AD-A126 785 NONDESTRUCTIVE TESTING INFORMATION ANALYSIS CENTER 1982 1/1
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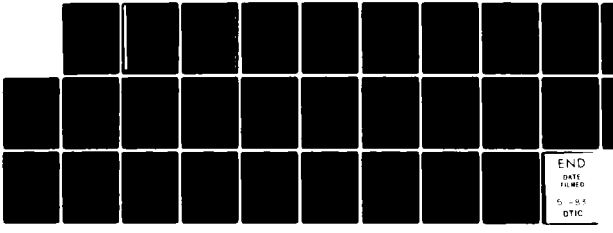

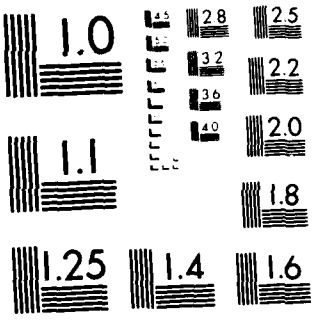

SwRI Report 15-5607

NONDESTRUCTIVE TESTING INFORMATION ANALYSIS CENTER, 1982

Southwest Research Institute
6220 Culebra Road
San Antonio, Texas 78284

March 1983

Contract Number DLA900-79-C-1266
Annual Technical Report for Period
16 February 1982 - 15 February 1983

Prepared for

DEFENSE LOGISTICS AGENCY
Headquarters
Cameron Station
Alexandria, Virginia 22314

ARMY MATERIALS AND MECHANICS RESEARCH CENTER
Watertown, Massachusetts 02172

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APPROVED

John R. Barton, Vice President
Instrumentation Research Division

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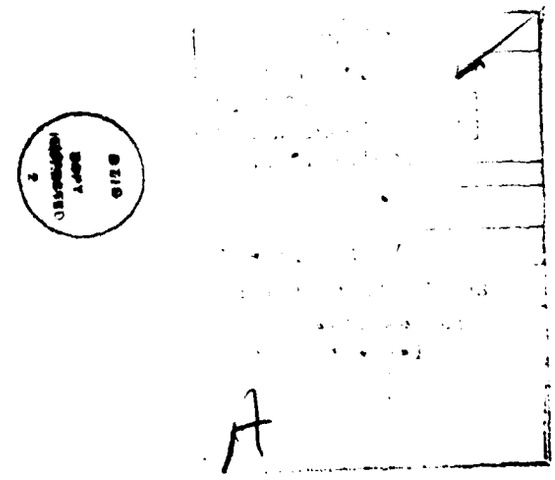

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I. INTRODUCTION

On January 6, 1976, by amendment of contract DSA900-74-C-5268, the Department of Defense transferred to Southwest Research Institute full responsibility for operation of the Nondestructive Testing Information Analysis Center (NTIAC), and discontinued the Nondestructive Testing Data Support Center (NTDSC) as a separate function.

From its establishment in 1961, through 1975, NTIAC was operated by the U. S. Army Materials and Mechanics Research Center, Watertown, Massachusetts. In February 1974, the Department of Defense supplemented the capabilities of NTIAC through a contractor operated support function designated as the Nondestructive Testing Data Support Center (NTDSC). AMMRC continued, however, to bear responsibility as the officially designated DoD information analysis center in the field of nondestructive testing. Accordingly, AMMRC was charged to provide the interface with the NDT community for services of both NTIAC and NTDSC. During the period from February 1974, to January 1976, AMMRC worked closely with NTDSC to develop the latter's capability to function independently as a full service information analysis center of technical excellence. A strong relationship between AMMRC and the now fully contractor operated NTIAC continues with AMMRC being designated as the contracting officer's technical representative responsible for technically monitoring NTIAC activities.

Other major provisions of the contract remain substantially unchanged. Southwest Research Institute is charged to operate NTIAC as a full service information analysis center of technical excellence, which includes principally: establishing and continuously maintaining an information support system that is comprehensive and current with respect to the field of nondestructive testing; responding to inquiries for technical or bibliographic information; publication of a current awareness periodical (the NTIAC Newsletter); and, in response to needs of the user community, preparation, publication, and marketing of timely, authoritative critical reviews, technology assessments, state-of-the-art surveys, data books, and handbooks.

In common with other DoD IACs, NTIAC is required to establish and maintain a service charge system for its products and services with the goal of achieving an annual rate of reimbursement equal to at least 50 percent of yearly direct funding.

The technical scope of NTIAC is that of the entire field of nondestructive testing, inspection, and evaluation -- the full range of methods and techniques whereby a material, component, or entire system can be so characterized as to reliably predict its performance under a prescribed service regime. Table 1 indicates major current methods of nondestructive testing.

Table 1

MAJOR CURRENT METHODS OF NONDESTRUCTIVE TESTING

. RADIOGRAPHIC AND RADIOMETRIC TESTING

X-Rays
Gamma Rays
Neutrons
Filmless Techniques

. ELECTROMAGNETIC TESTING

Eddy Currents
RF Fields
Microwaves
Magnetic Flux Analysis
Magnetic Particles

. ULTRASONIC AND ACOUSTIC TESTING

Ultrasonic Transmission and Reflectometry
Ultrasonic Imaging
Spectrum Analysis
Acoustic Emission

. LIQUID PENETRANT TESTING

Dye Penetrants
Fluorescent Penetrants

. OPTICAL TESTING

Visual Testing
Optical Reflectometry and Transmission
Holography

. THERMAL TESTING

Infrared Radiometry
Thermography

The present organization and personnel of NTIAC are shown in Figure 1. By design, NTIAC is supported by the full resources of its host organization, Southwest Research Institute, the organizational chart of which is shown in Figure 2. Of the total Institute staff of 2000, approximately 200 professional staff constitute the resource of knowledge and expertise which can directly support NTIAC in its publications and information support systems.

In an important respect NTIAC is unique among DoD IACs. It is the first IAC which was planned from the beginning to rely upon the Defense Technical Information Center for automatic data processing (computer) services, as well as certain other essential support services. These are indicated in Figure 3.

In Chapter II, the state of development of NTIAC's basic performance areas are summarized. In Chapter III, plans and projections for the tenth year of operation are presented. The Appendices include statistical summaries, DSAH Form 1261, for the fourth quarter and cumulative summary, of the ninth contract year, and cumulative summary since initiation of the current contract.

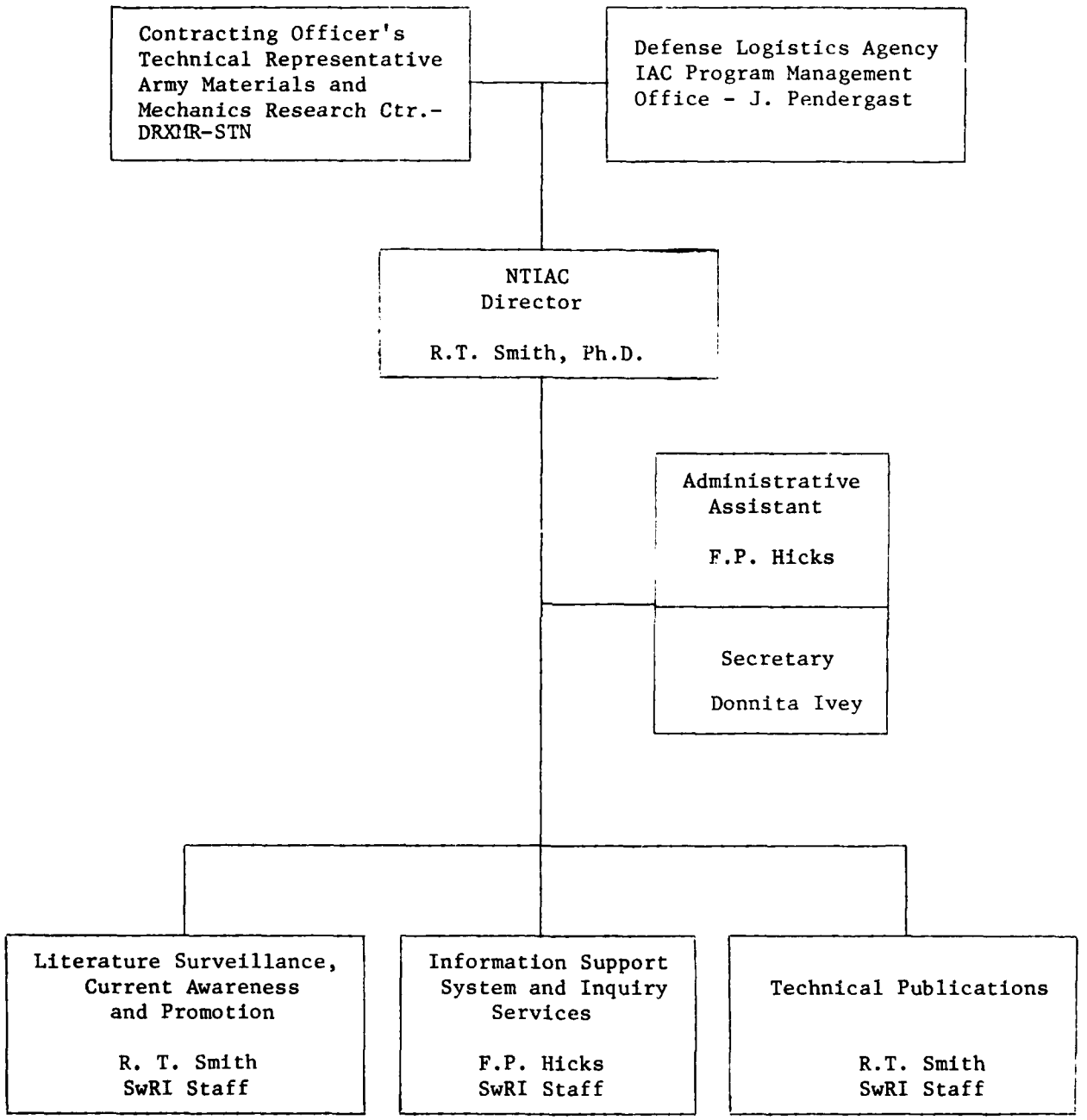
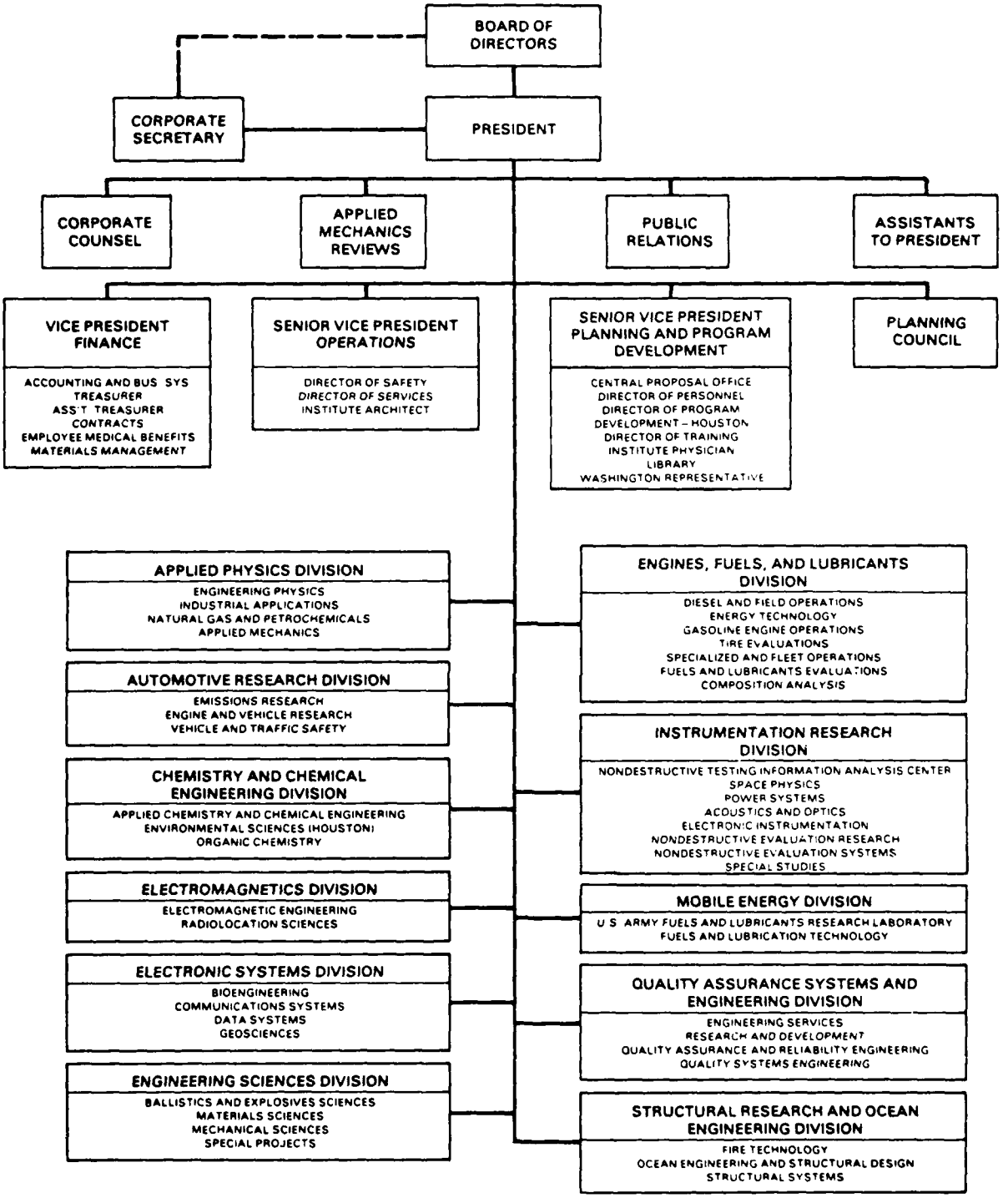


Figure 1

NTIAC ORGANIZATION AND STAFFING

SOUTHWEST RESEARCH INSTITUTE
ORGANIZATION CHART



STANDING COMMITTEES

ARCHITECTURAL COMMITTEE
SERVICES COMMITTEE
COMPUTER COMMITTEE
ENERGY CONSERVATION COUNCIL
LIBRARY COMMITTEE
MANAGEMENT ADVISORY COMMITTEE
NUCLEAR QUALITY ASSURANCE COMMITTEE
PATENT COMMITTEE
PLANNING COUNCIL
RADIOLOGICAL HEALTH & SAFETY COMMITTEE
REVIEW COMMITTEE ON THE USE OF HUMAN SUBJECTS
SAFETY COMMITTEE
EF & L COMMITTEE
TRANSPORTATION SAFETY RESEARCH COMMITTEE
STRUCTURAL LIFETIME ASSURANCE COMMITTEE

——— DIRECTION
– – – COORDINATION

REVISED APRIL 1980

FIGURE 2.

DTIC SUPPORT OF NTIAC

. RDT&E On-Line System Terminal

. TR-File; WU-File; R&DPP-File

. Unique NTIAC File & Inverted (Index) File

. Batch Input Service

. Off-Line Print-Out Service

. Special Output Format

. Hard Copy Print-Out and Indices of NTIAC File

. Selected Dissemination of Information Program

Figure 3

II. OPERATIONAL REPORT

A. Introduction

The major areas of NTIAC's activity are: the information support system; current awareness and promotional activities; technical and bibliographic inquires; technical publications; and special services. The status of each of these areas is reviewed in this chapter.

B. Information Support System (ISS)

NTIAC's ISS comprises a document collection and computerized bibliographic data files. These are kept current through systematic surveillance of the worldwide literature in nondestructive testing and closely allied technical areas.

Surveillance of open literature is accomplished in two basic modes. The most important serial literature, books, conference proceedings, etc., are directly scanned. The "core" literature comprises those serials of which a significant fraction of the contents is ordinarily accessioned. The secondary literature comprises those serials which are also directly reviewed cover to cover, but from which only selected pertinent articles are accessioned. Table 2 lists the current core and secondary serials. As an added check on our surveillance effectiveness, we also scan Current Contents, NASA/SCAN, as well as the monthly Engineering Index and Science Abstracts. New books, conference proceedings, etc., are surveiled through informal channels, publishers' advertisements and catalogues, and reviews published elsewhere. It is noteworthy that all serial publications, books, proceedings, etc., are furnished to NTIAC by its host institution, Southwest Research Institute, through the Institute's library, without direct charge. (Exceptions are specific purchases made especially for NTIAC; such items become the property of NTIAC, i.e., of the U. S. Government.)

Surveillance of Department of Defense technical reports is accomplished by direct receipt of reports (where NTIAC has been placed on the primary distribution list) and the current awareness service provided by the Defense Technical Information Center. A copy (in either ink print or microfiche) of each accessioned report is added to the NTIAC document collection.

Other U. S. Government reports and unpublished private sector reports are surveiled mainly by requesting copies through informal contacts with agencies and individuals engaged in nondestructive testing programs. Additionally, commercially available "dial up" bibliographic data files (mainly the NTIS file) are periodically searched for NDE related citations. This gives good coverage of publicly released U. S. Government reports, especially those of NASA, which are comparatively rich in the area of NDT.

Table 2

NTIAC CORE JOURNALS

1. Acoustical Imaging and Holography: An International Interdisciplinary Journal (USA)
2. British Journal of Non-Destructive Testing (GB)
3. Institute of Electronics and Electrical Engineers, Transactions Acoustics, Speech, and Signal Processing (USA)
4. Institute of Electronics and Electrical Engineers, Transactions Instrumentation and Measurement (USA)
5. Institute of Electronics and Electrical Engineers, Transactions Sonics and Ultrasonics (USA)
6. Journal of Acoustic Emission (USA)
7. Journal of Nondestructive Evaluation (USA)
8. Journal of the Acoustical Society of America (USA)
9. Journal of Testing and Evaluation (USA)
10. Materialprufung (Ger.)
11. Materials Evaluation (USA)
12. NDT International (GB)
13. Soviet Journal of Nondestructive Testing (USSR)
14. Ultrasonics (GB)

SECONDARY SERIAL PUBLICATIONS
SURVEILLED AND REVIEWED BY NTIAC

1. Academie Polonaise des Sciences Bulletin (France)
2. Acustica (Ger.)
3. Aircraft Engineering (GB)
4. American Ceramic Society Bulletin (USA)
5. American Ceramic Society Journal (USA)
6. American Concrete Institute Journal (USA)
7. American Journal of Physics (USA)
8. American Laboratory (USA)
9. Applied Acoustics (Netherlands)
10. Applied Optics (USA)
11. Applied Physics (Ger.)
12. Applied Physics (USA)
13. Applied Physics Letters (USA)
14. Applied Scientific Research (Netherlands)
15. ASTM Standardization News (USA)
16. Automatica (GB)
17. Automatic Control & Computer Sciences (USSR)
18. The Bell System Technical Journal (USA)
19. Canadian Aeronautics and Space Journal (Canada)
20. Canadian Journal of Physics (Canada)

Table 2 (Cont'd)

21. Ceramic Engineering & Science Proceedings (USA)
22. Composites (GB)
23. Composites Technology Review (USA)
24. Control Engineering (USA)
25. Defense Management Journal (USA)
26. Electro-Mechanical Design (USA)
27. Electronic Engineering (GB)
28. Electronics Letters (GB)
29. Electro-Optical Systems Design (USA)
30. Engineering Fracture Mechanics (USA)
31. Engineering Index (USA)
32. EPRI Journal (USA)
33. European Scientific Notes (GB, ONR)
34. Experimental Mechanics (USA)
35. Geotechnical Testing Journal (USA)
36. Industrial Electronics and Control Instrumentation IEEE (USA)
37. Industrial Laboratory (USSR)
38. Industrial Research and Development (USA)
39. Industrial Robotics (GB)
40. IEEE Transactions on Pattern Analysis & Machine Intelligence (USA)
41. Instruments and Experimental Techniques (USSR)
42. International Journal of Fracture (Netherlands)
43. International Journal of Pressure Vessels & Piping (GB)
44. International Journal of Solids & Structures (GB)
45. International Metals Reviews (GB)
46. Japanese Journal of Applied Physics (Japan)
47. Journal of Applied Mechanics, Transactions of ASME (USA)
48. Journal of Applied Physics (USA)
49. Journal of Composite Materials (USA)
50. Journal of Dynamic Systems, Measurement and Control, ASME (USA)
51. Journal of Engineering Materials and Technology, ASME (USA)
52. Journal of Engineering for Power, Transactions of ASME (USA)
53. Journal of Materials Science (GB)
54. Journal of the Physical Society of Japan (Japan)
55. Journal of Physics, D Applied Physics (GB)
56. Journal of Physics, E Scientific Institutes (GB)
57. Journal of Pressure Vessel Technology of ASME (USA)
58. Journal of Research, NBS (USA)
59. Journal of Sound & Vibration (GB)
60. Journal of Strain Analysis (GB)
61. Materials Engineering (USA)
62. Materials Performance (USA)
63. Materials Research Bulletin (GB)
64. Materials Science and Engineering (Switzerland)
65. Measurement Techniques (USSR)

Table 2 (Cont'd)

66. Mechanics of Composite Materials (USSR)
67. Messen Prufen (Ger.)
68. Metal Construction (GB)
69. Metals & Materials (GB)
70. Metal Progress (USA)
71. Metal Science (GB)
72. Metals Technology (GB)
73. Nondestructive Testing (Australia)
74. Nuclear News (USA)
75. Optical Engineering (USA)
76. Optical Society of America Journal (USA)
77. Optics and Spectroscopy (USSR)
78. Optics Letters (USA)
79. Philosophical Magazine A (GB)
80. Physics A, B, C, & D (Netherlands)
81. Physics Letters, A, B, & C (Netherlands)
82. Physics of Metals & Metallography (USSR)
83. Progress in Materials Science (GB)
84. Quality (USA)
85. RCA Review (USA)
86. Review of Scientific Instruments (USA)
87. Robotics Today (USA)
88. Russian Engineering Journal (USSR)
89. SAMPE Journal (USA)
90. SAMPE Quarterly (USA)
91. Science Abstracts, Series A, B, and C (GB)
92. Soviet Applied Mechanics (USSR)
93. Soviet Journal of Optical Technology (USSR)
94. Soviet Physics Acoustic (USSR)
95. Soviet Physics Doklady (USSR)
96. Soviet Physics JEPT (USSR)
97. Soviet Physics Journal (USSR)
98. Soviet Physics Technical Physics (USSR)
99. Strength of Materials (USSR)
100. Strain (GB)
101. Ultrasonic Imaging (USA)
102. Wear (Netherlands)
103. Welding Journal (USA)

Southwest Research Institute utilizes a General Electric "Terminet 30" data communications terminal with remote batch print-out capability. This terminal is shared by the SwRI Library and NTIAC and is located in the NTIAC offices along with the DTIC terminal and printer, making the overall operations convenient and efficacious. The use of this equipment for broader periodic searches of commercially available computerized data bases further ensures the adequacy of NTIAC's surveillance of the literature.

For each of the items accessioned by NTIAC, a computerized bibliographic record is created. Each such record comprises the pertinent fields illustrated in Figure 4. Index terms (descriptors) are taken from a controlled word list prepared by NTIAC; this list is updated at least semiannually. In those cases where a bibliographic record already exists in the Technical Report file at DTIC, NTIAC augments the DTIC record by adding the NTIAC accession number and descriptors, thus effectively bringing such records into the NTIAC file.

The current status of NTIAC's bibliographic data file is presented in Table 3.

In addition to its own unique bibliographic data file, NTIAC also has access, through its RDT&E on-line terminal, to DTIC's Technical Report File (based on DD Form 1473), the Work Unit File (based on DD Form 1498), and the R&D Program Planning File (based on DD Form 1634).

System enhancements impacting NTIAC during this reporting period have included the following:

Security/limitation changes have been added, for each TAB cycle, to the TR data base. This enables searching on line for changes affecting our holdings.

Free text searching of individual words in titles has been added.

DTIC is now assigning AD numbers to "components" within proceedings, symposia, and other compilations. These "components" may also be ordered individually.

DTIC supplied us with a list of unique report codes which they compiled in their report standardization task.

Effective with issue 83-01, TAB and TAB Indexes are being issued as a single Confidential document.

The International Traffic in Arms (ITAR) statement was added to the DROLS display. This statement reads:

"WARNING"

> "This document contains technical data relating to manufacturing or using munitions of war. Export of or release to foreign nationals within the United States, without first obtaining an export license, may violate the International Traffic in Arms regulations. Violations of the International Traffic in Arms regulations are punishable by up to two years imprisonment and a fine of $100,000."

We interpret this to mean that we are not to give any information on limited distribution documents to any foreign nationals. Prior to the addition of this statement we had suppressed all abstracts of limited distribution documents appearing in bibliographies from our file. We are now deleting all reference to these documents from bibliographies with the exception of those mailed to DTIC registered users.

DTIC installed a Front-End Processor to function as a communications link between the user and DROLS. This required some modifications in activation and termination procedures. NTIAC began using the FEP in February and it appears that response time has improved considerably. Also, during this period, we have not had the telephone line problems which we had previously experienced, therefore, our down-time has been less.

Table 3

STATUS OF THE NTIAC BIBLIOGRAPHIC DATA BASE

Documents in File	24,466
Records Unique to NTIAC	20,509
Records Shared by DTIC	3,957

NTIAC **LITERATURE REVIEW WORKSHEET**

(42) NT- 10959
(1) AD- D301672

(6) Title
Nuclear Resonances in Metals

(10) Authors:
I. D. Weisman, L. J. Swartzendruber, L. H. Bennett

(8)
(20)

(22) Availability:
Published in Techniques of Metals Research; Vol. 1, Pt. 2; 1973; Chapter 9; 165-504

(33) Code: 1, 21
(43) Copy: 1

(21) Sup. Note:
See also NT-8281

(11) Date: 1973
(12) No.pp: 340

(35) Source Code:
(14) Source Series:
(15) Contract.
(18) Mon. Acronym:
(19) Mon. Series:
(9) Descr. Note:
(34) Serial Descr.

(30) Annotation:
Authoritative. Advanced discussion.

(28)

(27) Abstract:

A general review of theory, experimental apparatus and technique, and representative results of nuclear resonances in metals. Covers continuous-wave and pulsed NMR, nuclear quadrupole resonance (NQR), NMR in ferromagnetic materials (FNR), the Mossbauer effect, and combined resonances (the Overhauser effect), acoustic modulation of Mossbauer spectra, nuclear magnetic acoustic resonance, helicon waves, and electron-nucleus double resonance. Also discussed are thermal effects, sample size and shape effects, diffusion, spurious resonances, calorimetric detection of NMR, and NMR in superconductors. (NTIAC)

(44) Descriptors:
*Nuclear magnetic resonance, *Nuclear quadrupole resonance,
*Mossbauer effect, test book, reviews, acoustic nuclear resonance

Other key words:
Date Input:
Indexer:

Figure 4

C. Current Awareness and Promotional Activities

During 1982, the NTIAC Newsletter circulation exhibited a small increase, from 4,717 in February 1982 to 4,770 in February 1983.

Because of funding constraints, the Newsletter during 1982 was changed over to a quarterly basis from a monthly basis. However, the Newsletter continues to be very well received by the NDE community. The 1982 Newsletter circulation is shown in Table 4.

For each Newsletter issue of 1982, the feature article topic is given below.

ISSUE	FEATURE
January 1982	The Second European Conference on Nondestructive Testing
February 1982	Ultrasonic Transducer Performance Requirements
May 1982	NTIAC Publications
August 1982	14th Symposium on Nondestructive Evaluation
November 1982	14th Symposium on Nondestructive Evaluation, and Ultrasonic Absorption in the Structure of Metals
February 1983	Abstracts of the 14th Symposium on Nondestructive Evaluation

Table 4

1982 NEWSLETTER CIRCULATION*

Army	176
Navy	204
Air Force	170
DoD Non-Service	64
Other Government	164
Foreign	177
Foreign Government	59
Private Sector	3756
TOTAL	4770

*Entries in each category are approximate.

Table 5 summarizes NTIAC current awareness participation and promotional briefings and displays at various conferences and meetings during the past year.

On March 22-26, Dr. Smith attended the 1982 Spring Meeting of the American Society of Nondestructive Testing, held in Boston, Massachusetts. On April 27-29, Dr. Smith attended the 6th International Conference on Automated Inspection and Product Control, held in Birmingham, England. Dr. Smith presented a paper on behalf of the Instrumentation Research Division, and chaired the session on Nondestructive Evaluation. Sample copies of recent NTIAC Newsletters were distributed to participants, who were mainly from Europe.

Dr. Smith attended the 5th International Conference on Quantitative NDE in the Nuclear Industry, held May 10-14, in San Diego, California.

On August 2-6, Dr. Smith attended the Annual AFWAL/DARPA/Navy Conference on Quantitative NDE held at the University of San Diego, La Jolla, California.

Visitors to NTIAC during the reporting period included Mr. Ralph Sams and Mr. Bruce Bernstein of the Electric Power Research Institute, Mr. James B. Foulk, Consultant and Mr. Donald W. Mowrer, Consultant, as well as Mr. Ken Friddell of the Engineering Technology Group of Boeing Aerospace Company, Seattle, Washington. Our new COTR, Mr. Harold P. Hatch of AMMRC, visited with us for a review of NTIAC operations on October 20, 1982.

During this reporting period we completed most of the arrangements and the technical program for the forthcoming 14th Symposium on Nondestructive Evaluation, sponsored by NTIAC, and to be held in San Antonio, Texas at El Tropicano Motor Hotel on April 19-21, 1983. Arrangements included obtaining the services of Mr. Bill Kitson, new National President of ASNT, to speak at a luncheon, Dr. Gary Dau, Senior Program Manager of the Electric Power Research Institute to be our keynote speaker, and Mr. Donald Forney of AFWAL, who has arranged for a panel session on NDE programs and needs within the federal and industrial sectors. We have had an outstanding response to our request for papers, both in quality and quantity. Some 70 papers have been reviewed and accepted for presentation at the Symposium. A proceedings of the Symposium will be published during 1983. Mats have already been sent to the authors to be used in preparing the printed material.

D. Inquiries

During this reporting period, NTIAC responded to 57 inquiries. Sixteen bibliographies were delivered and revenue from this source amounted to $1,460. Twelve inquiries were received from Government agencies. Table 6 summarizes the technical and bibliographical inquiry activity. A significant number of Government agencies use the NTIAC data base as shown in Table 7.

Table 5

CURRENT AWARENESS & PROMOTIONAL MEETINGS

RDT&E Regional Users Conference (F. Hicks)	March 16-17, 1982 Albuquerque, NM
ASNT Spring Meeting	March 22-26, 1982 Boston, MA
6th International Conference on Automated Inspection and Product Control	April 27-29, 1982 Birmingham, England
5th International Conference on Quantitative NDE in the Nuclear Industry	May 10-14, 1982 San Diego, CA
AFWAL/DARPA/Navy Conference on Quantitative NDE	August 2-6, 1982 La Jolla, CA
RDT&E Users Conference (F. Hicks)	October 27-29, 1982 Alexandria, VA

Table 6

TECHNICAL AND BIBLIOGRAPHIC INQUIRIES

No.	Source	Type	Amount	Date
0702	Vaught Corp.	Service Info	n/c	3/9/82
0703	Dynamic Systems Inc.	Std. Bib	$140	3/16/82
0705	Wm. B. Wilson Co.	Info	n/c	3/19/82
0706	Williams Internat.	Tech. Response	n/c	3/19/82
0707	Zimmerman & Assoc.	Info	n/c	3/23/82
0708	George Darcy	Bib	n/c	3/23/82
0709	Vaught Corp.	Std. Bib	$100	4/6/82
0710	Spague Electric Co.	Tech. Response	n/c	4/5/82
0711	Martin Marietta	Service Info	n/c	4/7/82
0712	MTI	Service Info	n/c	4/7/82
0713	TRW/DSSG	Std. Bib	$130	4/19/82
0714	Jamesbury Corp.	Service Info	n/c	5/11/82
0715	R.G. Crafton(DRDAR-QAC-T)	Letter Proposal	n/c	5/10/82
0716	Earle & Wright	Tech. Response	n/c	5/14/82
0717	Mr. Kok	Service Info	n/c	5/14/82
0718	Aberdeen Proving Grnd.	Service Info	n/c	5/18/82
0719	Douglas Aircraft	Service Info	n/c	5/31/82
0720	SwRI - Div. 17	Service Info	n/c	6/3/82
0721	Sikorsky	Tech. Response	n/c	6/7/82
0722	Sunstrand Aviation	Tech. Response	n/c	6/7/82
0723	Hughes Aircraft	Tech. Response	n/c	6/9/82
0724	Dr. R. Danford	Service Info	n/c	6/8/82
0725	Alberta Res. Council	Service Info	n/c	6/8/82
0726	Technisch Physische Dienst	Service Info	n/c	6/14/82
0727	Scientific Measurements	Service Info	n/c	6/15/82
0728	J.A. Jones (EPRI)	Service Info	n/c	6/15/82
0729	Hegeon Kwun - Div. 15	Bib	n/c	6/15/82
0730	Naval Air Rework Fac.	Service Info	n/c	6/21/82
0731	Industrial Tech. Center	Service Info	n/c	7/6/82
0732	Hercules Inc.	Service Info	n/c	7/7/82
0733	GTE Labs.	Bib	$220	7/21/82
0734	Mrs. Brozda - Navy	Service Info	n/c	8/23/82
0735	AMMRC - DRXMR-STN	Bib	n/c	8/26/82
0736	Terry Smith-Kelly AFB	Tech. Response	n/c	8/30/82
0737	Vic Shick	Bib	$90	9/1/82
0738	Naval Surface Weapons Center	Tech. Response	n/c	9/22/82
0739	Bell Aerospace Textron	Service Info	n/c	9/28/82
0740	Waterways Exp. Station	Tech. Response	n/c	9/28/82

Table 6 (Cont'd)

No.	Source	Type	Amount	Date
0741	Aberdeen Proving Grnd.	Bib	$110	9/29/82
0742	Continental Can	Bib	$140	10/6/82
0743	Lockheed-California	Tech. Response	n/c	10/18/82
0744	Navy-DTNSRDC	Tech. Response	n/c	10/22/82
0745	A. Singh - Div. 17	Bib	n/c	10/27/82
0746	KO Steel	Tech. Response	n/c	11/3/82
0747	Gilbert Assoc.	Tech. Response	n/c	11/8/82
0748	Continental Can	Bib	$120	11/22/82
0749	Gould Inc.	Bib	$100	11/23/82
0750	Capt. Stroup-Kelly AFB	Tech. Response	n/c	11/30/82
0751	Reinhardt Assoc.	Proposal	n/c	1/3/83
0752	Goodyear Aerospace	Tech. Response	n/c	1/14/83
0753	Babcock & Wilcox	Proposal	n/c	1/19/83
0754	Quality Magazine	Tech. Response	n/c	2/3/83
0755	GPU Nuclear Corp.	Tech. Response	n/c	2/9/83
0756	Dr. Beissner - Div. 15	Std. Bib.	$90	2/15/83

Table 7

SUMMARY OF NTIAC FILE USAGE BY OTHER USERS

User	Displays	Orders
Army	1,240	43
Navy	794	224
Air Force	599	226
Other Government	322	51
DoD Contractors	1,770	1,185
DTIC	2,616	25
Other IACs	420	2
TOTALS	7,761	1,756

Displays are any records displayed on a remote terminal, and orders are any records appearing on a bibliography ordered off-line from DTIC.

E. Technical Publications

The first of our state-of-the-art surveys on Nondestructive Evaluation of Fiber Reinforced Composites was published during this period. This first volume is directed to radiography and ultrasonic techniques for the NDE of graphite fiber reinforced plastic composites and was prepared by Dr. George A. Matzkanin.

A revised and updated edition of the NTIAC Handbook was completed during this period and has been printed and offered for sale. Also during this period a second state-of-the-art review in our series on Nondestructive Evaluation of Fiber Reinforced Composites has been under preparation.

Publications sold during this reporting period are shown in Table 8a. Publications sales since 1976 are shown in Table 8b.

F. Special Services

Table 9 shows active NTIAC special (super) task titles, DoD sponsoring agencies, cost, contract modification, and modification date.

Table 8a

1982 PUBLICATION SALES

Publication	Title	Sales
NTIAC-76-1	Electromagnetic Acoustic Transducers	24
NTIAC-76-2	Proceedings of a Workshop on NDE of Residual Stress	8
NTIAC-77-1	Advanced Ultrasonic Testing Systems	52
NTIAC-78-1	Automated Radiography	14
NTIAC-78-2	Liquid Crystals for Nondestructive Evaluation	9
NTIAC-79-1	NTIAC Handbook	9
NTIAC-79-2	The Barkhausen Effect and Its Application to Nondestructive Evaluation	11
NTIAC-80-1	NDE Applications of Magnetic Leakage Field Methods	36
NTIAC-80-2	Technology Assessment of Optical Methods for NDE, Part I	31
NTIAC-80-3	Economics of Nondestructive Evaluation	12
NTIAC-81-1	Technology Assessment of Optical Methods for NDE, Part II	12
NTIAC-81-2	Life Predictions/Failure Probability Utilizing NDE and Fracture Mechanics	12
NTIAC-82-1	Nondestructive Evaluation of Fiber Reinforced Composites, Vol. I (A State-of-the-Art Survey)	66
NTIAC-82-2	Acoustic Emission - A Bibliography	10
NTIAC-82-3	NTIAC Handbook - Revision/Supplement No. 1	12
	10th Symposium on Nondestructive Evaluation, Proceedings	1
	11th Symposium on Nondestructive Evaluation, Proceedings	2
	12th Symposium on Nondestructive Evaluation, Proceedings	14
	13th Symposium on Nondestructive Evaluation, Proceedings	94
	TOTAL	436

Table 8b

PUBLICATION SALES 1976 - 1982

	76-1	76-2	77-1	78-1	78-2	79-1	79-2	80-1	80-2	80-3	81-1	81-2	82-1	82-2	82-3	12th Proc	13th Proc	2-11 Proc	Yearly Total
1976	112	151	13																276
1977	37	67	76																180
1978	85	62	168	16	3														334
1979	53	17	89	87	29	236	23												534
1980	48	13	169	59	33	42	53	117	66	43						54		19	716
1981	55	27	134	45	20	42	31	62	90	21	61	42				30	17	3	680
1982	24	8	52	14	9	9	11	36	31	12	12	12	66	10	12	14	94	3	429
TOTALS	414	345	701	221	94	329	118	215	187	76	73	54	66	10	12	98	111	25	3149

Table 9

ACTIVE NTIAC SPECIAL TASKS

Title	Agency	Amount (In Thousands)	Mod. No.	Mod. Date
Spacecraft NDE	AF Geophysics Lab	$55	P00013	11/20/81
Advanced NDE of Bearings	TSARCOM	$70	P00015	2/25/82
		$70	P00023	12/20/82
Eval. of Special Design Ball Bearings	TSARCOM	$61	P00019	8/18/82
Delineation of Strain Gage Location for Testing BATV & HARPOON Tactical Missile	Pacific Missile Test Center	$15	P00015	2/25/82
		$15	P00017	6/17/82
		$45	P00020	8/26/82
		$67	P00021	9/30/82
		$ 5	P00023	12/20/82
		$16	P00024	1/31/83
Ultrasonic Transducer Study	AFWAL	$25	P00017	6/17/82
NDE Data & Analysis of Insulated Wire	USAAVRADCOM	$59	P00021	9/30/82
Analysis of NDE Data from Gas Turbine Engine Bearings	AMMRC	$65	P00021	9/30/82
Analysis of Data for Effects on Lubricants of ND Chip Detectors	USAAVRADCOM	$75	P00021	9/30/82
NMR Measurement of Moisture on Composites	AMMRC	$60	P00021	9/30/82

III. FUTURE PLANS

A. Current Awareness and Promotional Activities

NTIAC will be sponsoring the 14th Symposium on Nondestructive Evaluation to be held in San Antonio, at El Tropicano Motor Hotel, April 19-21, 1983. The program has been finalized and a brochure listing details of the times, dates, and session titles along with papers and paper abstracts has been printed and made available.

B. Products and Services

During the coming year NTIAC will be issuing two new state-of-the-art surveys, one on ultrasonic transducer characterization and another on our continuing series on state-of-the-art reviews of the NDE of composite materials. A Proceedings of the 14th Symposium on NDE will also be published.

APPENDIX

INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT	NAME OF INFORMATION ANALYSIS CENTER Nondestructive Testing Information Analysis Center				QUARTER ENDING 15 Feb 1983		CUMULATIVE THRU	
AREA TITLE	OUTPUT UNITS PRODUCED	MANHOURS EXPENDED			COSTS INCURRED			INCOME
		PROFESSIONAL	NON-PROFESSIONAL	TOTAL	DIRECT	INDIRECT	TOTAL	
1. ACQUISITION AND INPUT OF SOURCE INFORMATION		431	244.5	675.5	15,462	21,538	37,000	
a. DOCUMENTS ACQUIRED	1035							
b. DOCUMENTS REVIEWED	1035							
c. DOCUMENTS CATALOGED	596							
2. TECHNICAL INQUIRY RESPONSES PROVIDED	4	-	-	-	(37)	-	(37)	37
3. BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED	3	18	-	18	(22)	428	406	435
4. HANDBOOKS DATA BOOKS COMPLETED		-	-	-	(440)	-	(440)	440
a. NEW CHAPTERS PAGES COMPLETED	-							
b. REVISED CHAPTERS PAGES COMPLETED	-							
c. DATA SETS COMPILED	-							
5. STATE-OF-THE-ART STUDIES COMPLETED	-	-	1	1	(1300)	17	(1283)	1359
6. CRITICAL REVIEWS AND OR TECHNOLOGY ASSESSMENTS COMPLETED	-	-	-	-	(740)	-	(740)	740
7. CURRENT AWARENESS AND PROMOTION EFFORTS		191.5	135	326.5	7819	11,271	19,090	1726
a. NUMBER NEWSLETTERS AND OR ANNOUNCEMENTS PUBLISHED								
b. NUMBER MEETINGS CONFERENCES ETC SUPPORTED	5220							
8. OTHER	-	-	-	-	-	-	-	91,000
9. MANAGEMENT AND SUPPORT		151	29	180	2468	4231	6699	
10. UNASSIGNABLE INDIRECT COSTS								
11. TOTAL		791.5	409.5	1201	23,210	37,485	60,695	95,737

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INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT	NAME OF INFORMATION ANALYSIS CENTER Nondestructive Testing Information Analysis Center				QUARTER ENDING		CUMULATIVE THRU 2/15/83 from 2/15/82
AREA TITLE	OUTPUT UNITS PRODUCED	MANHOURS EXPENDED			COSTS INCURRED			INCOME
		PROFESSIONAL	NON-PROFESSIONAL	TOTAL	DIRECT	INDIRECT	TOTAL	
1. ACQUISITION AND INPUT OF SOURCE INFORMATION		1982	1277.5	3259.5	71,879	102,984	174,863	
a. DOCUMENTS ACQUIRED	4,550							
b. DOCUMENTS REVIEWED	4,550							
c. DOCUMENTS CATALOGED	2,539							
2 TECHNICAL INQUIRY RESPONSES PROVIDED	18	17	-	17	82	383	465	208
3 BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED	14	92.5	21	113.5	(713)	2,491	1,778	2,572
4 HANDBOOKS DATA BOOKS COMPLETED		644.5	151.5	796	13,597	15,375	28,972	868
a. NEW CHAPTERS PAGES COMPLETED	-							
b. REVISED CHAPTERS PAGES COMPLETED	1							
c. DATA SETS COMPILED	-							
5. STATE-OF-THE-ART STUDIES COMPLETED	1	128.5	16.5	145	1,511	5,242	6,753	3,401
6. CRITICAL REVIEWS AND OR TECHNOLOGY ASSESSMENTS COMPLETED	-	-	-	-	(5,160)	358	(4,802)	5,161
7. CURRENT AWARENESS AND PROMOTION EFFORTS		460	267.5	727.5	17,214	27,673	44,887	9,487
a. NUMBER NEWSLETTERS AND OR ANNOUNCEMENTS PUBLISHED	19,860							
b. NUMBER MEETINGS CONFERENCES ETC SUPPORTED	6							
8 OTHER	-	-	-	-	-	-	-	649,178
9 MANAGEMENT AND SUPPORT		694.5	255.5	950	15,979	21,811	37,790	
10 UNASSIGNABLE INDIRECT COSTS		-	-	-	-	-	-	
11 TOTAL		4019	1989.5	6008.5	114,389	176,317	290,706	670,875

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INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT	NAME OF INFORMATION ANALYSIS CENTER Nondestructive Testing Information Analysis Center				QUARTER ENDING		CUMULATIVE THRU 2/15/83 from 2/15/79
AREA TITLE	OUTPUT UNITS PRODUCED	MANHOURS EXPENDED			COSTS INCURRED			INCOME
		PROFESSIONAL	NON PROFESSIONAL	TOTAL	DIRECT	INDIRECT	TOTAL	
1. ACQUISITION AND INPUT OF SOURCE INFORMATION		7,461	5,004	12,465	205,562	277,867	483,429	
a. DOCUMENTS ACQUIRED	19,453							
b. DOCUMENTS REVIEWED	19,453							
c. DOCUMENTS CATALOGED	12,208							
2 TECHNICAL INQUIRY RESPONSES PROVIDED	88	97	2	99	696	1,813	2,509	973
3. BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED	102	595	159	754	(2,030)	(12,752)	10,722	18,883
4 HANDBOOKS DATA BOOKS COMPLETED		1,454.5	219.5	1,674	15,277	34,150	49,427	19,242
a. NEW CHAPTERS PAGES COMPLETED	-							
b. REVISED CHAPTERS PAGES COMPLETED	1							
c. DATA SETS COMPILED	-							
5. STATE-OF-THE-ART STUDIES COMPLETED	4	1,034.5	406	1,440.5	7,246	33,554	40,800	31,116
6 CRITICAL REVIEWS AND OR TECHNOLOGY ASSESSMENTS COMPLETED	2	316	255.5	571.5	(6,328)	10,902	4,574	21,594
7 CURRENT AWARENESS AND PROMOTION EFFORTS		6,490	2,709.5	9,199.5	213,991	200,122	414,113	29,864
a. NUMBER NEWSLETTERS AND OR ANNOUNCEMENTS PUBLISHED	204,653							
b. NUMBER MEETINGS CONFERENCES ETC SUPPORTED	49							
8 OTHER	-	-	-	-	-	-	-	917,221
9 MANAGEMENT AND SUPPORT		2,815.5	2,570.5	5,386	77,149	93,514	170,663	
10 UNASSIGNABLE INDIRECT COSTS		-	-	-	-	-	-	
11 TOTAL		20,263.5	11,326	31,589.5	511,563	664,674	1,176,237	1,038,893

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