

**The original documents are located in Box 35, folder “Transition Reports (1977) - Commerce Department: Management by Objectives and Presidential Management Initiatives (1)” of the John Marsh Files at the Gerald R. Ford Presidential Library.**

### **Copyright Notice**

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material. Gerald R. Ford donated to the United States of America his copyrights in all of his unpublished writings in National Archives collections. Works prepared by U.S. Government employees as part of their official duties are in the public domain. The copyrights to materials written by other individuals or organizations are presumed to remain with them. If you think any of the information displayed in the PDF is subject to a valid copyright claim, please contact the Gerald R. Ford Presidential Library.

U.S. DEPARTMENT OF COMMERCE

# BRIEFING HANDBOOK



MANAGEMENT BY OBJECTIVES AND  
PRESIDENTIAL MANAGEMENT INITIATIVES

BOOK I OF 2

## INTRODUCTORY NOTE

This portion of the transition book contains a brief description of the Department's MBO System: its purpose, operation and the kinds of objectives included. This material appears under the first tab which is marked "General".

The balance of this portion of the book describes the fiscal 1977 objectives presently included in the System. These descriptions were prepared by each of the operating units involved. They indicate why the objectives were proposed, the approach being followed in carrying them out and the major milestones that must be passed before they can be achieved. The descriptions are arranged by operating unit, under a separate tab for each. They are current as of the month the unit held its last conference with the Secretary. This is indicated on the summaries of the unit's objectives which are also included under the tabs, the first page in each case.



## THE DEPARTMENTAL MBO SYSTEM

General. Authorized by DAO 216-4, the Department-level MBO system provides a disciplined process through which the Secretary may:

- o Identify, review, and approve Department-level objectives on a fiscal year basis.
- o Require development of operational plans to achieve these objectives.
- o Monitor progress toward such achievement in terms of those plans.

It also serves to familiarize the Secretary with significant developments in the operating units, and line operating unit officials with the Secretary's personal views on program matters.

The System was set up pursuant to OMB requirements in 1973 and redesigned for the present Secretary in early 1976. It superseded various project control systems in existence since 1969 which were designed primarily to help the Secretary monitor efforts of direct interest to him.

Operation. The System requires that both objectives and the operational plans to achieve them be stated in specific tangible terms, so that their accomplishment can be independently verified.

The System operates on a cyclical basis, with operating units normally proposing new objectives at the beginning of the fiscal year. The Secretary accepts these objectives at a series of individual conferences with line officials in each unit in the fall. He tracks progress towards their accomplishments at similar conferences at roughly three-month intervals throughout the year.

The Assistant Secretary for Administration manages the System for the Secretary. He is backed up by the Office of Program Evaluation which furnishes guidance on the objectives to be tracked and analyses progress and variances. The Office

relies on the Office of Budget and Program Analysis and other staff offices for advice in their functional areas.

The MBO System is not designed to develop objectives, just to track them. This is done through development of operational plans, one for each objective. These plans normally show the major steps (or milestones) which lead up to accomplishment of the objective. They may, however, also include interim statements of accomplishment or results. Milestones of this nature -- showing year end results -- are required whenever an objective extends more than a month or two past the end of the fiscal year.

Milestones are subject to the same test of verifiability as objectives.

The operating units present their plans to the Secretary in chart form, and these charts may be supported by a narrative statement. The statement is required whenever the chart shows variance (slippage or other milestone change) or completion of one or more milestones. It must address all variances, which must be reported both for milestones which have actually changed and for future milestones which will likely change.

The operating units also prepare a brief introduction to the plan, stating the objective fully and explaining why it is being proposed and how it will be carried out. This introduction is usually given to the Secretary when the objective is first presented; thereafter he only sees the charts.

The MBO System also provides for revising and cancelling objectives, as well as for overall review of objectives that have been completed.

Content. The System presently has 63 fiscal 1977 objectives representing most of the Department's principal programs and all of its 13 operating units, the regional commissions and portions of the Office of the Secretary. They involve a substantial portion of the Department's \$4 billion budget.

Of these objectives, 43 are operational in nature. They deal directly with program operations, either setting impact targets or other indicators of output for ongoing activities, or involving development of new program thrusts or major program improvements. Guidance for these objectives established three criteria for determining a principle (but not exclusive) measure of presumed importance, and the objectives submitted have been ranked against these criteria.

The first criterion is program size. The larger the resources of the program an objective involves, the more "important" it is. All told, the 43 objectives finally selected accounted for an estimated 74% of the Department's budget. For the Department's largest operating units, the totals are as follows:

NBS	7%
P&TO	100
NOAA	49
OMBE	78
Census	22
DIBA	32
EDA	85
MARAD	92

These percentages reflect the anticipated \$177 million coastal zone management supplemental and the one-time \$2 billion local public works appropriation. Without these items the Department total would be 47% the NOAA total 33% and the EDA total zero.

The second and third criteria involve the nature of the targets projected by the objectives. One criteria consider the extent to which the target reflects approved or presumed program goals, the other the extent to which it can be independently verified. Three ranking factors were assigned to each criteria. For reflection of program goals the factors were applied as follows:

- o Objectives establishing impact targets were given a high ranking.
- o Those establishing other indicators of output were given an intermediate ranking.
- o Those establishing output support targets were given the lowest ranking.

For verifiability:

- o Objectives with quantitative targets were ranked highest.
- o Those with targets that were not quantified but otherwise verifiable both in form and substance ranked next highest.

- o Those with targets that were verifiable in form only ranked lowest.

These two criteria were then combined to form the following matrix:

	<u>Impact</u>	<u>Other Output</u>	<u>Output Support</u>
Quantifiable	Preferred	Preferred	Acceptable
Verifiable in form and substance	Preferred	Preferred	Acceptable
Verifiable in form only	Acceptable	Acceptable	Acceptable

Objectives which did not fall into this matrix were either unverifiable (and not accepted into the System) or did not directly involve program operations.

The 43 objectives finally selected ranked in terms of this matrix as follows:

	<u>Number</u>	<u>Percent</u>
Preferable	29	67
Acceptable	14	33
Total	<u>43</u>	<u>100</u>

The dollar resources (program level) of the programs involved also ranked in terms of the matrix:

Preferable	13%
Acceptable	64
Subtotal	<u>77</u>
Overlap*	<u>-3</u>
Total	<u><u>74</u></u>

\*Some programs are covered by more than one objective.



Without the coastal zone management and local public works money, these figures would have been:

Preferable	26%
Acceptable	<u>26</u>
Subtotal	52
Overlap*	<u>-5</u>
Total	<u><u>47</u></u>

While these criteria were applied for ranking purposes, they were by no means the sole basis for selecting fiscal 1977 objectives. Each operating unit received tailored guidance suggesting general areas from which objectives might be selected, or in some cases proposing that specific objectives be submitted. This guidance was based on a number of factors, including Congressional and other interest and general policy considerations.

- o Objectives involving development of new program thrusts or major program improvements received high emphasis, even though the targets involved generally placed poorly on the ranking matrix.
- o Objectives not directly involving program operations were specifically provided for and to a degree encouraged. As noted below, 20 of these objectives finally wound up in the system.

The guidance and the ranking criteria were not applied rigidly. If an operating unit felt strongly that a specific objective ought to be included, its wishes were followed.

---

\*Some programs are covered by more than one objective.

Of the 63 fiscal 1977 objectives, 20 did not directly involve program operations. Most were strictly analytical efforts (such as evaluation or policy studies) which neither set output targets or involved development of new program thrusts or major program improvements. Other aimed at general management improvements so broad they did not directly involve any one program. The numbers are:

Analytical efforts:

Evaluations	6
Policy studies*	7
Management improvements	<u>7</u>
Total	<u>20</u>

Every major operating unit save P&TO, NOAA and Census at least one of these "non-operational" objectives.

Specific criteria for these objectives was not provided, rather decisions were made according to staff opinion of the importance of the subject matter. Some encouragement was given to objectives involving major evaluations, particularly in the case of EDA and the regional commissions. Again, no objective was turned down flat. If an operating unit felt strongly about an objective, it went in the System.

Relation to Operating Unit Systems. The Departmental System is not formally related to MBO systems at the operating unit level, though it does draw on those systems in a few cases. While only 5 of the Department's bureaus have traditional MBO systems, most of the rest have performance management procedures which amount to the same thing. Many of these are quite complex and detailed. Some include quantitative measures of impact or other outputs.

Present plans call for establishing criteria for operating unit performance management procedures which will embody the MBO concepts applied at the Department level, but not

\* The low number of policy studies reflects special arrangements for monitoring policy development efforts operated by the Assistant Secretary for Policy and separate from the MBO System.

requiring the units to adopt copies of the Department System. This will likely require a few units to change their existing procedures, and the Office of Program Evaluation will be available to help with this process.

Strengthes and Weaknesses. The Departmental MBO System is flexible and seems well suited to presentation of the disparate objectives of a "conglomerate" department such as Commerce. It serves as a structured but unconfining way of presenting a broad range of management information to the Secretary. It is responsive to operating unit concerns but still allows the Secretary to include activities of direct interest to him.

The System is relatively strong on the monitoring side, the milestone-objective approach providing a considerable degree of discipline in this regard. It is not, however, a completely useful adjunct to the planning process, and the "hardness" of its objectives leave something to be desired. The problem is two-fold:

- o While there is large agreement on the Department's long-term, general goals, there is little agreement on the way in which short-term achievement of those goals should be measured.
- o The MBO System does not provide a specific mechanism to reach such agreement. It is primarily a monitoring device and not part of the overall planning process; nor is it completely tied into that process.

To some degree, the omission is a conscious one. Developing hard, goal-related objectives that can also be monitored over the mid-term is difficult for any department and particularly so for a conglomerate like Commerce. The feeling so far has been that marginal advances can be made through MBO, but that solution of the general problem requires a concentrated effort through the entire management apparatus available to the Office of the Secretary.

Attachments. The following material is attached:

1. DAO 216-4
2. Guidance on development of fiscal 1977 objectives.
3. Tabular summaries of the 1977 objectives.

#### 4. Operating unit MBO systems

The tabular summaries (attachment 3) also include reference information on fiscal 1976 objectives, and show changes between the two years. Fiscal 1976 was the first year of operation for the redesigned system.

United States of America DEPARTMENT OF COMMERCE	DEPARTMENT ADMINISTRATIVE ORDER <u>216-4</u>	
DEPARTMENT ADMINISTRATIVE ORDER SERIES	DATE OF ISSUANCE  July 23, 1976	EFFECTIVE DATE  July 23, 1976
	SUBJECT  MANAGEMENT BY OBJECTIVES SYSTEM	

SECTION 1. PURPOSE.

.01 This order prescribes a Departmental Management by Objectives System, assigns responsibility for managing the system, and authorizes a Department of Commerce Management by Objectives System Handbook to govern its detailed operations.

.02 This complete revision of the order changes the System's basic operations, and authorizes the above-mentioned handbook. It also changes the System's name.

SECTION 2. GENERAL.

.01 The Departmental Management By Objectives System (the "System") is a program for managing for results. It provides a disciplined process through which the Secretary may:

- a. Identify, review, and approve objectives on a fiscal year basis.
- b. Require development of operational plans to achieve these objectives.
- c. Monitor progress towards such achievement in terms of those plans.

.02 The System requires that both objectives and plans be stated in such specific, tangible terms that accomplishment can be verified as part of the monitoring procedure. This is key to the System's operation.

.03 The System covers a limited number of objectives of direct concern to the Secretary and other top officials within the Department. Guidelines for identifying such objectives will normally be issued prior to the beginning of the fiscal year, as shown in paragraph 3.01 below.

.04 The System is primarily concerned with the achievement of objectives, not with their development or evaluation, nor is it primarily concerned with monitoring the cost of achieving objectives.

### SECTION 3. OPERATION.

The System consists of two basic parts: 1) the annual identification of objectives and development of operational plans, and 2) monitoring achievement of those objectives.

.01 Annual Identification of Objectives and Development of Operational Plans normally occurs in the following sequence:

- a. The Assistant Secretary for Administration (the "Assistant Secretary") issues necessary guidance in early June.
- b. Preliminary objectives and plans are submitted to the Assistant Secretary for review in August.
- c. The Assistant Secretary finishes his review in late August and early September. Objectives and plans then go into final form for submission by the head of the organization unit to the Secretary.
- d. By the end of October the Secretary has approved or disapproved the inclusion of these objectives and plans in the System.

.02 Monitoring Achievement of Objectives normally involves formal, written reports of status and progress, each followed by a conference with the Secretary. There may be as many as four of these reports and conferences each fiscal year, and one is normally devoted to an overall assessment of the year's achievements. These formal reports may be supplemented by informal (generally oral) reports not followed by conferences.

.03 The System also provides for addition, revision, and cancellation of objectives and operational plans during the year. Normally, these actions require review by the Assistant Secretary and approval by the Secretary. In cases, however, where revision or cancellation is clearly required by circumstances outside the Department's control, the Assistant Secretary alone may approve.

### SECTION 4. THE HANDBOOK.

.01 The Department of Commerce Management by Objectives System Handbook prescribes the detailed operation of the System and governs all aspects of the System not specifically covered in this order.

.02 The Departmental Office of Program Evaluation shall develop and maintain the handbook, and control its distribution.

SECTION 5. RESPONSIBILITIES.

.01 Secretarial Officers and Heads of Operating Units and Departmental Offices reporting directly to the Secretary shall:

- a. Propose objectives and plans (including revision or cancellation thereof) for approval under the System.
- b. Be responsible for achievement of approved objectives and for reporting on progress towards achievement.

.02 The Assistant Secretary for Administration shall be the System's general manager. In that capacity, he shall:

- a. Issue guidance for, review, and make recommendations on proposed objectives and plans.
- b. Approve revisions or cancellations required by circumstances outside the Department's control.
- c. Determine reporting schedules, request and review reports, and arrange conferences.

SECTION 6. EFFECT ON OTHER ORDERS.

This order supersedes Department Administrative Order 216-4 dated August 16, 1973.



Secretary of Commerce

Office of Primary Interest  
Office of Program Evaluation

Index Changes.

Add:

Departmental Management By Objectives System	216-4
Management By Objectives	216-4
Objectives	216-4

Delete:

Objectives, Presidential and Project System, Departmental	216-4
--	-------



JUL 9 1976

MEMORANDUM FOR: SEE ATTACHED LIST OF ADDRESSES  
SUBJECT: Fiscal 1977 Objectives

My May 12 memorandum outlined our proposed 1977 MBO System and promised a formal request for the objectives that would be included in it. This is the request.

As mentioned in the May 12 memorandum, we plan to present the Secretary with proposed objectives at management conferences held in September, October, and November. To do this we will have to have approved drafts of these objectives during August. We will review these drafts during August and September, hopefully reaching agreement with your staff on what should go to the Secretary well before your conference. The drafts would then be put in final form at least 10 working days before the date of the conference.

Attachment A to this memorandum gives guidance as to the substance of your objectives. It is, of course, only guidance, and you are free to submit any objectives you please. But it does reflect our best current estimate of Secretarial and other top level interest in your program and in the MBO process generally.

Attachment A also gives your conference date, together with the requested deadline for your draft submission.

Attachment B gives the format each of your objectives should follow. Your August submission, of course, is a draft and need not follow this format exactly. But it should provide all of the information required.

In developing your objectives for submission to the Secretary, the following points should be kept in mind.

The purpose of the Departmental MBO process is to provide a forum at which the Secretary can be kept current on a few issues of continuing concern to the Department, and program officials can receive Secretarial guidance on a systematic basis. Generally speaking, MBO is not an appropriate





vehicle for raising major issues requiring budgetary or legislative decisions. MBO serves, rather, as a means for assuring the development of necessary policy or the implementation of prior decisions.

MBO objectives should not deal with problems beyond the control of the Department. It is recognized, of course, that issues important enough to require Secretarial attention may contain elements which are beyond the Department's control, but objectives should be stated such that Departmental responsibilities are clearly understood and trackable.

Both operational and policy objectives are acceptable. An operational objective relates to the start up, operation, modification, or phase out of a program within a bureau. A policy objective relates to the development of a Departmental or bureau position on a given question. Policy objectives often lead to new or revised programs and hence to further operational objectives.

An MBO objective is important insofar as it relates to the primary concerns of the bureau presenting it. The primary concerns of the bureau will also determine the mix of policy and operational objectives to be submitted. The ranking of a bureau's primary policy concerns will be left largely to the judgement of the bureau's leadership. A bureau's primary operational concerns, on the other hand, usually follow its present or planned allocation of resources. Program size thus leads to a presumptive priority ranking. Presidential, Congressional, or other interests may cause shifts within this ranking, of course.

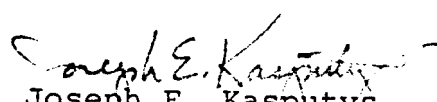
The Secretary and Departmental management are more concerned with how well the bureaus are executing their mandates from the President and the Congress than with secondary operational matters. Thus, operational objectives can be ranked in importance the more directly they relate to the accomplishment of a bureau's mission. For ongoing programs, the most important objectives are those relating to program impact, followed by objectives relating to program output. Next come internal program operations supporting program output directly, then those supporting output indirectly. Objectives relating to staff support functions occupy the least important end of the spectrum.

Operational objectives relating to new programs or major program redirections are also important for Secretarial tracking. Those that deal with program implementation are more important than those dealing simply with planning.

The importance of an objective is also tied to the degree to which its accomplishment can be independently verified or quantified. At least three points occur on this spectrum. Many objectives are aimed at results which are verifiable in form, but not easily verifiable in substance. A report may be submitted on schedule, for example, without being accurate, complete, or useful. Results are sometimes verifiable in both form and substance. Least common, but most important, are results which are not only verifiable but also quantifiable, such that they can be said to have been 80% or 120% attained.

The operational objectives which you submit for 1977, including those suggested in Attachment A, will be arrayed according to their importance in terms of program size, accomplishment of mission, and verifiability. Your proposed policy objectives will be reviewed in a less structured manner.

Please have your staff feel free, as they work on your 1977 objectives, to call on our Office of Program Evaluation for help and whatever further guidance they feel is necessary.

  
Joseph E. Kasputys  
Assistant Secretary  
for Administration

Attachments

LIST OF ADDRESSES

Administrator, National Oceanic and Atmospheric  
Administration

Assistant Secretary for Domestic and International  
Business

Assistant Secretary for Maritime Affairs

Assistant Secretary for Tourism

Assistant Secretary for Science and Technology

Assistant Secretary for Economic Development

Deputy Under Secretary for Field Programs

Administrator, National Fire Prevention and Control  
Administration

Director, Bureau of Economic Analysis

Director, Census

Director, Office of Minority Business Enterprise

Director, National Bureau of Standards

Commissioner, Patent and Trademark Office

Director, Office of Telecommunications

Director, National Technical Information Service



LIST OF ADDRESSES

Administrator, National Oceanic and Atmospheric  
Administration

Assistant Secretary for Domestic and International  
Business

Assistant Secretary for Maritime Affairs

Assistant Secretary for Tourism

Assistant Secretary for Science and Technology

Assistant Secretary for Economic Development

Deputy Under Secretary for Field Programs

Administrator, National Fire Prevention and Control  
Administration

Director, Bureau of Economic Analysis

Director, Census

Director, Office of Minority Business Enterprise

Director, National Bureau of Standards

Commissioner, Patent and Trademark Office

Director, Office of Telecommunications

Director, National Technical Information Service



S&T GUIDANCE

General

The Science and Technology 1977 objectives must necessarily be an outgrowth of the 1976 objectives since the basic issues that led to those objectives are likely to be important ones this coming fiscal year. The guidance that follows is not intended to preclude objectives in other areas or short-term objectives where pressing problems indicate that such objectives are suitable. While there is no specific limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track many more than were included for 1976.

The Secretary has stressed the need for each operating unit to develop one or more objectives dealing with the major outputs of the unit's principal operations. These objectives should specify these outputs in quantitative terms, as nearly related to their impact as possible. Although we recognize the difficulty of this task for the operations of Science and Technology, we urge you to make every effort and we will be happy to provide whatever assistance we can.

In developing the draft submission, you should assume that your 1977 program levels will be as determined by the conference report. If the report is not available, you should assume the base levels in the 1978 budget submission to the Secretary, together with whatever adjustments are appropriate.

We would appreciate receiving your proposed FY 1977 objectives no later than August 6, 1976.

Your conferences with the Secretary are scheduled for September 17, from 9:45 to 12:15, and September 22, from 2:30 to 5:00. The September 17 conference has been tentatively reserved for NBS, NTIS and O/Tel, the September 22 conference for PTO and the Office of the Assistant Secretary for Science and Technology.

Immediate Office (including OPS and OEA)

- o National Voluntary Laboratory Accreditation Program. Given the inevitable delays that have been experienced in this program and the Secretary's interest in it, we feel a 1977 objective should be developed for Secretarial monitoring.
- o U.S./Israel Industrial R&D Foundation. Since the 1976 objective for the Foundation was to establish it and begin operations--a milestone now scheduled for September 1976--we see no reason to continue monitoring the objective in FY 1977.
- o Industry Studies of Energy Requirements for Pollution Control. The FY 1977 objective for the industry studies should incorporate milestones for completion of the remaining studies and for the proposed Phase II studies which are designed to examine the energy efficiency, necessary technology, and cost effectiveness of reaching various points on the pollution control abatement curve. Consideration should also be given to the Secretary's interest in maintaining a public perception of fairness and in using the studies to stimulate Federal action.

Patent and Trademark Office

- o Improve Patent Quality. Since the bulk of the Office's study of patent quality is scheduled for completion prior to the new fiscal year and since we understand there are no plans for a new initiative during FY 1977 in patent quality, we suggest that this objective be limited to implementation and monitoring of the quantitative quality indicators and to completing any milestones that must be delayed beyond the FY 1976 schedule.
- o Reduce Patent and Trademark Pendency. Since the patent pendency goal of 18 months will not be reached during FY 1976, a FY 1977 objective should be developed to monitor progress toward that goal and to monitor the maintenance of trademark pendency at three months.

- o Measure and Improve Productivity. Productivity remains an issue important enough that an objective should be established for productivity analysis and improvement efforts during FY 1977. This objective should also include any uncompleted milestones from the FY 1976 objective and milestones for establishing productivity measures in additional areas for which measures were not established.

Pre-application Trademark Searches. If the Office finds an appropriate role in making pre-application trademark searches, consideration should be given to an objective in this area. A final decision on this may have to await the next quarterly Secretarial MBO conference, at which the matter is to be discussed.

#### National Bureau of Standards

The FY 1976 NBS objectives for appliance test procedures, ETIP, energy conservation in buildings, and computer security reflected parts of the NBS ongoing program and are therefore appropriate to be continued into FY 1977. The 1977 objectives, although they should be expressed in terms of accomplishments during the year, need not be limited to one year efforts. In developing the ETIP objective, we urge that plans for the R&D, regulatory, and small business subsidy components of the program be fully reflected, along with the evolving evaluation efforts. For the computer security objective, we suggest that milestones relating to systems standardization be included.

#### Office of Telecommunications

The Office's FY 1976 objective of accelerating the use of direct communications satellites should be expanded to include other program applications, such as optical fiber communications, if appropriate.

#### National Technical Information Service

The FY 1976 NTIS objective dealing with the government patent program should be extended into FY 1977 and should include milestones to establish quantified goals for patent licensing and to monitor progress toward financial self-sufficiency.



Attachment A

NOAA GUIDANCE

Proposed NOAA objectives should emphasize achievement of long-term program improvements or the implementation of new program directions. Major areas might include:

- o Extended jurisdiction activities after March 1.
- o Development of plans to implement the forthcoming National Marine Fisheries Plan.
- o Implementation of the 1976 CZM amendments, if these amendments are enacted.
- o Work to upgrade forecasting capabilities, such as the installation of AFOS units or launch of the new TIROS - N satellite series.

Proposed objectives may also include significant mid-term program activities. The present STORMFURY objective (which has been extended through late 1977) is an example. Additional examples include the MESA and tuna-porpoise projects and the deep ocean mining environmental study.

Proposed objectives should also emphasize the major outputs of NOAA's principal operations. Such objectives should specify these outputs in quantitative terms, as nearly related to their impact as possible. Clearly the development of such objectives is difficult, but it is strongly suggested that at least one such objective be developed for 1977. This might best be done in the weather forecasting area and could include average numbers of forecasts coupled with appropriate measures of quality and state or local coverage. They might also be broken down by type of forecast. These measures, though doubtless inflexible in the short run, do represent the impact of the forecasting program and do have a long-term significance that could well be brought out in NOAA's justification.

The above guidance is not intended to preclude short-term objectives, where pressing problems indicate that such objectives are suitable. But such objectives should clearly be in the minority.



It is not necessary for NOAA to propose all its 1977 objectives in time for its first management conference. In some cases (such as extended jurisdiction) this may not be feasible, and there is no objection to reviewing these objective at a subsequent conference.

While there is no limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track more than 6 or 8 new ones during the fiscal year.

In developing the draft submission, NOAA should assume that its 1977 program levels will be as determined by the conference report. If the report is not available it should assume the base levels in the 1978 budget submission to the Secretary -- together with whatever adjustments are appropriate. These adjustments should be clearly identified.

This budgetary guidance, of course, may be modified for NOAA's final submission.

NOAA's conferences with the Secretary are scheduled for September 28 and October 5, in each case from 9:45 a.m. to 12:15 p.m.

Please send NOAA's draft submissions to this office not later than August 6.

Attachment A

OMBE GUIDANCE

The OMBE 1977 objectives must necessarily be an outgrowth of the 1976 objectives since the basic issues that led to those objectives are likely to be important ones this coming fiscal year. It will be necessary, however, to rethink the structure of those objectives.

The Secretary has stressed the need for each operating unit to develop one or more objectives dealing with the major outputs of the unit's principal operations. These objectives should specify these outputs in quantitative terms, as nearly related to their impact as possible. The 1976 objective dealing with the performance of funded organizations is an appropriate one for this purpose, and it should be replicated in 1977. The objective should include milestones for gross receipts targets and an attempt should be made to adjust the other quantified milestone targets to reflect the normal year-end increase in performance figures and other predictable fluctuations.

The objectives should also include several dealing with program improvements or the implementation of new program directions. The major areas might include:

- o Projected accomplishments of the Interagency Council for Minority Business Enterprise. In the April 27 Secretarial MBO conference, the Secretary stressed the need for an objective dealing with the accomplishments of the IAC. The need for such an objective is further supported by OMB's intention of explicitly including the IAC in the new executive order. The Department's success with the IAC could well be an important issue during 1977.
- o Development of plans for increasing OMBE activities in the non-Federal sector. Both the Interagency Report on Minority Business and the new executive order emphasize the need for OMBE to expand its efforts to reach the non-Federal sector. This matter is of sufficient importance as to warrant the development of an objective to plan for and monitor our progress.

- o Strengthening planning and evaluation. The formation of the new OMBE Planning and Evaluation Division was an important step toward accomplishing the numerous tasks facing OMBE in those areas. We suggest that an objective be developed to include such projects as the multi-year contracting study, the user fee study, the productivity project, the evaluation of the DOC/SBA interagency agreement, the one stop center evaluation, and the comparative study of OMBE assisted firms and firms not receiving OMBE assistance. This objective can also serve to monitor progress and success in implementing the Interagency Report on Minority Business.

The above guidance is not intended to preclude objectives in other areas or short-term objectives where pressing problems indicate that such objectives are suitable. While there is no specific limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track more than four or five during the fiscal year.

In developing the draft submission, you should assume that your 1977 program levels will be as determined by the conference report. If the report is not available, you should assume the base levels in the 1978 budget submission to the Secretary, together with whatever adjustments are appropriate. These adjustments should be clearly identified.

We would appreciate receiving a draft of your proposed 1977 objectives no later than August 13, 1976.

Your conference with the Secretary is scheduled for October 13, from 2:30 to 5:00 p.m.

Attachment A

REGIONAL AFFAIRS GUIDANCE

In line with the Secretary's request at your most recent MBO meeting, 1977 objectives for the Secretarial Representatives program should focus on implementation of specific goals and projects identified by the individual Sec Reps as opportunities for Departmental action. While every Region may not have an implementation plan suitable for Secretarial tracking, every effort should be made to identify two or three projects of particular concern to the Sec Reps and to develop specific objectives around them.

Similarly, the Federal Regional Co-Chairman should develop operational objectives which reflect their concerns and goals. A follow-on objective dealing with the standard reporting system might also be appropriate. In view of OMB concern about the success of the Regional Commissions, specific evaluation projects dealing with RAPC actions could be included for MBO tracking.

For the submission of draft objectives, assume program levels as reflected in the conference report, if available. If there is no conference report at the time of your submission, use budget levels as reflected in the 1977 column of your 1978 budget submission.

Please submit the first draft of your objectives to the Assistant Secretary for Administration by COB Friday, August 13.

Your conference with the Secretary is scheduled for October 19, from 9:45 to 11:15 a.m.



Attachment A

BEA GUIDANCE

Of the two objectives included in the 1976 MBO system, one-- the Benchmark Survey of U.S. Direct Investment Abroad-- has been hampered by the need for legislative authorization to proceed; this issue would be properly included in the 1977 MBO system. Another previous proposal, on improvement of balance of payment statistics through a survey on international leasing transactions, was rejected on the grounds that most of the measurable activity would take place in 1977. A resubmission of that objective may now be appropriate.

Finally, an issue in which the Secretary has evinced great interest is that of expansion of the national economic accounts to reflect more closely economic conditions indicative of the quality of life. As you know, \$300,000 is being considered for use by Census and BEA in this area during the Transition Quarter and 1977. Your plan to proceed under this authority should be cast as an MBO objective.

For this draft submission, use program levels for 1977 as given in the conference report, if available. If the conference report is not available at the time of your submission, use the program levels given in the 1977 column of your 1978 budget submission.

Please submit the first draft of your objectives to the Assistant Secretary for Administration by COB Friday, August 20.

Your conference with the Secretary is scheduled for October 21, from 3:30 to 5:00 p.m.



CENSUS GUIDANCE

Three of the four 1976 Census objectives deal with some aspect of preparation for the 1980 Census. This will remain a prominent concern, even more so now that the date of implementation is nearer. All of the Census 1976 objectives involve further work in the new year, and simply carry forward.

There are, however, a number of other major concerns which should command high level attention in the coming year. For one, the Secretary has evinced great interest in the issue of social indicators, and we are considering \$300,000 to fund new work in Census and BEA in this area in the Transition Quarter and 1977. Your plan to proceed under this arrangement should be cast as an MBO objective. Other issues which you should consider for inclusion as objectives are: implementation of recommendations from the September conference on seasonal adjustments; improvement of the agricultural census (assuming that this task remains with the Department); and development and implementation of a policy for improving response to mandated surveys.

While each of these concerns appears worthy of Secretarial tracking it seems likely that the number of objectives we are soliciting at this time will render the package unmanageable as a whole. In that event we will negotiate a smaller number of objectives; for the moment, however, it seems prudent to consider all of these issues as candidates for inclusion in the 1977 MBO system.

For this draft submission, use program levels for 1977 as given in the conference report, if available. If the conference report is not available at the time of your submission, use the program levels given in the 1977 column of your 1978 budget submission.

Please submit the first draft of your objectives to the Assistant Secretary for Administration by COB Friday, August 20.

Your conference with the Secretary is scheduled for November 2, from 9:45 to 11:45.

## DIBA GUIDANCE

Certain of DIBA's proposed 1976 objectives may form the basis for 1977 objectives. Others will be completely new and should reflect the Secretary's needs for information on, and tracking of, DIBA's operations. In either case, emphasis should be placed on intended verifiable results (or targets) reflecting progress, output and/or impact to be accomplished during the year. This should be done even where such results are not entirely under DIBA's control, though, of course, the proposal should also make that clear.

The 1977 objectives that might follow those proposed for 1976 involve OEA processing time, export promotion, industrial energy conservation and product liability.

An export promotion objective could clearly show expected results in quantitative terms. This objective could be reformulated in light of the new measurement techniques developed in BIC. To illustrate the total export promotion picture, steps should be taken, if possible, to combine BIC and BEWT export promotion results.

Presently, this is the only area where DIBA has an objective with outputs in quantitative, impact-oriented terms--and it is suggested that this approach be used elsewhere, if possible. One possible application is the domestic business side where necessary analytical work is nearing completion.

While there is no limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track more than 8 during the fiscal year.

In developing the draft submission, DIBA should assume that its 1977 program levels will be as determined by the conference report. If the report is not available it should assume the base levels in the 1978 budget submission to the Secretary -- together with whatever adjustments are appropriate. These adjustments should be clearly identified.

This budgetary guidance, of course, may be modified for the final submission.

DIBA's conference with the Secretary is scheduled for October 28, 2:00 to 6:00 p.m.

Please submit the first draft of your objectives to the Assistant Secretary for Administration by COB Tuesday August 31.



Attachment A

USTS GUIDANCE

Proposed 1977 objectives should include a follow-on to USTS's 1976 overall performance objective, showing calendar 1977 visitors and foreign exchange earnings. Other objectives may also be proposed, according to USTS's appreciation of the Secretary's management information needs. We continue to believe a per capita spending objective would be suitable, recognizing, however, the prior need to increase the reliability of the estimates used in this area.

While there is no limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track more than 2 or 3 new ones during the fiscal year.

In developing the draft submission, USTS should assume that its 1977 program levels will be as determined by the conference report. If the report is not available it should assume the base levels in the 1978 budget submission to the Secretary -- together with whatever adjustments are appropriate. These adjustments should be clearly identified.

This budgetary guidance, of course, may be modified for USTS's final submission.

USTS's conference with the Secretary is scheduled for November 3, from 3:30 to 5:00 p.m.

Please submit your draft submissions to this office not later than August 31.

EDA GUIDANCE

EDA's objectives for this fiscal year dealt exclusively with evaluation and policy issues. Objectives for 1977 should focus more on program operations. At least one objective should cover the implementation of policy decisions arising from EDA's research in the area of economic development. Other objectives could focus on the implementation of recommendations resulting from the 304 evaluation or improvement of the relationship of technical assistance to the rest of EDA's programs and to the problems of economic development in specific areas. In response to the concerns of OMB and the Congress, this latter objective might start with a critical review of the various public interest group projects and an analysis of the success of providing technical assistance in this manner. The primary focus should remain, however, on improving program operations (rather than on evaluating efforts). There are undoubtedly additional or alternative objectives which you may wish to propose.

For this draft submission, use program levels for 1977 as given in the conference report, if available. If the conference report is not available at the time of your submission, use the program levels given in the 1977 column of your 1978 budget submission.

Should EDA be required by legislation to implement new or greatly expanded program authorities, budget level assumptions can be adjusted. Implementation plans for these initiatives would, of course, be appropriate MBO objectives. Because EDA's first meeting with the Secretary for 1977 is not scheduled until late November, objectives developed in response to Congressional initiatives need not be submitted with the first draft, but may be submitted as they arise.

Please submit the first draft of your objectives to the Assistant Secretary for Administration by COB Friday, August 27.

Your conference with the Secretary is scheduled for November 23, from 9:45 to 11:45 a.m.

MARAD GUIDANCE

MARAD's 1977 objectives should grow out of those proposed for 1976, since the issues that lead to those objectives are likely to continue into the new fiscal year. In this context, MARAD should consider objectives in the CDS, ODS, minority employment and US/USSR shipping rate areas. In some cases, the same form of the objective as was used in 1976 would be suitable. In others, it might be desirable to choose a new form that would stress MARAD's major operational goals.

This guidance should not preclude objectives in new areas, where the Secretary's attention is desirable. The proposed "readiness" evaluation of the reserve fleet may be such an objective, MARAD may wish to select others.

While there is no limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track more than 6 new objectives during the fiscal year.

In developing its draft submission, MARAD should assume the program levels shown in the conference report. If the report is not available, it should assume the base levels in its 1978 budget submission together with whatever adjustments are appropriate. These adjustments should be clearly identified.

This budgetary guidance, of course, may be modified for the final submission.

MARAD's draft submission is due in this office by August 31.

MARAD's conference with the Secretary is scheduled for November 17, from 2:30 to 5:00.

NFPCA GUIDANCE

The 1977 objectives for NFPCA should continue to focus on matters of program development, in most cases simply representing logical follow-on work to the 1977 objectives. The following candidates are suggested:

1. Establish the National Academy for Fire Prevention and Control in a permanent location. This is a follow on to the 1976 objective of site selection. It should include such things as acquiring funds, negotiating purchase, developing construction plans, and moving.
2. Fire Academy program development. Included in this objective would be the progress of the program development study and a set of milestones showing the number of fire course attendees in various categories.
3. Master Planning. This would continue the work under the 1976 objective.
4. Fire Data Center. This also continues the 1976 work. It should include an objective regarding the number of states which will contribute data to the system.

In the fire research area, it would be helpful to have some measure of impact on human and property loss due to fires. Since this is the most mature NFPCA program, we should begin to see some measurable output.

While there is no limit to the number of objectives that may be proposed, it is not likely that the Secretary could conveniently track more than about 6 new ones during the fiscal year.

In developing the draft submission, NFPCA should assume that its 1977 program levels will be as determined by the conference report. If the report is not available it should

assume the base levels in the 1978 budget submission to the Secretary -- together with whatever adjustments are appropriate. These adjustments should be clearly identified.

This budgetary guidance, of course, may be modified for NFPCA's final submission.

NFPCA's conference with the Secretary is scheduled for November 19, from 3:30 to 5:00 p.m.

NFPCA's draft submission should be sent to this Office not later than August 31.

PUT A SHORT TITLE HERE

1. Proposed Objective. This is a concise statement of the objective and when it will be achieved. It identifies intended end-results in terms that are specific and concrete, so that achievement can be verified as part of the regular monitoring process later on in the year. These results normally occur in fiscal 1977, or a few months afterwards. Where they do not a statement of interim results is needed, as indicated in item 6 below.
2. Justification. This tells why the objective is being proposed (e.g., the significance of the problem being addressed), and why it requires regular attention by the Secretary.
3. Approach. This section outlines how the objective will be achieved and includes any inter-bureau and interdepartmental coordination necessary. It also discusses how the elements of the plan fit together that might not be immediately evident from the milestones in item 6 below. The emphasis is on the strategy that the bureaus will utilize to achieve the objective.
4. Resources. This is a rough estimate of the dollars and man-years required to achieve the objective. It is intended not to justify any particular use of resources, but simply to show the Secretary the approximate magnitude of resources committed.
5. Responsible Office. This is an identification of the office (and its head) immediately charged with primary line responsibility for seeing that the objective is achieved.
6. Milestones. This is simply a listing of the milestones for achieving the objective. It includes a brief one-sentence description of each milestone, together with the month in which that milestone will be passed.

Milestones are normally the most important actions that must be taken to achieve the objective but they may also be interim statements of results. When objectives run more than a month or two past the end of the fiscal year, at least one such statement (showing year-end results) is required.

Milestones are subject to the same test of specificity and verifiability as objectives.

ATTACHMENT 3

TABULAR SUMMARIES OF FISCAL 1977 OBJECTIVES  
(COMPARED WITH 1976 OBJECTIVES)



ALL OBJECTIVES

Number of Operational and Other Objectives

	1976 System			1977 System		
	<u>Operational</u>	<u>Other</u>	<u>Total</u>	<u>Operational</u>	<u>Other</u>	<u>Total</u>
NBS*	3	1	4	5	1	6
P&TO	3	-	3	3	-	3
Other S&T	4	1	5	3	2	5
NOAA	4	1	5	5	-	5
OMBE	3	1	4	2	3	5
Regional ommissions	-	1	1	-	8	8
Field Programs	2	-	2	-	-	-
BEA	2	-	2	3	-	3
CENSUS	4	-	4	4	-	4
DIBA**	7	2	9	5	2	7
USTS	3	-	3	2	-	2
EDA	-	4	4	1	2	3
MARAD*	3	2	5	4	1	5



	1976 System			1977 System		
	<u>Operational</u>	<u>Other</u>	<u>Total</u>	<u>Operational</u>	<u>Other</u>	<u>Total</u>
NFPCA	4	-	4	6	-	6
ADMIN**	1	7	8	-	1	1
	—	—	—	—	—	—
Total	43	20	63	43	20	63

\*Fiscal '76 figures adjusted for comparability.

\*\*Fiscal '77 figures represent OPE estimates.

November 1976

OPERATIONAL OBJECTIVES

Estimated Percentages of Resources Covered

	<u>1976 System</u>	<u>1977 System</u>	<u>Change</u>
NBS	6	7	+1
P&TO	100	100	--
Other S&T	3	3	--
NOAA	16	49*	+33*
OMBE	78	78	--
Field Programs	100**	--	-100
BEA	5	8	+3
CENSUS	18	22	+4
DIBA	40**	32	-8
USTS	100	100	--
EDA	--	85*	+85*
MARAD	90	92	+2
NFPCA	27**	64	+37
DoC total	29	74*	+45*

\*Includes supplemental funding for CZM and LPW. Without these items the percentages would be:

	<u>1977 System</u>	<u>Change</u>
NOAA	33	+17
EDA	--	--
DOC Total	47	+18

\*\* Approximate percentages.

10/14/76

OPERATIONAL OBJECTIVES

Estimated Percentage of Resources Covered by Preferred and Acceptable Objectives

	<u>1976 System</u>		<u>1977 System</u>		<u>Change</u>	
	<u>Preferred</u>	<u>Acceptable</u>	<u>Preferred</u>	<u>Acceptable</u>	<u>Preferred</u>	<u>Acceptable</u>
NBS	6	-	7	-	+1	-
P&TO	100	100	100	100	-	-
Other S&T	3	-	3	-	-	-
NOAA	1	16	13*	36*	+12*	+20*
OMBE	78	-	78	-	-	-
Field Programs	-	100**	-	-	-	-100
BEA	4	1	7	1	+3	-
Census	18	15	22	15	+4	-
DIBA	38**	2**	30	2	-8	-
USTS	100	2	100	-	-	-2
EDA	-	-	-	85*	-	+85*
MARAD	25	63	39	53	+14	-10

	1976 System		1977 System		Change	
	<u>Preferred</u>	<u>Acceptable</u>	<u>Preferred</u>	<u>Acceptable</u>	<u>Preferred</u>	<u>Acceptable</u>
NFPCA	-	27**	31	33	+31	+6
DoC total	12	21	13	64	+1	+43

\* Includes funding for CZM and LPW. Without these items, the percentages would be:

	<u>1977 System</u>		<u>Change</u>	
	<u>Preferred</u>	<u>Acceptable</u>	<u>Preferred</u>	<u>Acceptable</u>
NOAA	17	16	+16	-
EDA	-	-	-	-
DoC total	26	26	+14	+5

\*\* Approximate Percentages.

November 1976

MANAGEMENT BY OBJECTIVES SYSTEMS  
IN DOC OPERATION UNITS

(As of July 1976)

Operating Units with MBO Systems:

National Oceanic and Atmospheric Administration

Maritime Administration

National Bureau of Standards

Office of Minority Business Enterprise

Office of Telecommunications

Operating Units without MBO Systems\*

Comments

Patent & Trademark Office

System planned for  
FY 77

Economic Development Administration

Domestic & International Business  
Administration

System operating  
in the Bureau of  
Domestic Commerce

United States Travel Service

Bureau of the Census

Bureau of Economic Analysis

National Technical Information Service

National Fire Prevention and Control  
Administration

Office of Regional Economic  
Coordination

\*Most of these operating units, although lacking a traditional MBO system, have internal performance management systems, some of which are quite complex and detailed. Several also had MBO systems in the past.

NBS

## FISCAL 1977 NBS OBJECTIVES

General. NBS proposed six fiscal 1977 objectives. The first four follow up on fiscal 1976 objectives. The last two are completely new:

- o Appliance test procedures.
- o Experimental Technology Incentives Program.
- o Energy conservation in buildings.
- o Computer security.
- o Nuclear materials safeguards.
- o Nondestructive evaluation.

The objectives listed above represent approximately 9% of NBS's total funds and of its appropriated funds. All were accepted for tracking.

Appliance Test Procedures. This objective tracks the development of test procedures for estimating the annual operating cost of 13 specific appliances and items of household equipment. The program is mandated by P.L. 94-163, the Energy Policy and Conservation Act of 1975. NBS was assigned responsibility for developing test procedures because of its experience in the previous voluntary labeling program. The 1977 allocation of \$3,200,000 represents 3% of the bureau's total resources. Of this, approximately 60% or \$1,925,000 is provided by FEA.

Experimental Technology Incentives Program. This objective tracks the progress of the ETIP program since the April MBO conference, and includes follow-on objectives for fiscal year 1977. ETIP's purpose is to determine through a series of experiments how the Federal Government can work with industry to stimulate technological change. The funds allocated for this objective for fiscal 1977 represent approximately 3% of the bureau's total resources.



Energy Conservation in Buildings. This objective tracks progress in NBS' continuing efforts to develop building performance standards. Although 75% of the work done under this program is funded by other agencies, it is a high priority effort in response to the Building Energy Conservation Standards Act of 1976.

Computer Security. This objective tracks the development of a standard and guidelines to assist agencies in complying with the Privacy Act of 1974, as it pertains to the integrity and confidentiality of data in computerized information systems. The objective represents less than 1% of the bureau's resources, and is scheduled to be completed in fiscal 1977.

Measurements and Standards for Nuclear Materials Safeguards. This is a new objective proposed by NBS for tracking. This program will be initiated in fiscal 1977. The funding situation has not been firmed. NBS is now considering a \$600,000 effort and not \$1,600,000 as reported in the MBO narrative under the heading of resources. The anticipated funding effort represents less than 1% of the bureau's resources. The cut was a result of recent budgetary action. NBS will discuss necessary revisions at the conference.

This objective tracks the development of measurement services, calibration techniques and standards for accounting of nuclear materials. The issue concerns national security in preventing the diversion of nuclear fuels for other than peaceful purposes. This program will also serve to strengthen public confidence in the development of a needed U.S. nuclear energy program. The need for the development of this program has been voiced by leaders in government, industry and international organizations.

Nondestructive Evaluation. This new objective tracks the evaluation and development of methods of measurement that could be used by industry to detect surface or interior defects of materials without destroying the materials. This is known as Nondestructive Evaluation (NDE). The implications of variability in product performance are felt in many areas of national concern--public safety, productivity, product recall, and litigation. Many national and international trade and professional associations are becoming increasingly concerned with these problems. It has been predicted that by 1980 half of all standards will be based on NDE procedures. The objective represents less than 1% of the bureau's total resources for fiscal 1977.

September 1976



## APPLIANCE TEST PROCEDURES

### 1. Proposed Objective

To develop test procedures, at the direction of FEA, for the determination of estimated annual operating costs of 13 specified appliances and items of household equipment, plus any additional products specified by FEA, and at least one other useful measure of energy consumption of such products that is likely to assist consumers in making purchase decisions. Test methods for the 13 products should be completed in FY 77.

### 2. Justification

This program is mandated by P.L. 94-163, the Energy Policy and Conservation Act (December 22, 1975). The law assigns the function to the Department of Commerce, which in turn has assigned it to the National Bureau of Standards because of its experience in the previous voluntary program and the complex technology involved. The program will provide consumers with a means of reducing their energy consumption and manufacturers with an incentive to improve the energy usage characteristics of their products by providing purchasers of products with energy efficiency information at the point of sale. No direct advice is given to the Secretary other than the periodic MBO reports.

### 3. Approach

The objective will be accomplished by (1) verifying existing energy efficiency test procedures in the laboratory, (2) modifying existing test procedures where appropriate, and (3) developing new test procedures where existing ones are inadequate or where they do not exist. For each test procedure an estimate of average annual usage will be made based on existing data, already completed surveys and needed new surveys sponsored by NBS. The usage information will be incorporated into the test procedure to provide the required results. Close cooperation is required with FEA and to a lesser extent with FTC, which has the responsibility for label design. Each test procedure is submitted to FEA which has the responsibility of approving and publishing the test procedure rules. Final test procedures will be used by industry to make the required tests on their products.

### 4. Resources

Funding in FY 77 - \$1.275M. Many years of effort - 36. Beyond FY 77, ~~except for other products utilizing 100 kwh/yr or more, new and different objectives will be established dealing with modifying and upgrading test procedures as experience dictates the need for such action.~~ Staffing and funding will remain at the same levels.

5. Responsible Office

Responsibility is in the National Bureau of Standards' Institute for Applied Technology, Dr. F. Karl Willenbrock, Director.

6. Milestones

A milestone is achieved when a test procedure is transmitted to FEA. The test procedures specify one additional useful measure of energy consumption. For FY 77, the milestones are as follows:

1. Develop test procedures for clothes washers - February 1977
2. Develop test procedures for humidifiers - February 1977
3. Develop test procedures for dehumidifiers - February 1977
4. Develop test procedures for central air conditioners - February 1977
5. Develop test procedures for furnaces - February 1977

---

Note:

- o Develop test procedures for other products utilizing the equivalent of 100 kwh/yr or greater - as directed by FEA. None have been specified to date, hence no milestones have been set.



## APPLIANCE TEST PROCEDURES

(continued from FY 76)

### OBJECTIVE

To develop test procedures, at the direction of FEA, for the determination of estimated annual operating costs of 13 specified appliances and items of household equipment, plus any additional products specified by FEA, and at least one other useful measure of energy consumption of such products that is likely to assist consumers in making purchase decisions. Test methods for the 13 products should be completed in FY 77.

### PROGRESS:

- Milestone 1, produce test procedures for six appliance classes: refrigerators and refrigerator-freezers, freezers, dishwashers, clothes dryers, water heaters, and room air-conditioners, was completed in May with the submission to FEA of the proposal on the last of the six classes -- dishwashers.

### VARIANCES:

- Milestone 2, produce test procedures for three appliance classes: home heating equipment (not including furnaces), television sets, kitchen ranges and ovens. In this group, the procedure for television sets was completed on time in April. The home heating equipment (not including furnaces) procedure has been delayed until February 1977 for two reasons: first, the necessity to collect winter season performance and use data for those units which are vented to the exterior; and secondly, to conduct additional technical effort to reduce unit testing time to a level agreeable to manufacturers. The need to obtain additional technical and usage data has also delayed the procedure for kitchen ranges and ovens until October 1976.

### RESOURCES:

- FY 77 Funding - \$3.2 M
- Manyears of Effort - 36
- Of the funding, \$1.275 M is in the NBS budget for FY 77, and the remainder is provided by contract by FEA. Current plans call for the FEA portion to be transferred to the NBS base budget in FY 78.



## EXPERIMENTAL TECHNOLOGY INCENTIVES PROGRAM (ETIP)

1. Proposed Objective. To conduct a series of coordinated experiments to determine the effects of alternative policies on the rate at which the private sector innovates. Test areas are: (1) procurement, (2) regulation, (3) civilian R&D, and (4) economic assistance. Program output includes a series of interpretative reports that evaluate the experiments and provide appropriate policy recommendations.
2. Justification. The Experimental Technology Incentives Program was initiated at the National Bureau of Standards by direction of the President in FY 1973 as part of the President's program to stimulate technological innovation in the private sector. A number of factors had been observed which led to a growing concern about the pace of technological change in the country. These had led to a belief that the Government should engage in activity which would stimulate technological change. The President's State of the Union Message of January 20, 1972, indicated his perception of the problem in the following manner: "over the last several months, this administration has undertaken a major review of both the problems and the opportunities for American technology. Leading scientists and researchers from our universities and from industry have contributed to this study. One important conclusion we have reached is that much more needs to be known about the process of stimulating and applying research and development. In some cases, for example, the barriers to progress are financial. In others they are technical. In still other instances, customs, habits, laws, and regulations are the chief obstacles. We need to learn more about all these considerations -- and we intend to do so." NBS was selected as the locus for the experimental effort because of its recognized long and successful history of interaction on technical matters with industry. The enthusiastic response of other Government agencies and industry in joining in the experiments has shown the wisdom of that decision.
3. Approach. The policy areas which have been selected by ETIP for evaluation reflect the philosophy that the proper role of the Federal Government in encouraging non-Federal technological change is to provide new and improved incentives for innovation while allowing the private sector to decide how it will respond to these incentives. ETIP

involves in its experiments the line government agency that has responsibility for the particular policy that is the subject of the experiment. This strategy provides a meaningful learning experience for the agency that will have the responsibility for implementation of any recommended policy change. ETIP experiments are designed to systematically develop information within one of the policy areas. Each of the policy areas plans its work on a theoretical framework that has evolved in the course of ETIP's studies and experiments. An integral part of each ETIP experiment is an evaluation effort which seeks to objectively measure the effects of the ETIP administrative experiment in the presence of a large number of other activities which can and do influence the outcome of the experiments. All of ETIP's current activity is directed towards a decision in 1980 which will determine the future course of the Program based on its activities through that date. ETIP's strategy of working through other agencies has made it unnecessary to submit formal policy recommendations to high level executive branch decisionmakers. ETIP's partners have enthusiastically taken the initiative for policy change within their areas of responsibility when experimental results have shown this to be the wise course of action.

4. Resources. FY 1977 permanent positions 17, program level \$3,125,000; FY 1978 estimated permanent positions 17, program level \$3,125,000. Commitments of at least that amount of resources for FY 1979 and 1980 will be needed to reach the 1980 decision goal.

5. Responsible Office. Office of Experimental Technology Incentives Program, Director, Dr. Jordan D. Lewis.

6. Milestones:

- Complete third procurement cycle using combined initial and energy cost formulas for five consumer appliances.
  - Window air conditioners and frostless refrigerators--December 1976
  - Gas ranges--January 1977
  - Home hot water heaters--March 1977
  - Electric ranges--January 1977
- Evaluate ETIP procurement activity with respect to agency impact.
  - Complete design phase--June 1977
  - Complete test phase--June 1978

3.

- Evaluate ETIP procurement activity with respect to commercial impact.
  - Complete design phase--June 1977
  - Complete test phase--June 1978
- Publish report on ETIP Project entitled, Experiments in Using Improved Management and Analytical Tools in State Utility Commission Ratemaking--November 1976.
- Complete phase one of project entitled, Experiment in Post Market Surveillance of Drugs--August 1978.
- Publish final report on ETIP Project entitled, Flammable Fabrics Research - Cotton-Polyester Blends--September 1976.
- Publish report on ETIP Project entitled, Evaluation of an Inter-Organizational Consortium for Research and Development Management--December 1976.
- Complete ETIP Project entitled, Diffusion of University Research Output--June 1977.
- Publish report on ETIP Project entitled, Integrated Utility System--October 1976.
- Complete ETIP Project entitled, Technical Competency Evaluation--January 1978.
- Complete decision relative to future direction and level of ETIP Program--October 1980.









EXPERIMENTAL TECHNOLOGY INCENTIVES PROGRAM (ETIP)

(continued from FY 76)

OBJECTIVE

To conduct a series of coordinated experiments to determine the effects of alternative policies on the rate at which the private sector innovates. Test areas are: (1) procurement, (2) regulation, (3) civilian R&D, and (4) economic assistance. Program output includes a series of interpretative reports that evaluate the experiments and provide appropriate policy recommendations.

PROGRESS:

- Milestone 3 (b), let contracts for ETIP evaluations (two evaluations: (1) the impact of ETIP procurement experiments on the cooperating agencies, and (2) the commercial impact of these experiments), was scheduled for September but was completed early in June 1976. The contract for evaluation (1) was awarded to Research Triangle Institute, and the contract for evaluation (2) was awarded to Stanford Research Institute.
- Milestone 3 (c), begin ETIP evaluations, was scheduled for October but began early in July 1976 owing to the early completion of Milestone 3 (b).
- Milestone 5, publish analysis of venture capital markets for technology-based firms, was completed on schedule in July 1976 with publication of "An Analysis of Capital Market Imperfections" prepared for ETIP by Charles River Associates, Inc., and completion of the ETIP report, "The Effectiveness of Venture Capital Markets in the U.S. Economy."
- Milestone 6, publish guidelines for the design and conduct of Federal demonstration projects, was completed on schedule in July 1976, with publication of "Analysis of Federally Funded Demonstration Projects." This publication consists of an Executive Summary, a Final Report, and Case Studies in three volumes.
- Milestone 7, initiate experiment with the Food and Drug Administration to develop and test procedures for following up the efficacy and safety of newly introduced drugs, was completed on schedule in May 1976.

VARIANCES:

- None.

RESOURCES:

- FY 77 Funding - \$3.125 M
- Manyears of Effort - 17



MBO PRESENTATION TO THE SECRETARY  
Energy Conservation in Buildings

OBJECTIVE

To promote conservation of energy in buildings by providing standards and guidelines for improved building performance. This is in response to the President's 1975 Energy Message, and Administration support of H.R. 8650 which calls for utilizing NBS in development of energy conservation standards for buildings.

JUSTIFICATION

The NBS Center for Building Technology with over 50 years experience in this field is uniquely qualified and equipped to conduct the research and coordinate the industry efforts required in developing needed standards and guidelines. The Building Energy Conservation Standards Act of 1976, Section 210, Title II, H.R. 8650, as passed by the Senate on March 9, 1976, states that the Secretary of HUD, in cooperation with the Administrator of FEA, the Administrator of the Energy Research and Development Administration, and the Director of the National Bureau of Standards shall carry out such research and demonstration activities as he determines may be necessary to assist in the development of standards and to facilitate the implementation of such standards by State and local governments (referred to as "energy budgets") for new buildings.

- o There is industry support for Federal building performance standards as alternative to proliferated State requirements.
- o House/Senate conference on critical issue of sanctions has slowed progress, but strong agency support continues as in the Energy Resources Council. Enactment of this Title is expected as an amendment to the FEA Extension Act (Title III).
- o This activity is a model of interagency coordination.
- o NBS is applying some of this technology to its own buildings to demonstrate energy-saving potentials.
- o NBS is working with ERDA/FEA and major commercial building associations in developing means to achieve conservation in existing buildings.

APPROACH

NBS recommended and representatives of HUD, ERDA, and FEA approved in August 1975, an "Energy and Cost Performance" approach for standards development in which the goal of reduced energy consumption and the constraint of reasonable cost are reconciled in the context of life-cycle cost minimization. A Proposed Federal Program for Energy Conservation Standards for Buildings was delivered to the Energy Resources Council Thermal Standards Task Force on April 2, 1976. This document is currently being revised based on agency comments and legislative changes arising in House-Senate Conference.

The essential elements remain unchanged.

- o A coordinated federal approach to implementation/utilization of existing standards for energy conservation in buildings.
- o A standards development and research program aimed at producing the required standards and supporting materials in the time period specified in the legislation.
- o A standards implementation plan.

As an example of the potential impact of one aspect of this effort, NBS expects 40 to 50 percent energy use reduction on its own site through application of computerized-controls to its buildings' heating and cooling and ventilating systems. Before and after, as well as computer, analyses will provide meaningful data to assess effectiveness of this technology and provide bases for broader application of it.

RESOURCES

	FY 77	to	Completion (FY 81)
Funding	\$3-5 M <u>1/</u>		\$45 M <u>1/</u>
Manyears	20-57 <u>2/</u>		-

Notes:

- 1/ Current estimates based on program plan.
- 2/ Twenty are now assigned, 37 new slots are needed for full standards research and development activity envisioned to meet provisions of legislation.

RESPONSIBLE OFFICE

Institute for Applied Technology

Dr. F. Karl Willenbrock, Director

MILESTONES

	<u>Date</u>	
1. Building Performance Standards		
a. Complete detailed program plan for building performance standards.	5/76	Done
b. Report on generalized methodology for Energy Budget Approach.	6/77	
c. Complete development of economic model and energy budget approach.	6/78	*
d. Develop data base for energy use.	6/79	*
e. Publish Building Performance Standards (BPS).	12/80	*
2. NBS Computer Controlled Building Systems		
a. Begin seasonal collection of energy use data on NBS pilot installation.	9/76	
b. Completion of data collection for four seasons on pilot installation.	8/77	
c. Place contract for expanding computer control system to entire NBS campus.	10/77	

---

\* Milestone dates will be adjusted when legislation establishes timetable and as agency funding is obligated.





ENERGY CONSERVATION IN BUILDINGS

MILESTONES

- d) theoretical model of energy use in NBS campus buildings completed, using NBSLD and Meriwether computer programs
- e) completion of data collection for four seasons on pilot installation
- f) place contract for expanding computer-control system to entire NBS campus

\* Milestone dates will be adjusted when legislation establishes timetable and as agency funding is obligated.

1976											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
											0

1977											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
							0			0	

LATER



## ENERGY CONSERVATION IN BUILDINGS

(continued from FY 76)

### OBJECTIVE

To promote conservation of energy in buildings by providing standards and guidelines for improved building performance. This is in response to the President's 1975 Energy Message and Administration support of H.R. 8650, which calls for utilizing NBS in development of energy conservation standards for buildings.

### PROGRESS:

- Milestone 6 (a), NBS Computer-Controlled Building Systems: initiate checkout of pilot installation of computer controls in Building 223, was begun on schedule in July. Good progress is being made with these tests, and they will be completed in September so that Milestone 6 (b), seasonal collection of energy use data on pilot installation, can be undertaken on schedule.
- Milestone 6 (c), Contractor (York Corp.) will submit report on modifications of chillers and/or their operation to reduce energy requirements on part load, is on schedule.

### VARIANCES:

- Milestone 2, determine energy and cost savings by computer-controlled building operations, using Carrier REAP procedure (concepts to be demonstrated on NBS buildings), has been delayed from June to September 1976. This delay has been caused by difficulties encountered in adapting our computer program for the Carrier "REAP" procedure for operation on the Univac 1108 computer used at NBS.
- Milestone 3, publish interim report on standard reference method for analysis of energy use in buildings, has been rescheduled from July to October 1976. This rescheduling results from delays of three months in receipt of funding and start-up orders from ERDA and HUD, the sponsors of this work.
- Milestone 4, publish interim performance criteria for windows integrating energy, economics, habitability, and lighting (daylight vs. artificial) considerations, has been rescheduled from September to November 1976. This rescheduling results from delays of three months in receipt of funding and start-up orders from ERDA and HUD, the sponsors of this work.

### RESOURCES:

- FY 77 Funding - \$3 M
- Manyears of Effort - 30
- Resource figures are approximate, about 75 percent of this program is carried out with other agency funds and some of the work is subcontracted.



## MEASUREMENTS AND STANDARDS FOR NUCLEAR MATERIALS SAFEGUARDS

### Proposed Objective

To provide for measurement services that are required for accurate and reliable accounting of nuclear materials so as to improve the measurement procedures used to detect and deter illegal diversion of plutonium and uranium. Development of these measurement services will be substantially completed for the current light water reactor fuel cycle 8-9 years after program start-up. This program has not yet been initiated. During the calendar year following initiation, the program will complete resolution of discrepancies in measurements of nuclear fuel burnup and issue improved statistical design for mass measurement.

### Justification

The nuclear materials safeguards issue concerns national security in preventing the diversion of nuclear fuels for other than peaceful purposes. The roles of the various federal agencies involved in our total Safeguards Program have been defined and it is NBS' responsibility to provide objective, third party measurement services. This responsibility has been clearly delineated in an interagency task group report<sup>1</sup> written jointly by NRC, ERDA and NBS. The NBS program for nuclear materials safeguards measurements is a response to the consensus of leaders in government, industry and international organizations that NBS participation is required to meet the urgent need to strengthen public confidence in this area. Craig Hosmer, President of the American Nuclear Energy Council, strongly stated the need for this NBS program in a letter to the Secretary of Commerce dated June 9, 1976. He stated, in part, that the NBS program...

"...has thoughtful input from many resources and organizations, including the nuclear industry, through the Atomic Industrial Forum. The NBS recommended program, in our opinion, meets the required need, namely to strengthen public confidence in this aspect of the U.S. nuclear energy program.

We are concerned that failure to initiate this program on a timely basis may place the U.S. nuclear industry in an unfavorable position."

Demand for this NBS program was also expressed in letters to the Secretary of Commerce from ERDA Administrator Seamans, NRC Chairman Anders and Acting Secretary of State Sisco. This is a "white hot" issue and the NBS program is clearly in the best interest of the United States and the world.

---

<sup>1</sup>Proposed NBS Program for Measurements and Standards for Safeguarding Nuclear Materials, NRC-ERDA-NBS Study Group, Final Report, February 1976.



The Secretary could promote this DOC/NBS action as a visible, productive response to the danger that proliferation presents to our national security. The public and Congressional concern over proliferation now stands in the way of development of nuclear energy that is needed to reduce the U.S. dependency on foreign oil imports.

### 3. Approach

The NBS program for measurements and standards for safeguarding nuclear material consists of three related parts that have been integrated with NRC, ERDA, and industry plans and needs. These are: (1) reference measurement techniques, standards, sampling schemes, data generation, and statistical treatment of data; (2) dissemination mechanisms to transfer the measurement technology to the users; and (3) mechanisms to support the nuclear industry in insuring that their measurements are of required accuracy.

NBS will develop the services that will allow both for very high accuracy laboratory measurements of nuclear fuel (destructive chemical and isotopic assay) and for field tests (non-destructive assay). In order to obtain measurements of sufficient accuracy, missing critical nuclear data will have to be generated in areas where NBS has established expertise.

Delivery mechanisms to transfer this technology to all parts of the nuclear fuel cycle include publication of reference data; publication of reference methods (these methods will be developed and checked in cooperation with industry, NRC, ERDA, and the voluntary standards system); Standard Reference Materials sent to users for on-site calibration of measurement systems; calibration services for instruments sent to NBS; and workshops, handbooks, guidelines, and consultation to NRC, ERDA, industry, and the international community.

NBS will also provide a voluntary measurement assurance program (MAP) for nuclear materials measurements at the key points in the fuel cycle. This will include development of systematic procedures for assessing the quality of existing field measurements and for assuring accuracy of the field measurements of nuclear materials over the long term. An example of this effort is the analysis of the adequacy of field measurements for plutonium and enriched uranium in a fuel reprocessing plant. A total of 25,000 measurements a year (representing over 50 different types of measurements) are made for materials accountability in a single reprocessing plant. Representatives of the two commercial nuclear fuel reprocessing plants (Allied General Nuclear Services and Nuclear Fuel Services) expressed urgency in their needs for NBS standards and services to improve many of these measurements. The new plant will be ready to operate early in 1977 and the older plant is expected to be ready to restart operations two years after NRC approval. Improved measurements and standards are needed to determine the amount of plutonium and uranium in the plant's input (spent fuel), the plant's product (uranium hexafluoride and plutonium nitrate), and the plant's waste (discarded fuel claddings, liquid, solid, and gaseous waste).



Leverage points include NRC regulations and inspectors, industrial fuel cycle facilities, ERDA nuclear material facilities, standards writing groups (ANSI, ASTM, INMM, ISO), other countries and the International Atomic Energy Agency.

### Resources

Funding for FY 1977 will require \$1,000,000 in new funds (proposed FY 77 Supplemental) and 13 new positions. In addition, NBS will redirect \$500,000 annually into this current \$100K base effort--(FY 1977 total \$1,600,000). FY 1978 will require similar total funding (proposed FY 78 initiative presented to OMB).

### 5. Responsible Office

This program is managed by the Nuclear Materials Safeguards Program Manager (Dr. Tom Yolken) located in the Institute for Basic Standards (IBS). The Director of IBS (Dr. Arthur McCoubrey) is responsible for seeing that this objective is achieved.

### 6. Milestones

Near Term Milestones--First Two Years of Program (Assumes program start-up October 1, 1976)

- (1) Resolve discrepancies in nuclear properties of nuclides used in verifying nuclear fuel burnup:  
  
Report on Cesium 137 (September, 1977)  
Report on Barium 140 (December, 1978)
- (2) Issue statistical design for measurement and quality control. (Mass measurement-September, 1977)
- (3) Develop calibration techniques and standards for gamma ray spectrometry used to nondestructively measure fuels throughout the fuel cycle (fuel pellets, fuel rods, waste, and production line scrap); this is a continuing part of the program. Standard container size and geometry to be completed first. (September, 1978)
- (4) Provide guidance to NRC, ERDA, and the nuclear industry in measurement methods and measurement assurance through workshops, metrology guides, and on-site analysis. Serve on ERDA's Technical Advisory Committee for Safeguards; committee will provide Safeguards plan for mixed-oxide fuel concept at back end of reprocessing plant by September, 1977.



Longer Term Milestones

- (5) Complete and certify new Standard Reference Materials for:
  - (a) Plutonium 244 (September, 1979)
  - (b) Uranium 233 (September, 1980)
  - (c) 55% Plutonium 239 (September, 1983)
  - (d) 50% Plutonium 239 (September, 1984)
  - (e) 45% Plutonium 239 (September, 1985)
- (6) Develop new primary NBS SRM's for non-destructive analysis of plutonium using calorimetry. (September, 1983)
- (7) Complete development of a Measurement Assurance Program for the isotope concentration of uranium and plutonium by mass spectrometry. (December, 1979)
- (8) Determine cross sections, provide standard foil sets, and publish measurement analysis techniques which can be used to ascertain the reliability of fuel burnup prediction (needed for continuous-feed fuel reprocessing plants). (June, 1984)
- (9) Develop and publish calibration techniques and standards for neutron spectroscopy and neutron interrogation used to nondestructively measure fuels throughout the fuel cycle. (June, 1985)
- (10) Develop and publish the thermodynamic data and measurement techniques required for dissolver tank measurements (pressure, density, volume, flow, temperature measurement under adverse or non-equilibrium conditions). (September, 1980)



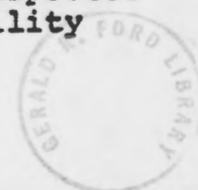
## NONDESTRUCTIVE EVALUATION PROGRAM

1. Proposed Objective. To provide standards, methods of measurement, and calibration services to assist industry and government agencies to make effective use of nondestructive evaluation (NDE), especially in (1) acoustic and ultrasonic, (2) x-ray and neutron radiographic, and (3) electromagnetic methods.

2. Justification. Advanced technologies such as aerospace, nuclear energy, chemical processing, defense, and transportation require high performance from materials. This means that the components which make up these systems must be reliable and durable even under the stringent service conditions encountered. The materials used to construct components pass through many processing stages from raw materials to finished products. During the processing, variability in composition, processing conditions, or fabrication procedures often lead to defects such as cracks, voids, or stresses. Such defects introduce variability in performance and may result in materials failure with lost production, excess maintenance costs, and, possibly, loss of life.

Materials failures resulting from defects introduced during processing or manufacturing may be greatly reduced by eliminating defective materials before they are sold and placed into service. This requires a quality assurance technology that is capable of assessing the condition of materials and determining whether they are suitable for the intended application. Industry needs NBS to improve NDE methods and measurements so this level of quality assurance can be achieved. In critical applications, particularly where public and worker safety is involved, each component, not merely randomly selected components, must be inspected. For this reason, the inspection must be nondestructive, capable of evaluating surface or interior defects, and able to relate inspection results to materials

There are several factors that indicate the need for even greater use of NDE by both government and industry than is presently the case. One of these is the increasing dependence on performance specifications as opposed to material specifications. This has led the American Society for Testing and Materials to predict that by 1980 half of all standards will be based on nondestructive test procedures. Another factor is the increasing tendency of the courts to grant significant monetary awards in litigation cases where defects are suspected or proven in materials used in the product. These liability



judgments are now expanding to cover not only civilian products but also military hardware. One defense a manufacturer has against such judgments is reliable NDE information concerning his product. A third factor which indicates increasing need for NDE is the large increase in consumer product recalls. A significant portion of these are related to the detection of flaws in related products or parts. It has been estimated that product recalls will cost manufacturers five billion dollars over the next five years. It also must be recognized that airplanes and other critical structures are now beginning to be designed by "fracture mechanics criteria". In order for that concept to work, the designer must be assured that there are no flaws present above a certain magnitude.

The implications of variability in product performance are felt in many areas of national concern -- public safety, productivity, manufacturer liability, product recall, litigation and buyer-seller equity. We believe these should be significant concerns to the Secretary and, therefore, he should be interested in tracking this objective.

3. Approach. The objectives will be accomplished by addressing measurement needs for individual NDE methods as resources become available.

Standards developed by NBS will be made available through voluntary standards organizations, by the sale of NDE Standard Reference Materials, and by technical publications, visits, and meetings. A major symposium on NDE standards at NBS in May 1976 illustrates the latter mechanism. At this meeting, NBS brought together the American Society For Nondestructive Testing (ASNT), the organization of the professionals and practitioners, and the American Society For Testing and Materials (ASTM), the voluntary standards organization.

Strong evidence that improvements in NDE standards and measurement procedures are needed is attested to by the fact that many national and international trade and professional associations are becoming increasingly concerned with these problems. These organizations include ASTM, ASNT, the American National Standards Institute (ANSI), the American Society of Mechanical Engineers (ASME), the International Institute of Welding (IIW), the Metals Property Council, and the Mechanical Failures Prevention Group. For example, ASME is working with NBS to provide calibration methods for acoustic emission





transducers, which are needed for nuclear reactor in-service inspections. These transducers convert "noise" resulting from cracks growing in the material into electrical signals. These signals can be detected and related to the rate at which the cracks are growing in the material.

4. Resources. Due to limited resources, the NDE Program has been based on internally reprogrammed funds. For FY 1977, this is estimated to total 16 positions and \$680K (all NBS funds). Additional proposed funding in a FY 1978 initiative would increase the annual program effort by 23 positions and \$1.9M.

5. Responsible Office. The NDE Program is based in the Institute for Materials Research, National Bureau of Standards, under the direction of Dr. J. D. Hoffman.

6. Milestones. More than 70 different methods are used in NDE. With present resources, NBS is addressing only a few NDE measurement problems, as indicated in these milestones:

<u>Milestone</u>	<u>Date</u>
1. Complete evaluation of fracture mechanics analysis and methods of defect size measurement from radiographs relative to the performance of girth welds on the Trans-Alaska oil pipeline. Deliver report to the Department of Transportation.	October, 1976
2. Complete development of methods and initiate ultrasonic test block calibration service to establish NBS traceability needed by industries using ultrasonic NDE measurements.	February, 1977
3. Demonstrate improved ultrasonic measurement potential by application of pulse-compression instrumentation to NDE inspection.	April, 1977
4. Initiate electrical conductivity measurement calibration service in order to improve measurements such as those used for alloy sorting.	May, 1977



4

5. Complete development of procedures necessary to provide calibration services needed to improve the use of acoustic emission transducers for in-service monitoring.

July, 1977

6. Complete development of a recommended practice for thermal neutron radiography needed by industry for effective use of this inspection method.

July, 1977





COMPUTER SECURITY  
(continued from FY 76)

OBJECTIVE

To produce one standard, four guidelines, and two reports to reduce threats to the integrity and confidentiality of data in computerized information systems, and to assist agencies in complying with the Privacy Act of 1974. This objective, part of NBS' computer security program, will be completed in FY 77.

PROGRESS:

- Milestone 1, publish a medical recordkeeping report for use by the public health service sector and Government agencies in meeting privacy requirements, was accomplished in May on schedule.
- Milestone 3, publish guidelines for security risk assessment, was accomplished in July on schedule.
- Milestone 4, establish a testing service for validating encryption devices for compliance with the Federal data encryption standard, is on schedule with regards to the preparation of equipment and procedures. When the standard is implemented, the test service will be available.

VARIANCES:

- Milestone 2, issue Federal standard for data encryption, has been delayed from May to November 1976. This was done to allow time to study Justice Department concerns over the antitrust aspects of licensing for foreign production of the device by United States companies, and to accommodate DoJ requested rewording of patent releases.

RESOURCES:

- FY 77 Funding - \$0.683 M
- Manyears of Effort - 18



FISCAL YEAR 1977  
SECRETARIAL-LEVEL MBO  
COMPUTER SECURITY

1. Proposed Objective

The computer security objective is to produce one standard, four guidelines, and two reports to reduce threats to the integrity and confidentiality of data in computerized information systems, and assist agencies in complying with the Privacy Act of 1974. This objective, part of NBS' computer security program, will be completed in Fiscal 1977.

2. Justification

This MBO addresses specific products of the NBS computer security program which support data confidentiality, data integrity, and privacy-related technical issues. Data confidentiality is an over-all concern of the program. Congressional and public concern, coupled with existing and pending privacy legislation, has mandated an increased emphasis on this issue. OMB estimates that, of the 6723 "systems of records" of personal data reported by agencies as required by the Privacy Act, over one half of the records on individuals reside in automated systems. Other data such as proprietary production data in the computers of regulatory agencies must also be kept confidential. Data of national security importance is an obvious concern; in June a conviction was obtained for penetration of an FEA system containing data which were both classified and highly proprietary.

Data integrity protection is another part of the program. Computers now process most of the Government's financial transactions and personal data. Destruction or modification of data has led to expensive re-creation or even re-collection, overpayment or overordering resulting from fraud or accident, denial of benefits, interruption of services, faulty decision-making, misrouting of objects, and even false arrest. Cases have been documented in the press and in GAO reports, and Congressional concern in this area has greatly increased.\*

In fulfilling this objective, NBS is meeting its charter commitments as the only Federal agency authorized to set Government-wide standards for information processing (Brooks Act and OMB policy guidance), and its specific Privacy Act charge (OMB Circular A-108). Indeed, the milestone dealing with "non-unique identifiers" results directly from the constraints Section 7 of the Act places on agencies, and the milestone dealing with "sensitivity levels" will help the agencies prioritize the application of security safeguards for the protection of personal data.

---

\*For example, see "Problems Associated with Computer Technology in Federal Programs and Private Industry: Computer Abuse," Senate Committee on Government Operations print (June 1976).



### 3. Approach

The milestones identified in Section 6 fall into two broad categories within the overall computer security program. The first is the development of information management practices of a procedural nature to assure control over the accuracy, completeness, confidentiality and integrity of data. The work on non-unique identifiers for data retrieval, file handling practices, and determination of sensitivity levels of personal data all fall into this category. The second category is the development of technological measures for data integrity and confidentiality and access control in computer systems and networks. Included are the milestones relating to encryption, development of secure software programs, and the automated identification of persons accessing computer systems and data.

In order to define the maximum-payoff technological milestones and so focus the program for effectiveness, NBS must be aware of agencies' operational security requirements and the latest developments in industry. As in any scientific organization there is information interchange through professional meetings and press, and in NBS' case, many ad hoc contacts with agencies that come to NBS seeking advice on specific computer security problems. But the computer security program has a far more effective forum for exchange with Government and industry--the Federal Information Processing standards Task Group 15 on Computer Security, a public advisory committee. This is a dynamic, working group which has excellent representation from many Federal agencies, state and local governments, computer manufacturers, and major users such as banks and insurance companies.

The standards and guidelines produced by this program provide agencies with the means for protecting valuable data and other computer assets, and assuring their management, the public and Congress that proper steps are being taken to safeguard individual privacy. Examples of use of these products include HEW, which has incorporated FIPS Publications 31 and 41 into its computer security regulations. The FAA has based its computer security manual on NBS' guidelines. GSA has developed a draft FPR which will incorporate a computer security standard, and has asked NBS to determine the advisability of revising an existing FPMR to include the relevant portions of NBS' physical security guidelines.

### 4. Resources

In 1977, the cost of completing the objective within the overall computer security program will be \$397,000, requiring 6 man years.\*

\* Several of these milestones represent activities initiated in prior fiscal years.



5. Responsible Office

Institute for Computer Sciences and Technology, NBS, Dr. Ruth M. Davis, Director.

6. Milestones

1. Publish Guideline on the use of names and other non-unique identifiers for accessing files, allowing agencies to continue providing services to persons without violating Section 7 of the Privacy Act or incurring excessive costs (Oct. 1976).
2. Establish a Federal Standard Data Encryption Algorithm, to be made commercially available as a low cost hardware device to protect the data of civilian agencies (Nov. 1976). Note: This milestone was originally scheduled for May 1976. However, the Justice Department has expressed concerns over the antitrust aspects of licensing for foreign production of the device by United States companies, and requested a rewording of patent releases. The schedule change is reflected above.
3. Report on software engineering methods for the development of secure programs (Feb. 1977).
4. Publish interim guidelines on good information management practices for file handling (May 1977).
5. Publish guidelines on determination of sensitivity levels of personal data in computer files, for assessing required levels of security (May 1977).
6. Publish comprehensive guidelines on personal identification techniques for controlling access to computer systems, networks and data (Sept. 1977).
7. Joint NBS/Privacy Protection Study Commission report on the problems of privacy and data confidentiality in personnel recordkeeping (Sept. 1977).

