STANDARDS

Recently, NASA have initiated efforts to consolidate its standards and specifications. The first NASA wide meeting covering materials processes and NDI was held at JPL in March 1993. As the committee Charter evolved a decision was made to transfer the responsibility to NDI to the NASA NDI Working Group. Dr. Bar-Cohen was elected the liaison between the M&P Working Group and NN WG. As part of this initiative two JPL specifications, which cover the ultrasonic and radiographic NDI of composites, were distributed among all NASA centers as well as selected industry (e.g. Boeing, Martin Marietta, Rockwell, etc.) and inspection facilities mostly on the West Coast. The collaboration with industry was made both directly as well as indirectly through Mr. M. McAndrew from Martin Marietta, who is a member of the Aerospace Industries Association. Input, suggestions and comments were made and they are now incorporated into the documents for issuance as NASA wide specifications with the intention of making them an SAE or ASTM specifications.

ACCOMPLISHMENTS

In the first year of the operation of NN WG, its members have made significant accomplishments that can make impact on improving NASA future operation in NDI. Some of these accomplishments worth noting as they can have potential application for technology transfer to the industry. These accomplishments include the development of a rapid optical scanner for orbiter window inspection, the development of an improved optically Stimulated Electron Mission (OSEM) probe system for determining bondline contamination on SRM and RSRM components, the development of NDI techniques needed for the certification of silicon nitride ball bearings for the SSME Advanced Turbopump and the development of a method of measuring the elastic properties of composite materials.

FUTURE DEFINITION OF NNWG

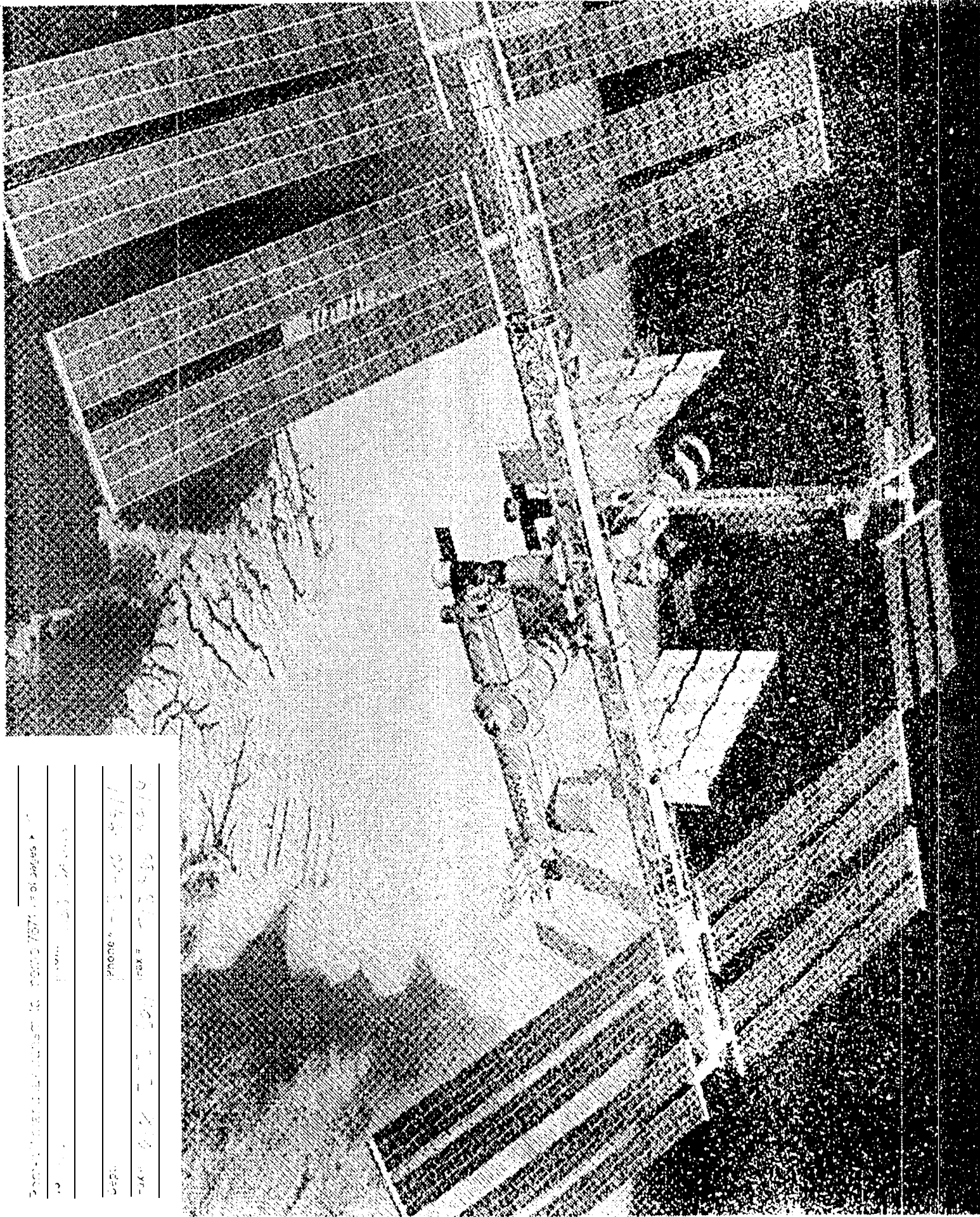
Now that the tools for effective collaboration and communication among the various NASA Centers were well established, a number of steps are considered for continued improvement of the process. These include:

- * Life-cycle planning with decision points throughout the development cycle.
- * Clearly identified customers for each program.
- * Realistic cost estimates over the life-cycle of the program, estimates which are linked to milestones in program progress.
- * Indication of potential funding, support from other sources, regardless of source and including furnished work years as appropriate where the contribution is in people rather than explicit funding.
- * Some attempt to limit the total number of proposals submitted to a realistic number given the

funding constraints of the total NRE program area.

The emphasis is on thorough life-cycle planning and concomitant costing. This includes costing out of follow-on efforts for successful RTOP programs to bridge the gap between the original RTOP funding and the transition of support to the "customer" program/project office.

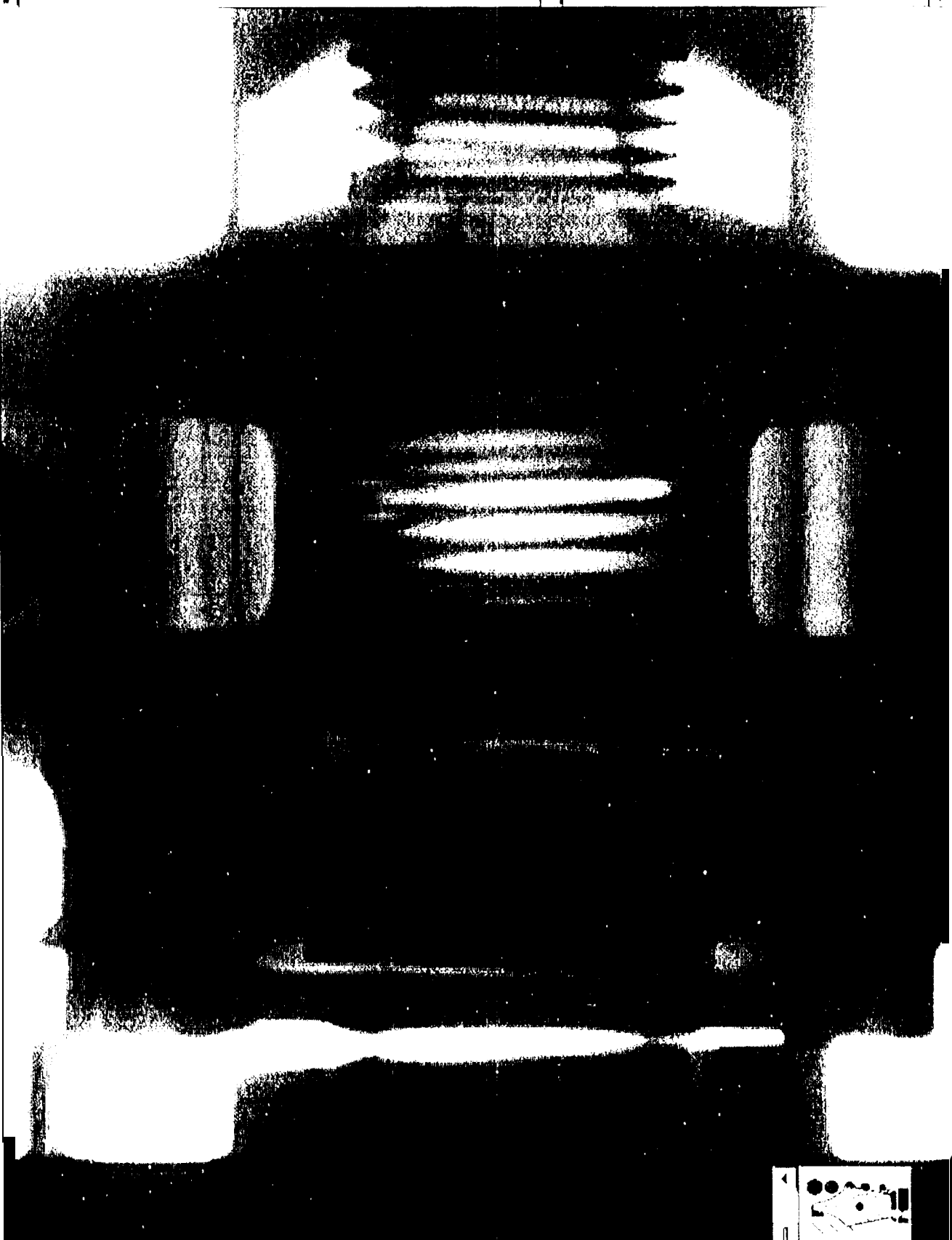
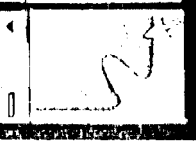
NNWG is faced with many challenges with the changes of national goals, decline in funding and the introduction of new technologies. The formation of the working group as well as adequate communication tools, policy document and adequate authority from NASA is allowing NNWG to handle the issues effectively to the benefit of both NASA and the nation as a whole. NNWG is looking forward to interaction with ASNT as some of its members are active in both ASNT and the Working Group.



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