

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON STRATEGIC INFORMATION TECHNOLOGY PLAN

Location: ROCKVILLE, MARYLAND

Date: AUGUST 11, 1993

Pages: 70 PAGES

SECRETARIAT RECORD COPY

NEAL R. GROSS AND CO., INC.

COURT REPORTERS AND TRANSCRIBERS
1323 Rhode Island Avenue, Northwest
Washington, D.C. 20005
(202) 234-4433

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on August 11, 1993, in the Commission's office at One White Flint North, Rockville, Maryland. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected or edited, and it may contain inaccuracies.

The transcript is intended solely for general informational purposes. As provided by 10 CFR 9.103, it is not part of the formal or informal record of decision of the matters discussed. Expressions of opinion in this transcript do not necessarily reflect final determination or beliefs. No pleading or other paper may be filed with the Commission in any proceeding as the result of, or addressed to, any statement or argument contained herein, except as the Commission may authorize.

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVENUE, N.W.
WASHINGTON, D.C. 20005

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

- - - -

BRIEFING ON STRATEGIC INFORMATION
TECHNOLOGY PLAN

- - - -

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Wednesday, August 11, 1993

The Commission met in open session,
pursuant to notice, at 2:00 p.m., Ivan Selin,
Chairman, presiding.

COMMISSIONERS PRESENT:

IVAN SELIN, Chairman of the Commission
KENNETH C. ROGERS, Commissioner
FORREST J. REMICK, Commissioner

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVENUE, N.W.
WASHINGTON, D.C. 20005

STAFF SEATED AT THE COMMISSION TABLE:

JOHN HOYLE, Assistant Secretary

KAREN CYR, Office of the General Counsel

JAMES TAYLOR, Executive Director for Operations

HUGH THOMPSON, Deputy Executive Director, NMSS &
Operations Support

GERALD CRANFORD, Director, IRM

FRANCINE GOLDBERG, Director, Strategic Planning and
Technical Advisory Staff

MALCOLM KNAPP, IRM Strategy Team Member

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

P-R-O-C-E-E-D-I-N-G-S

2:00 p.m.

CHAIRMAN SELIN: Good afternoon, ladies and gentlemen.

The Commission will be briefed today by representatives from the Office of Information Resource Management on the NRC Strategic Information Technology Plan. Since this is the first time that the plan will be published in accordance with OMB's Circular A-130 on the management of federal information resources. We believe it will be very useful to hear about various components of the plan, including the development process findings, recommendations and eventually, Mr. Cranford, resources, although we don't expect that at the first cut.

This briefing will help us understand the basis for how the plan will be used and updated. I was particularly pleased to see the obvious close connection between the overall NRC five year plan and the information resource management plan. We hope that this plan will develop over time to highlight not only the plans for the resources themselves, but the requirements that are implicit in the strategic plan. As the NRC gets into new activities, since these are

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 information management resources or the information
2 resources themselves are expensive resources, we'd be
3 pleased to see the impact of computing expenses taken
4 into account as the overall plans are developed.

5 We'd like to congratulate and commend you
6 for drafting such a comprehensive plan. This is a
7 tough thing to do, particularly the first time around.
8 But seeing that this becomes a viable document will be
9 your next challenge and to make sure that it not only
10 is a good first start, but that it gets fleshed out
11 and stays current with the overall development of
12 planning within the Agency.

13 Commissioners?

14 Mr. Taylor?

15 MR. TAYLOR: Good afternoon. With me at
16 the table are Hugh Thompson, Mal Knapp and Gerald
17 Cranford, the Director of the Office of IRM and Fran
18 Goldberg, who works for Gerald.

19 In the beginning, I'd like to note that
20 over the past decade just how far the NRC has come.
21 Just a little over a decade ago, in 1982, the NRC had
22 six microcomputers. During this decade the number has
23 increased to the point where every member of the staff
24 has access to a desk top or portable microcomputer.
25 As the Commission knows, many of these computers are

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 connected through the AUTOS and word processing by the
2 technical staff and use of electronic mail have become
3 an intrinsic part of the Agency's business.

4 Nonetheless, as you know, Mr. Chairman, in
5 looking at where we are and where we need to go,
6 Gerald and the senior managers across the staff have
7 worked to prepare the strategic plan. This has all
8 come to pass over the past year or so.

9 This will be the first of the briefings on
10 the subject and we hope at least annually we will
11 update the Commission with our process in carrying out
12 our strategic plan.

13 Gerald will now continue.

14 MR. CRANFORD: Thank you, Jim.

15 Good afternoon. I appreciate the
16 opportunity to brief the Commission on the NRC
17 strategic plan for information technology. This plan
18 represents a first step for the Agency and it
19 concludes a year-long process that involved
20 participants from practically every office at the NRC.
21 I want to thank those individuals both from the
22 programmatic and the administrative offices who worked
23 cooperatively with the staff from the Office of IRM to
24 develop the plan. We couldn't have produced the plan
25 without the hard work of all those involved.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 This is not a one time effort, but is the
2 first installment in a formalized annual planning
3 process that will provide a responsive course of
4 direction for managing the NRC's information
5 technology program.

6 This briefing is going to be organized
7 around the following: the process that was used to
8 develop the plan; the initial situation and issues
9 surrounding the Agency's information technology
10 program; and the resulting plan that we intend to put
11 in effect to meet the organizational needs.

12 First item on the agenda is the strategic
13 planning process itself. In strategic planning we
14 feel the process is as important as the product. An
15 effective process must use a systematic, analytical,
16 structured approach to produce logically correct and
17 defensible plans. It also must involve the right
18 people at the right time to achieve Agency-wide
19 consensus and support for implementation. As an
20 aside, I would say the fact that we were able to gain
21 that consensus from all of the non-IRM people who
22 worked on the program, I think that's really the
23 centerpiece of this plan. We had tremendous
24 cooperation from the offices. It certainly provided
25 the much needed insight for the Office of IRM so that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 we can fashion a program that meets the needs of this
2 organization.

3 The goals of the strategic planning
4 process. Early on in the process we established two
5 primary goals. The first goal was to develop a
6 realistic plan or a product that sets direction over
7 a measurable period of time, that's flexible over
8 time, that can support evolving and changing needs,
9 that is balanced both from a technical and
10 administrative standpoint. In other words, it would
11 meet the needs of the technical offices as well as the
12 administrative offices.

13 The second goal was to institute a new
14 planning process that's tied to the mission of the
15 Agency and also one that is an integral part of the
16 annual five year planning process. This process, as
17 Mr. Taylor indicated, will be updated on an annual
18 basis and is our goal to update the Commission
19 accordingly. It's also carried out in a process
20 that's carried out with full client participation. I
21 can't underscore that enough.

22 (Slide) The next chart shows the process
23 that was used during the strategic planning process
24 and affectionately is referred to by Mr. Taylor as the
25 snake diagram. It was the same process that was used

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 in 1987 to develop the original NRC five year planning
2 program. The chart, if you look at it, the green band
3 at the top shows the review board group. The orange
4 band at the bottom shows the activities of the
5 strategy team. So, it was an interactive process
6 where the strategy team performed certain functions
7 and then as a result of that activity those functions
8 were reviewed and commented on by the review board and
9 changes made as necessary.

10 The first activity was the assessment
11 activity. What is the situation of information
12 technology at the NRC today? What are the strengths
13 and weaknesses of the programs? What are the issues?
14 What future events will impact upon the strategy?

15 Out of this we developed a set of
16 challenges and during that process we identified areas
17 where additional information was needed to fulfill the
18 challenges. We then collected information and
19 developed alternatives to meet those challenges. At
20 that point we evaluated those alternatives, looking
21 particularly from a cost benefit and risk standpoint.
22 We looked at each alternative from its cost benefit
23 and risk standpoint. Then we decided on a strategy
24 and those strategies were then recommended to the
25 review board. Then, the next step, step five, is to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 develop a tactical implementation plan. Finally the
2 sixth box calls for implementing that plan, to
3 actually do it, to put the plan in motion.

4 We felt the process had content quality in
5 that we used a systematic, analytical process and
6 tools to develop a defensible strategy. We felt the
7 process had people quality. We felt that we had
8 involved the right people to ensure the credibility
9 and commitment to the selected strategy.

10 (Slide) The role of the review board was
11 to provide direction and feedback at each critical
12 juncture in the process. As I recall, the strategy
13 team met with the review board at least on four
14 separate occasions and then in January of 1993, of
15 this year, we met off-site at Hunt Valley to decide on
16 a strategy to send forth to the EDO for consideration.
17 The review board members were comprised of senior
18 level executives from the Agency who were empowered to
19 make decisions. As you can see, we had both of the
20 Deputy Executive Directors, we had participation from
21 the regions as well as the major program office. I
22 might point out in the handout I think we've
23 erroneously assigned Jim Milhoan to Region I. He's
24 still in Region IV, believe me.

25 COMMISSIONER ROGERS: I thought he got

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 demoted.

2 MR. CRANFORD: (Slide) The role of the
3 strategy team is, as I said before, to perform the
4 assessment and all the analysis that was required in
5 order to select and evaluate the alternative
6 strategies and then to present those results to the
7 review board at each critical step and then finally to
8 make the recommendation that would go forth to the
9 EDO.

10 There's too many people on this team to
11 mention. The point that I would like to make is that
12 it represents the entire Agency. We had participation
13 from everyone and it was a painstaking process. We
14 spent hours on end going over to make sure that every
15 issue was given an opportunity to be surfaced. I
16 think that everybody who had an issue that they wanted
17 to raise was certainly presented that opportunity.

18 COMMISSIONER REMICK: Question. Don't
19 view this as a criticism, but how about organizations
20 like ACRS and ASOB? How did you get input from them
21 because they're not in the particular line management
22 represented by most of the members here? How do you
23 receive input from those people that are kind of off
24 from the mainstream of the staff?

25 MR. CRANFORD: Well, one of the ways --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 and I will talk about this a little later on in the
2 presentation -- would be through the Technology
3 Advancement Board. That's another group that supports
4 the Office of IRM in determining in particular the
5 technical computing needs of the various
6 organizations. So that would have been one way that
7 it would have happened.

8 Do you want to comment?

9 MS. GOLDBERG: We did, although not all
10 the offices were represented on the strategy team, we
11 did give offices an opportunity to submit information
12 in writing and we did receive some new projects, for
13 example, from ACRS. We intend to involve all the
14 offices in the new strategic planning process whether
15 or not they have representatives on the new council.
16 We will be actually having meetings with
17 representatives from all the offices and presenting
18 them, sending them, with some information to allow
19 them to provide us with input. We couldn't have
20 everybody participating because it just became too
21 unwieldy.

22 COMMISSIONER REMICK: No, I realize that.
23 Yes. But it's important that they have an opportunity
24 to provide input on their needs.

25 MS. GOLDBERG: Agreed.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 COMMISSIONER REMICK: Yes.

2 MR. THOMPSON: And another approach we
3 looked at is having at least one small office
4 represented such that they would come from a small
5 office perspective and recognize that they may
6 actually have to rely on IRM to do more of the
7 infrastructure and support for them. I believe at the
8 time when we picked this, Lloyd Donnelly at one time
9 was on -- the LSS was kind of viewed as a small office
10 with real knowledge about computer applications and
11 needs and we were looking to him to have interface
12 with like OE and OI and some of the other smaller
13 offices to do that also.

14 MR. CRANFORD: The next item on the agenda
15 is the situation assessment itself. During the
16 situation assessment we identified three categories of
17 issues. The first issue is NRC IRM issues. The next
18 were NRC-specific events and trends, and finally
19 external issues that would affect the strategy plan.
20 I'll highlight one or two of those, each of those
21 categories.

22 (Slide) As far as the NRC IRM issues are
23 concerned, I'll talk about the first one, the planning
24 and budgeting and also the last, the application
25 systems. From a planning and budgeting perspective,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 we found that the IRM planning call where we go out to
2 the offices and ask them what their needs are was a
3 tactical as opposed to a strategic plan. It was more
4 geared to the budget and really didn't allow client
5 input on strategic issues. As a result, we found that
6 IRM could not effectively determine priorities. We
7 really didn't know what the needs of the offices were.
8 We weren't able to establish an effective dialogue in
9 order to determine that. As a result, we found that
10 IT resources were not always allocated to the most
11 important projects.

12 From an application systems perspective we
13 found that we had incompatible, fragmented, duplicated
14 and outdated systems and databases. For example,
15 payroll, personnel, property and contract systems are
16 probably 12 or more years old. The financial data
17 needed for the CFO reporting in the fee billing is
18 disbursed among many incompatible systems, systems
19 that do not communicate.

20 (Slide) From the perspective of the NRC-
21 specific events and trends, it is clear that future
22 agency information processing needs will place more
23 emphasis on high performance computing. We've also
24 found the need for increased connectivity and
25 information sharing with our stakeholders. The

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 licensees want to be able to submit information
2 electronically. We need to be able to exchange
3 information electronically with others, including
4 federal agencies, state, local governments, DOE labs,
5 et cetera.

6 CHAIRMAN SELIN: Have you looked at the
7 legal implications of submitting certain kinds of
8 statutory and regulatory documents electronically? Is
9 there a big problem getting signatures or official
10 versions? Or are you just talking about moving
11 analyses around and --

12 MR. CRANFORD: I think at this point we're
13 talking about just being able to move analyses, but
14 that is something that we will have to come to grips
15 with in order for us to make this a whole process.

16 MS. GOLDBERG: One comment there. I think
17 OGC right now is looking at the issue of electronic
18 signatures and we're just taking the first steps in
19 formulating some policies on what kinds of things
20 could be submitted electronically with an electronic
21 signature and they're not licensing documents yet.

22 CHAIRMAN SELIN: Yes. But I think you'll
23 find that we're not going to make much progress
24 dealing with licensees until we can submit official
25 documents because everything is official. We don't

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 have private correspondence with the licensees. So,
2 if you get down to the point where somebody has to
3 say, "I faxed them this. Is it an official document
4 or not?" it's a -- given the kind of work that we do,
5 it's really an obstacle. So, this particular question
6 ought to be answered sooner rather than later.
7 Because they send us an analysis and then we rely on
8 it and then we publish something and then it turns
9 out, well, it wasn't properly signed, we couldn't rely
10 on it. It will be just a dreadful mess and everything
11 we communicate with the licensees over the public is
12 an official communication. We don't have private,
13 informal communications in the normal sense.

14 MR. CRANFORD: The next item I'd like to
15 talk about briefly is a GSA review that was conducted
16 in late August and was concluded in October of last
17 year. Once every three years the General Services
18 Administration reviews the IRM programs of the 27
19 largest agencies from a budget outlay for information
20 resources management resources standpoint and we
21 happen to be the 27th large agency. As a result of
22 that review, we have incorporated their
23 recommendations into this strategy and also as a
24 result of their review they did commend the agency for
25 their activity in strategic planning. They found that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 we were one of the few agencies that were as heavily
2 involved in strategic planning as we were.

3 CHAIRMAN SELIN: In Love Story the
4 protagonist tells his mother he finished third at
5 Harvard Law School and she shows no emotion whatsoever
6 and he says, "Aren't you excited?" and she said, "When
7 I meet the other two I'll tell you whether I'm excited
8 or not." But still that's quite an achievement,
9 Gerald.

10 MR. CRANFORD: As far as external trends
11 are concerned, one of the more critical evolving
12 external trends is the increased emphasis on financial
13 accountability. Examples of this trend are the CFO
14 legislation, the fact that we're 100 percent fee
15 recovery agency, and also the recently passed
16 Congressional Performance Measures Bill which will
17 also have an impact on the way we account for our
18 financial resources.

19 Another --

20 CHAIRMAN SELIN: I just want to make it
21 clear, and I think it's well understood, but from the
22 application point of view, not so much support point
23 of view, we're just going to need a reasonable number
24 of choices of cost centers to support our fee
25 structure. We really don't have the kind of base that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 a billing organization needs to have to support 100
2 percent fee structure. We just sort of allocate
3 everything much too grossly.

4 MR. CRANFORD: Another emerging external
5 trend is the increased requirement for public
6 electronic access. Some of the examples are the
7 revised OMB Circular A-130 places heavy emphasis on
8 the need to be able to access electronically
9 government information. There's also a program
10 sponsored by the General Services Administration
11 called their Services to Citizens Program which
12 emphasizes the ability to provide electronic access to
13 the public.

14 The final external trend that I'm going to
15 talk about is the BPR thing, business process
16 reengineering. It's a trend worth noting and I will
17 talk about it later on in my presentation. But the
18 theme is do more with less as far as business process
19 reengineering is concerned.

20 The rest or the remainder of today's
21 presentation covers the results from the strategic
22 planning process itself. We have provided the
23 Commission with a copy of the strategic plan as part
24 of the Commission paper. I want to point out that the
25 plan is strategic. It's not tactical or operational,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 but we do have separate tactical and operational plans
2 that support the strategy plan. Although the plan
3 covers the years FY '94 through '98, we had begun to
4 implement some of the initiatives as early as FY '93.

5 CHAIRMAN SELIN: Mr. Cranford, in reading
6 through this there was one fundamental question I
7 couldn't see what your answer was. We have sort of
8 the two extremes of computing. We have the high
9 performance computing to support, say, thermal shock,
10 some of the highly analytical pieces, the normally
11 UNIX-based stuff, and then we have not only the
12 electronic mail, et cetera, but we really have very
13 heavy document traffic which, as you know, I'm not
14 quite satisfied with how we do today. We should be
15 able to pull up a Commission policy statement or a
16 SECY and say, "What are the documents or the basis for
17 that?"

18 Are we talking about basically non-
19 overlapping networks, different terminals and
20 different servers for the two or are we talking about
21 some kind of a universal network that would support
22 the two extremes or is it just too early to say what
23 we're talking about?

24 MR. CRANFORD: Eventually we want to get
25 to the universal network that would support any

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 application where from a single terminal you could get
2 into whatever application that you would require to do
3 whatever it is that you're trying to do.

4 CHAIRMAN SELIN: But in the short run are
5 we going to have two operating systems or one? Are we
6 going to have work stations and PCs or are we going to
7 have some kind of a universal terminal in the near-
8 term?

9 MS. GOLDBERG: I believe that the
10 engineering work stations -- from the engineering work
11 stations you will be able to access AUTOS directly.

12 CHAIRMAN SELIN: I see.

13 MR. CRANFORD: We can cover that in the
14 later slide and I think that's the case.

15 CHAIRMAN SELIN: Okay. Fine. Thank you.

16 MR. THOMPSON: I'm not sure that quite
17 gets to your point of being able to call back up
18 Commission records. I think that's a further
19 development and it's one of the issues, I think, that
20 will be discussed.

21 MR. CRANFORD: Right. That's an
22 application.

23 CHAIRMAN SELIN: Well, I've just
24 generalized from Ms. Goldberg's answer that the idea
25 should be that we'll have a hierarchy of stations that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 you might not be able to get into some of the more
2 sophisticated applications from the PCs, but that the
3 converse will be true, that each --

4 MS. GOLDBERG: That is true. You won't
5 have to have two work stations, one for scientific
6 applications and one for document management. That
7 will not be the case.

8 CHAIRMAN SELIN: Okay.

9 MR. CRANFORD: (Slide) The strategic plan
10 is divided into three components. The first one I
11 will cover is IT program management.

12 (Slide) There are five program elements
13 in the plan under IT program management and in the
14 interest of time I'm just going to focus on IT
15 planning and budgeting and I will answer any questions
16 that you have on any of the other four initiatives at
17 the end of the presentation or if you've got a
18 question now I can take it now.

19 Two major decisions were made as regarding
20 IT planning and budgeting. They both had to do with
21 expanding the role of headquarters and the regional
22 offices in the IT planning and budgeting process. Why
23 do we make that decision? The decision was made
24 simply because of the shift from a centralized to a
25 more decentralized IT environment. I think the time

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 has come or is rapidly approaching where the idea of
2 a centralizing IRM function is disappearing. I think
3 over the next ten years you're going to see more of
4 that technology being placed within the users
5 themselves, with the central IRM group or IT group
6 performing certain infrastructure type functions but
7 a lot of the individual processing and decision making
8 will be delegated to the offices. I also felt that's
9 essential because the office involvement is essential
10 itself to meeting the expanding information processing
11 needs.

12 So, the decisions that were made was that
13 the offices will plan and defend their sponsored
14 applications, applications that generally don't affect
15 other offices. IRM will continue to budget and defend
16 the information technology infrastructure and agency-
17 wide applications, applications that spread among the
18 various offices.

19 We also decided to create an information
20 technology council. In general, council members are
21 many of the same people who have participated with us
22 in the development of the strategy. They were members
23 of the strategy team. The focus of the council is to
24 improve IT planning, communication and coordination
25 among the offices. Also to support the IRM director

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 in making decisions about IT resource allocation and
2 to support the EDO in his decisions on office IT
3 budgets.

4 At this point I am going to turn the
5 briefing over to Mal Knapp who is the Director of the
6 Program Management Policy Development and Analysis
7 Staff in the Office of NMSS and Mal was also the
8 individual who was kind enough to volunteer to be the
9 chair for the first information technology council.

10 Mal?

11 MR. KNAPP: Thank you.

12 As Gerald said, the purpose of the council
13 is to provide Agency-wide support for IT activities,
14 as well as Agency-wide review of some of these
15 activities.

16 (Slide) As you can see from the slide, we
17 have ten members. Nine represent offices at
18 headquarters and the tenth represents the regions. In
19 addition to our members we have advisors both from IRM
20 and from the EDO's office.

21 We have four principal functions that
22 we're focusing on right now. Again they're shown in
23 the slide. Review and prioritization of new IT
24 applications, annual updates -- excuse me,
25 participation in annual updates of the IT strategy,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 review of policies, procedures and standards at the
2 request of the IRM office director, and finally review
3 of large applications and major steps in their life
4 cycle.

5 The only one of these that we've really
6 focused on so far has been the review of proposed new
7 applications. In spring of this year we received 29
8 applications from the various offices for review. We
9 reviewed them, we ranked them and divided them in
10 quartiles, approximate quartiles. I thought the
11 process worked very well. The members worked
12 together, we achieved consensus on almost all of the
13 applications and I believe the application of the
14 process also worked because after we advised Gerald
15 and the offices of how we viewed them, it turned out
16 that of the top eight, the first quartile
17 approximately, all were funded. And the bottom
18 quartile, approximate quartile of seven, only one was
19 funded and continued into the future. Those in the
20 two middle quartiles, approximately half were funded.

21 So, in this part of the process it seems
22 that things worked smoothly and that the application
23 of the work proceeded as we might have hoped. So, so
24 far I'm very pleased with how the councils have
25 worked. Our next job in the council is going to be to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 be involved in the update of the IT strategy, which is
2 going to take place this fall.

3 With that I would like to return it --

4 COMMISSIONER ROGERS: Before you go off
5 that --

6 CHAIRMAN SELIN: I was just going to
7 follow up on Commissioner Remick's question, that
8 you'd need another member that represents the
9 incidental offices, the Commission office, the ACRS,
10 the licensing panel, IP. They don't each need to be
11 represented, but there needs to be a council member
12 whose constituency is the organizations that are not
13 themselves on the council.

14 MR. KNAPP: We'll give that careful
15 consideration. I would note that in the spring work
16 on reviewing the applications we did have
17 presentations from the smaller offices if they had a
18 particular interest to come and speak about their
19 programs. But your point is well taken.

20 COMMISSIONER ROGERS: A couple of
21 questions.

22 MR. KNAPP: Sure.

23 COMMISSIONER ROGERS: We obviously know
24 who the NMSS person is on the council, but what level
25 of expertise, information technology expertise, is

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 reflected in the membership of the information
2 technology council? I couldn't quite get that from
3 the documentation here.

4 MR. KNAPP: Actually I don't think that
5 many of us on the council pretend to great IT
6 expertise. We are looking at it more from the
7 viewpoint of how do we as user offices believe the --
8 let's say in the work done to date the applications
9 will affect the agency. Do we think that they are
10 good and useful or do we think that they would have a
11 lower priority? We've been doing that without an
12 attempt so far to really understand whether the
13 application will do what it is supposed to do, but
14 rather presuming that it works as proposed, will it be
15 of service to us?

16 In terms of representation therefore, we
17 don't really have great IT expertise. We do speak for
18 the offices and we have in general relatively senior
19 representatives.

20 In terms of understanding more about IT
21 and having the expertise, we also have individuals
22 from each office that we refer to as SIRMOS, senior
23 information resource management officers, who are
24 developing a lot of that understanding and an in-depth
25 knowledge. And what we had been doing so far is to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 have as many SIRMOS as possible sit in on the
2 meetings. My assistant, for example, Claudia Seelig,
3 is in a position to advise me in helping us make these
4 decisions.

5 COMMISSIONER ROGERS: That's very good.
6 I think you need that because more senior people in
7 many of the various units are not necessarily very
8 knowledgeable about information technology.

9 MR. KNAPP: That's correct and that's --

10 COMMISSIONER ROGERS: And it's been part
11 of the problem that's been identified here. If you're
12 not careful, that will just be perpetuated if the
13 information technology council starts to make
14 decisions on things that they really don't understand
15 very well. So, they need some assistance within their
16 own groups, I think, of people who are as
17 knowledgeable as can be within that group.

18 MR. KNAPP: We share the concern and that,
19 in fact, was the very problem that we had, how do we
20 have people who are in a position to speak for an
21 organization and yet knowledgeable enough to know the
22 intricacies? We hope this combination of council
23 members and SIRMOS will close that gap.

24 COMMISSIONER ROGERS: That sounds like a
25 pretty good solution to it.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 Could you give me any examples of
2 applications that you've approved?

3 MR. KNAPP: Well, I can, of course, give
4 you an important one which comes from NMSS.

5 MR. TAYLOR: Impartial,

6 MR. KNAPP: Yes, don't think of me as
7 biased.

8 COMMISSIONER ROGERS: That was the lowest
9 rated one they got, number 29.

10 MR. KNAPP: Right. One of the ones in the
11 high rank was an NMSS project and this is business
12 process reengineering of both the licensing and
13 inspection of materials licensees. We believe that if
14 we reexamine the way we do it and do that
15 reexamination, recognizing the power that IT can bring
16 to it today, we can greatly improve the way we do
17 business. We think we can speed up our review of
18 licensing actions and we believe that we can reduce
19 the administrative resources expended. I can probably
20 speak to --

21 COMMISSIONER ROGERS: I'm sorry you gave
22 me that one as an example because one of my concerns
23 here is that my engineering education has been sadly
24 neglected because I don't have the foggiest idea of
25 what BPR really is, although I've read the words in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 here and I never knew -- I mean how do you reengineer
2 something that was never engineered in the first
3 place? But that's --

4 CHAIRMAN SELIN: Commissioner Rogers has
5 been waiting six years to make that comment.

6 MR. KNAPP: Well, the simple answer to
7 that -- excuse me. I'm not sure there is a simple
8 answer. But my best understanding is we will be
9 looking at what we are now doing, for example with
10 respect to review of materials license applications.
11 How do we go about it? The thing comes in in the
12 mail, it gets processed hither and yon, eventually
13 gets to a reviewer, it gets processed hither and yon,
14 eventually goes back.

15 We believe that the simple idea is let's
16 not automate that. Let's ask what we can do to fix
17 that and once we've got it repaired then automate it.

18 CHAIRMAN SELIN: That's what you meant by
19 if it ain't fix, don't --

20 COMMISSIONER ROGERS: Don't automate it.

21 MR. KNAPP: Right.

22 COMMISSIONER ROGERS: I thought that was
23 great, by the way.

24 CHAIRMAN SELIN: Of course it would really
25 slow down the pace of automation.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 MR. CRANFORD: We'd only need half the
2 number of computers.

3 MS. GOLDBERG: That could be good.

4 CHAIRMAN SELIN: But more seriously, how
5 do the cross line applications come in this council?
6 These are user-sponsored applications that would
7 naturally come up, but what about places where you see
8 a document system, where you see a database or
9 something that no one organization is all that
10 interested in, but you're convinced that it would have
11 enough payoff to be supported by a number of
12 organizations? Is this a council that's going to kill
13 such applications? Where would a sponsor for an
14 agency-wide application rather than --

15 MR. CRANFORD: I think that probably would
16 have to be part of my responsibilities. I think I
17 would have to champion that cause. Once the IT
18 council makes a recommendation, I'm not bound to abide
19 by that recommendation. I can overturn that
20 recommendation. So, if it was a case where an
21 application surely had wide-ranging implications to
22 the way we do business, then I think that would be
23 something that the Office of IRM would be more
24 involved in.

25 CHAIRMAN SELIN: I mean in most agencies

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 IRM is too strong, too weak. They generate systems
2 that nobody wants. So, I'm not trying to push to that
3 direction. But nevertheless there are a number of --
4 I'm thinking particularly of the document handling
5 system which should --

6 MS. GOLDBERG: Can I comment on that?

7 MR. CRANFORD: Sure.

8 MS. GOLDBERG: I think the top rated
9 ranked system by the council was the document
10 management system. We have a pretty altruistic group.
11 They really did take into account agency-wide needs
12 and we did make a point in the charter of stressing
13 that, although members of the council represent their
14 offices. They are there with an intent of having an
15 agency-wide perspective and the council did -- and the
16 strategy team and the council did both recognize and
17 identify document management as the number one
18 priority for those systems.

19 CHAIRMAN SELIN: That was very
20 interesting. How did that happen? Did somebody speak
21 up for it and then just get wild applause or was there
22 a sponsor? I'm serious. This is not what you would
23 have expected out of this organization.

24 MS. GOLDBERG: It was very interesting.
25 When we looked to identify candidates for business

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 process reengineering, we sent out a letter to all
2 office directors. Office directors identified
3 candidates and then we put them into categories. One
4 of those categories turned out to be document
5 management. As a result, that application was
6 identified when we reviewed all the different
7 categories that came out of that process and everyone
8 agreed that that was indeed the most important one.

9 CHAIRMAN SELIN: Very interesting.

10 MR. KNAPP: One of the things that we try
11 to do is where an agency had, if we can -- among the
12 criteria we have in evaluating a project, what's the
13 breadth of application? Is it something that everyone
14 in the Agency can use? That would get a much higher
15 rating than one that could only be used by a branch or
16 division.

17 COMMISSIONER ROGERS: How does that
18 council work? It's chaired --

19 MR. KNAPP: I chair the council.

20 COMMISSIONER ROGERS: You chair the
21 council. I know there was something in the
22 documentation here that I didn't focus on too closely
23 of how that is structured and so on and so forth. The
24 Chairman is designed by whom?

25 MR. THOMPSON: Well, I kind of twist arms

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 when I need to get a chairman and I tried to do it
2 with the program office. I felt it was important to
3 ensure that the IT technology really did support the
4 mission of the Agency. So, I went and asked Mal to
5 head it simply to ensure that a program office was an
6 integral part of it and the IRM is a support. They
7 had the knowledge of the systems and the knowledge of
8 the software and what it takes to do that, but I
9 really was looking for the Agency's mission to be a
10 forefront of this review process.

11 MR. CRANFORD: I can provide you with a
12 copy of the charter for the council that may -- of
13 course you probably don't want to read it right now,
14 but for future reference.

15 COMMISSIONER ROGERS: That will be fine.
16 Anytime. Okay?

17 (Slide) As Mal said, we will begin the
18 annual updated of the IT strategy in the October time
19 frame. Different from what we did last year, we would
20 like to get your input at the beginning of that
21 process to make sure that we do get everybody's
22 thoughts on what the strategies should be.

23 After we finalize the update of the
24 strategy, then we'll review it with the senior
25 managers, including the Steering Committee for

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 Strategic Planning, which is chaired by Dick Vollmer.
2 Hugh Thompson in his role as the DSO, the designated
3 senior official for Information Resources Management,
4 will review the plan, as well the EDO. Again, as a
5 change from the way we did business this year, next
6 year we will brief you in February instead of August,
7 again trying to make sure that we're on the same track
8 as the five year plan.

9 CHAIRMAN SELIN: I have a rather radical
10 suggestion. I think you have to do this next year,
11 but I don't think you really need to update the plan
12 every year. That seems to be awfully frequent because
13 this is a lot of work.

14 MR. CRANFORD: Right.

15 CHAIRMAN SELIN: Obviously you have to
16 have updates as you redesign systems, but to go
17 through the whole cycle every year --

18 MR. CRANFORD: No. I think what we have
19 to do is look at the plan as it exists to make sure if
20 there's something new does the current plan
21 accommodate that. That would be more the effort as
22 opposed to another --

23 COMMISSIONER ROGERS: By exception.

24 MR. CRANFORD: Exactly.

25 (Slide) The second component of the plan

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 is information technology infrastructure. I'll define
2 infrastructure as the Agency time sharing facilities,
3 minicomputers, microcomputers, telecommunications,
4 networks and customer services that underlie and
5 support NRC application systems.

6 There are four program elements in the
7 plan under information technology infrastructure. I
8 will summarize the initiatives for all four.

9 The challenge itself was to ensure that
10 NRC's technology infrastructure is robust, reliable
11 and capable of supporting current and future
12 application needs. The first infrastructure
13 initiative I'll talk about are the work stations
14 themselves. As Jim pointed out, we first began
15 installing microcomputers in 1982 and I think when I
16 came here in 1991 we still had them. So, we're faced
17 with an aging inventory and as a result of that and as
18 a result of the much more complex software packages
19 and the ability to network, we're faced with the
20 situation where some of our microcomputers can't run
21 current software, they can't be networked and in some
22 cases they can't even be effectively maintained. We
23 can't even get parts for them anymore. So, what our
24 goal is to achieve an inventory that on average lags
25 current technology by no more than one generation.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 CHAIRMAN SELIN: You know, that's not
2 consistent with the five year recycle time as
3 generations go so much faster than that. I didn't
4 understand really what you were saying at that point
5 because you had those two statements and on the face
6 of it they don't look consistent. One is stay no more
7 than one generation behind and the second is to have
8 what amounted to a five year recycle, if I understood
9 that.

10 COMMISSIONER ROGERS: I saw it a little
11 bit differently, that we're trying to get to that
12 within two years --

13 MR. CRANFORD: Yes.

14 COMMISSIONER ROGERS: -- and then after
15 that you'd have a five year update.

16 CHAIRMAN SELIN: So, we'll be more than
17 one generation behind if we expect to use work
18 stations for five years on the average.

19 MR. CRANFORD: Well, if you look at 386s,
20 I believe were introduced around 1986. I think only
21 in the last year or so have they no longer been
22 available. So, it's really maybe a five, six, seven
23 year life the machine has. If you look at the 484s.
24 They were introduced somewhere in the 1989 time frame
25 and here it is 1993 and the pentium or the alpha chip

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 which is the 586 machine was introduced in the spring.
2 So, I agree, the technology may be quicker than the
3 five year, but I think that if you look at the total
4 life of the machine and --

5 CHAIRMAN SELIN: So you're recommending
6 five year on a --

7 MR. CRANFORD: Yes. And we looked at
8 other major --

9 CHAIRMAN SELIN: The operable statement is
10 five years.

11 MR. CRANFORD: Yes. Yes.

12 CHAIRMAN SELIN: And we hope that that
13 will keep us within one generation.

14 MR. CRANFORD: Right. Right. And we're
15 not saying that if for some reason the technology gets
16 to a point where it doesn't change as rapidly, we're
17 not going to change machines just to be in vogue. We
18 want to make sure that we --

19 CHAIRMAN SELIN: I don't think that's
20 going to happen.

21 COMMISSIONER ROGERS: But I wanted to make
22 the point that that sounds reasonable to me except
23 that when you -- on that five year replacement cycle,
24 it seems to me you have to be very careful about how
25 you do that in that if you simply always replace the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 oldest machines first, that you always start with the
2 oldest ones, that those are the ones that get replaced
3 first, that you may in fact be saddling some
4 activities that really ought to always be using the
5 best stuff until their turn comes, and that's counter-
6 productive.

7 MR. CRANFORD: I think you're right.

8 COMMISSIONER ROGERS: And so, I think one
9 of the things you have to be very careful about there
10 is -- that was a big mistake, I think, that the Bell
11 System did in replacing their central switching units.
12 They had very automated, highly digitalized central
13 switching stations and they only put them in where the
14 oldest ones were, so they were sticking them out in
15 places that really didn't need them in some cases,
16 whereas other places where they really needed the new
17 technology they weren't getting them and that caused
18 a lot of trouble.

19 So, that's a problem you have to be very
20 careful about to make sure that you prioritized as
21 well as make sure that everybody gets replaced within
22 five years, but some automatically have to be kept
23 pretty much at the cutting edge.

24 MR. CRANFORD: Right.

25 MS. GOLDBERG: Can I just make a quick

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 comment on that, Commissioner? I think that's a very
2 good point and we work with the offices and oftentimes
3 the offices, what they'll do is they take the newest
4 machine, give it to the higher-power user, then take
5 the machine that that user has and then replace the
6 older machine with one of those. By working with the
7 offices, I think we try to address that.

8 It's not that IRM makes all the decisions
9 about who gets the machines. It's really what do the
10 offices need, and we work with them to try to
11 accommodate.

12 COMMISSIONER ROGERS: Good.

13 MR. CRANFORD: The second IT
14 infrastructure initiative that I'd like to talk
15 briefly about is networking and connectivity. We need
16 to continue to develop a single expandable NRC wide
17 area network. We've found that robust and reliable
18 networks are becoming increasingly important to
19 support future NRC applications. As we begin to move
20 more and more information from point A to point B,
21 we're going to need these high-powered reliable
22 networks.

23 The third item that I want to talk about
24 is the applications development platform. An
25 application development platform is software and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 hardware upon which a computer application runs. In
2 the past, this agency has been more of a mainframe and
3 minicomputer software and hardware systems.

4 I see the future more a LAN-based client
5 server type application. I think that's where the
6 rest of the industry is moving. This is not to save
7 costs, but to provide expanded flexibility and to give
8 the knowledge worker at his or her desk the ability to
9 do their job in the most effective manner.

10 COMMISSIONER ROGERS: Just before you
11 leave that, I'd like to go back to the Chairman's
12 point. I do think that it is very important that in
13 the plan somehow there be some provision for looking
14 at new potentially useful software that isn't coming
15 from the users themselves. They're busy. They may
16 have something that works pretty well and they may
17 then just stop looking.

18 It seems to me that it's very important
19 that somebody, and I think IRM has to do it, is
20 looking at not only the software that comes on the
21 market but also new developments within the Agency
22 itself that could be very profitably shared. I know
23 of some examples where one department has developed
24 something and it would have been very useful for
25 somebody else, but they didn't know about it. So, IRM

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 I think has to facilitate that information transfer.

2 MR. CRANFORD: The Office of IRM is in the
3 midst of a realignment and one of the groups that I'm
4 going to form out of that realignment is a technology
5 assessment and transfer group that will be doing just
6 that. It's going to be a fairly small staff, but they
7 will be looking at emerging technologies to see if
8 there are things that have application at NRC and, if
9 so, they will then work with the offices that can use
10 that technology to make sure that technology is
11 brought on board and implemented where cost effective.

12 MR. THOMPSON: In addition, Commissioner
13 Rogers, we are developing the SIRMOS which each office
14 has and part of their responsibilities are we hold
15 periodic meetings with them and we encourage them to
16 share the experience that they've had in applications
17 or procurements that they've had that have been
18 particularly successful. So, we certainly agree that
19 that's a very important point.

20 CHAIRMAN SELIN: Do we have an Agency-wide
21 standard for operating systems, word processors,
22 databases, calculational modules, et cetera? Do we
23 have UNIX and one business oriented --

24 MS. GOLDBERG: For an engineering work
25 station we're standardized on UNIX. For the AUTOS

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 environment it's MS-DOS and we'll be moving to some
2 sort of graphical interface in the future.

3 But, yes, we are standardized. We're
4 standardized on WordPerfect for word processing,
5 standardized on LOTUS spreadsheets. We have other
6 standards.

7 CHAIRMAN SELIN: And this group will
8 basically be monitoring what's going on in the outside
9 world --

10 MR. CRANFORD: Yes.

11 CHAIRMAN SELIN: -- in standard
12 applications and which ones to adopt?

13 MR. CRANFORD: Right.

14 CHAIRMAN SELIN: Do we have to do a
15 competition if we decide to -- if we want to look at
16 a new database or a new -- I mean, can we just decide
17 that's it or do we have to run a competition if we
18 want to take a look at version 6 of WordPerfect
19 someplace down the road?

20 MS. GOLDBERG: We have had no problem
21 upgrading our WordPerfect in view of the cost of
22 switching to something else.

23 CHAIRMAN SELIN: And do we have an open-
24 ended indefinite quantity procurement or do we have a
25 lot of small procurements? How does that work?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 MR. CRANFORD: Right now we have a lot of
2 small procurements and one of the things that we're
3 doing, particularly with the work station replacement
4 program, we're combining several existing contracts
5 into one that will provide not only the hardware but
6 software, maintenance, all the things that are
7 required in order to provide the end user with the
8 equipment that he or she needs.

9 CHAIRMAN SELIN: Is that an NRC contract
10 or are we adding on to some larger procurement
11 elsewhere?

12 MR. CRANFORD: That will be an NRC
13 contract, but where available -- and this is one of
14 the points that I was going to talk about when we
15 begin to talk about high-performance computing --
16 where an existing government-wide contract exists we
17 certainly attempt to ride those. That's a phenomenon
18 that's really only occurred, say, in the last couple
19 of years, but we find that, particularly this one that
20 we use for the high-performance work stations, it's a
21 great contract. It's almost like going to the candy
22 store and picking the things that you need. I
23 shouldn't be saying that in front of my boss, but --

24 MR. TAYLOR: We can't afford candy.

25 MR. CRANFORD: But, no, we do look to that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 as an alternative to doing our own contract,
2 particularly where --

3 COMMISSIONER ROGERS: It's like going to
4 the stationary store and picking whatever kind of pad
5 and pencil to use.

6 MR. CRANFORD: Okay. Right.

7 The fourth initiative I'd like to talk
8 about briefly is the high-performance computing. We
9 highlighted this activity to show progress because of
10 interest in assuring that we can support future Agency
11 needs in this particular arena.

12 I've already talked about the fact that we
13 are using a NASA contract to acquire these work
14 stations.

15 We are also -- in the networking arena we
16 have achieved intra-agency and external connectivity.
17 We've got a contract in place that supports these
18 high-performance work stations.

19 We've also set up a group that's been
20 chartered by the EDO in June of last year, the
21 Technology Advancement Board. This group is primarily
22 interested in the advancement of technology. They've
23 pretty much concentrated their effort of late on these
24 engineering work stations and they've been able to put
25 together some fairly sophisticated systems to address

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 the Agency's problems.

2 COMMISSIONER ROGERS: Could we get some
3 more information on them? I didn't see any --

4 MR. CRANFORD: Okay, sure.

5 COMMISSIONER ROGERS: -- details on that
6 TAB.

7 MR. CRANFORD: We can provide you with --

8 COMMISSIONER ROGERS: Who belongs to it?
9 How did they get on there? Do they have a charter?

10 MR. CRANFORD: Yes, they definitely have
11 a charter. We can provide you with all of that.

12 COMMISSIONER ROGERS: I think that might
13 be of interest to us.

14 MR. CRANFORD: All right.

15 (Slide) The next slide, the next chart
16 highlights the number of work stations and their
17 networking capabilities. So, as you can see, several
18 years ago we only had a handful of these high-
19 performance work stations. If you add up the numbers
20 quickly, there's somewhere around 80 of them presently
21 in the Agency and they run the gamut. There are Sun
22 work stations. There are some DEC RISC stations and
23 other vendors.

24 From a connectivity standpoint, we're able
25 to connect through INTERNET to the labs. It also

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 enables us to establish international connectivity,
2 for example the Halden Project. We can connect to
3 other agencies. As Fran has already pointed out, the
4 high-performance networks can also interconnect with
5 the AUTOS network and you can read for yourself the
6 other connections that we've been able to establish.

7 The third component of the plan is
8 information and applications management. I'll be
9 discussing three program elements in the strategic
10 plan under information and applications management.

11 The first initiative is quality
12 information systems. We will improve project
13 management for systems development. We'll also use
14 the IT Council to perform management reviews for some
15 of our very large projects.

16 The second initiative is the Agency
17 processes and work flows. The strategy team believed
18 that the Agency should more aggressively apply
19 technology to improve its work flow and processes
20 through the paperwork reduction initiatives and also
21 BPR, which is a key initiative that I will discuss
22 further in my presentation. I think it's coming up on
23 the next page.

24 COMMISSIONER ROGERS: Before you leave
25 that, Gerry, I'm not quite clear on what "quality

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 information systems" means. Is it high-quality
2 information systems or is it information systems
3 dealing with quality?

4 MS. GOLDBERG: We want to improve the
5 quality of the Agency's information systems through
6 improving the systems development process and the
7 management of those systems through their life cycles.
8 That is the area that we focused on with this strategy
9 and I think that there's a lot more that we can do in
10 the area of applications in future years.

11 COMMISSIONER ROGERS: So it's general
12 information systems?

13 MS. GOLDBERG: Yes.

14 MR. CRANFORD: Right.

15 COMMISSIONER ROGERS: Trying to make them
16 of higher quality?

17 MS. GOLDBERG: Improve them, yes.

18 MR. CRANFORD: Right.

19 The third initiative is the data and
20 document management and, again, as Fran pointed out,
21 we are looking to design a new document management
22 system. This initiative was identified as most
23 important by the strategy Team. I think it did get
24 the highest marks, not only by the strategy team but
25 by others as well.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 I'd like to talk a little bit about BPR.

2 First off, what is it? We've already
3 talked somewhat about it, so you probably have a feel
4 for what it is, but basically it's a fundamental
5 rethinking of an existing process with the goal of
6 achieving dramatic rather than merely incremental
7 improvements.

8 One of the things I would like to say
9 about BPR, it's a rather exhaustive process. It's not
10 something that you enter into casually. It takes a
11 lot of resources and it's something that takes a good
12 bit of time and you may find out you've got a process
13 that involves -- I think the Ford example in the
14 hammer article, it was a process where they were doing
15 their invoicing and they had 500 people associated
16 with this process. I think their goal at the outset
17 was to reduce that number to 400. Well, after they
18 did their BPR, they found they only needed 100 people,
19 so they were faced with the problem of, well, what do
20 we do with those other 400?

21 So it's a rather exhaustive process, but,
22 once the BPR process is completed, technology can
23 often serve as an enabler to process redesign. In
24 other words, you don't introduce technology at the
25 outset. You wait and see where is the best

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 application of that technology, then you apply. And
2 I guess the philosophy is to fix the process before we
3 automate. In other words, don't pave the cow paths if
4 you're looking to build a super highway.

5 As far as BPR is concerned, we've
6 initiated activity on at least one major endeavor and
7 that's the commercial acquisition process, the
8 contracting process. We're looking at that whole
9 process with an aim to speeding up the process. What
10 can we do to make the contracting process more
11 efficient, at least to make sure that we look at all
12 of the different steps that are involved in that
13 process if there's an opportunity to make contracts
14 happen quicker that would result from that process?

15 COMMISSIONER REMICK: I hope you're highly
16 successful.

17 MR. THOMPSON: That was put in there just
18 for you. It was widely supported.

19 MR. CRANFORD: And there are a couple of
20 other candidates that we will be beginning some time
21 in the near future, but this contracting one we expect
22 to begin this fiscal year.

23 In summary, I would say the key point is
24 that we now have a strategy. We have a road map for
25 future IT initiatives. The road map was chosen using

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 a consensus process. We stressed office participation
2 and, from my perception, I believe we got that
3 participation. We will update the direction annually
4 using a similar process, although we won't go into the
5 great major detail that we did this time.

6 We've already begun to implement some of
7 the initiatives resulting from our initial strategy
8 planning. Some of those initiatives are covered on
9 the next slide. I'd like to just talk briefly about
10 a couple of them.

11 (Slide) I've already talked about the new
12 information technology planning and budgeting process,
13 which I think -- and also, based upon the comments
14 that Mal has made, I think that is off and running and
15 is a success.

16 We're also looking to the realignment of
17 certain IRM functions to better meet the user needs.
18 The work station replacement program combines several
19 existing contracts and also will provide the necessary
20 computing tools for NRC employees.

21 At this point, this concludes my prepared
22 remarks. As I said before, I at this point would
23 answer any questions that you might have on topics
24 that I didn't cover or any other questions that have
25 originated from comments that I or anyone else has

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 made.

2 CHAIRMAN SELIN: Commissioner Rogers?

3 COMMISSIONER ROGERS: Well, first I'd
4 really like to compliment you because I think that
5 you've done a tremendous job in bringing things
6 together that just were not at all together at NRC
7 before in, I think, a plan with a vision.

8 And I think we are concerned about
9 resources, you know, what's it going to cost to do
10 these wonderful things. Can we really pull it off?
11 But the important point, as far as I'm concerned, is
12 that there's a point of view here, that there's a
13 vision of what information technology should be doing
14 at NRC, and I don't think we ever really had that
15 before. I think we looked to see, well, how can we
16 use it in here or how can we use it in there, but this
17 is a comprehensive overview of what it might actually
18 be able to bring to all of our operations and I think
19 that you really deserve a very strong compliment for
20 this first stage report. I think it's really a very
21 fine job, although I do have some -- I'll make some
22 comments and I have a few questions about some things,
23 but I really don't want to be misunderstood. I think
24 you've done a super job here that really badly needed
25 to be done.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 So I know that it may not be so easy to
2 bring it all off. It wasn't easy to get to this
3 point, I'm sure, and I think the process -- you've
4 emphasized that the process is very important. I
5 don't know that I agree quite that the process is more
6 important than the results. They're both important.
7 Results are important too, but the process I think was
8 a very important one because one of the problems that
9 I think we've had at NRC is a reluctance on the part
10 of middle and senior managers to really start to
11 introduce new technology into their everyday lives.
12 They really didn't have to and this presents a
13 comprehensive argument for doing that and a plan for
14 updating and upgrading the knowledge of managers and
15 users alike. I think that it has many, many important
16 elements that we hadn't even seen before that I think
17 really had to be there. So I can't compliment you
18 enough for what you've done, but there's still an
19 awful lot more to do.

20 I just have a few questions and then I'd
21 like to just touch on a few points that I saw in the
22 plan itself.

23 The review board and strategy team, are
24 they going to be continued or have they done their
25 work now? Will they be continued?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 MR. CRANFORD: I think they'll be
2 continued in some alternate form.

3 As I said, the information technology
4 council will take on many of the responsibilities of
5 the IRM strategy team.

6 The review board, I think the function
7 that they played will probably be taken up now by the
8 senior level management review that will happen some
9 time in the January time frame. As I said, it will
10 include Hugh Thompson and Mr. Taylor and the group
11 that's chaired by Dick Vollmer, so we'll still get
12 that perspective, the high-level view to make sure
13 that things that we think are important are also
14 thought to be important by those individuals.

15 COMMISSIONER ROGERS: The technology
16 advancement board, we'll hear more about that?

17 MR. CRANFORD: Yes.

18 COMMISSIONER ROGERS: That is a very
19 important element in this whole activity and I think
20 we need to know more about that.

21 One of the concerns which I've had and
22 Commissioner Remick has also had, I'm sure, and you
23 refer to it, I think, in your plan at some point, was
24 the issue of peer review from outside the Agency. I
25 think we had suggested that some kind of a group be

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 created, an advisory group be created to do that. I
2 think that was before we heard from the White House on
3 its views on advisory boards, but, nevertheless, I
4 think that the notion that some external criticism of
5 whatever we do is extremely valuable and I would hope
6 that you would try to not necessarily create an
7 advisory board -- I'm not in favor of that -- but I
8 think that we've used consultants before in various
9 ways.

10 I think Research has created a pretty
11 effective group of consultants in the thermal
12 hydraulic code area that they can call on and
13 something like that might be useful here that is not
14 an advisory board but at least has a little bit of
15 longevity -- I won't say "permanence," but longevity -
16 - so that they understand what our own problems are
17 and how we're dealing with them and can offer some
18 constructive criticism. So I think that needs a
19 little bit more, in my opinion, a little bit more
20 emphasis in your planning.

21 I think we did touch on this question of
22 IRM's responsibility for seeing that there is a
23 dissemination of various kinds of information, about
24 information technologies both developed internally and
25 that might be coming from the outside, and you've said

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 you're going to do that so I think that's fine. And
2 I would say that I imagine that you're going to
3 include in that things like expert systems --

4 MR. CRANFORD: Yes.

5 COMMISSIONER ROGERS: -- and artificial
6 intelligence and things like that, at least to stay on
7 top of what might be useful there for us at some
8 point, not necessarily just jump in and adopt it but
9 try to see as it evolves when it might be ready for
10 some useful applications here.

11 The security question you did touch on,
12 the fire wall approach that you've mentioned. I don't
13 really want to know exactly what the details of that
14 are, but how -- what you're planning to do there, has
15 that been used someplace else? What kind of success
16 do you think it has?

17 I'm particularly concerned about the
18 hacker problem. That seems to be such an intriguing
19 challenge for bright creative people who don't have
20 enough to do to break into computer systems and start
21 to fiddle around with them in some way and that seems
22 to be very difficult to stop. They're awfully clever
23 and they work at it with great diligence, so that
24 really can cause a lot of difficulty if it gets into
25 a highly networked system and so that's a real concern

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 to me as you go into this networked approach with
2 everything connected together, distributed computing,
3 which I think is tremendously powerful and really the
4 way to go, but it's very susceptible to hackers. It
5 seems to me that that's something that really needs a
6 lot of very, very --

7 MR. CRANFORD: Yes, that causes me some
8 restless nights as well.

9 COMMISSIONER ROGERS: Yes. That's the
10 thing that worries me more than anything about the
11 approach that we're taking here, which I think is the
12 right approach from a technological point of view but
13 one that does open us up potentially to some
14 difficulties.

15 In the report there was a section on your
16 proposed document strategy. There was a bullet on
17 page 6 that said that the "benefits of the proposed
18 document strategy would include ... elimination of
19 redundant entry and retrieval systems," that's fine,
20 "and multiple computer hardware and software vendors
21 and maintenance suppliers."

22 I just was curious there as to what the
23 implications of that statement are with respect to
24 hardware. We've got an open architecture approach
25 towards networking. I assume that, to some extent, we

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 also have an open mind with respect to hardware and I
2 would be concerned if we were settling too much upon
3 one particular kind of vendor or one particular vendor
4 because it happens to be convenient and reduces our
5 acquisition costs in some way.

6 I think we have to be very careful that we
7 don't get locked into and become the creature of any
8 one vendor. They love to do it. They work at that
9 all the time and that's part of their business
10 strategy, everyone, but I think we have to try to see
11 that we can maintain our independence and make our own
12 decisions when the time comes to select something or
13 not select something in hardware.

14 MR. CRANFORD: I agree.

15 COMMISSIONER ROGERS: So, just a point
16 that I was a little worried about.

17 MS. GOLDBERG: I think that would refer
18 mainly to the older proprietary systems that weren't
19 open and would be less of an issue as far as the open
20 systems are concerned. But when you have the old --
21 when we have a number of different proprietary systems
22 that are incompatible, it really does create a problem
23 and there are maintenance costs.

24 COMMISSIONER ROGERS: Right. Oh,
25 absolutely. Absolutely. Well, it's just that my

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 impression is that the whole direction, at least of
2 microcomputers, toward openness is starting to turn
3 around towards a reversal. Now vendors are beginning
4 to think that maybe they made a mistake and maybe they
5 ought to become more proprietary and not release
6 details to software developers that they don't have to
7 and return to that old concept of capturing a market
8 and I think we have to be very careful that we don't
9 get sucked into that in some way. It's been a real
10 curse in the whole earlier stages of the use of
11 computers, large mainframe computers, where you got
12 bound to one vendor and you just couldn't get out.

13 MR. CRANFORD: You had such an inventory
14 of software you couldn't abandon it.

15 COMMISSIONER ROGERS: It's like getting
16 hooked on a drug. You just couldn't get out of it.

17 I really thought that this human resource
18 strategy in your report, 3.1.4, is really very
19 important and it's one the really new concepts I think
20 that in a sense hasn't been really talked about
21 enough, about just how you're going to try to see that
22 the human resource problems are addressed, because I
23 think making this whole thing work certainly is going
24 to ultimately come down to having knowledgeable people
25 who can actually use systems and are enthusiastic

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 about using them.

2 There are a lot of things I underlined and
3 boxed in because I thought they were just excellent
4 points and there's no point in reading them back to
5 you.

6 I guess we've talked about this replacing
7 approximately one-fifth of the work stations each
8 year, just that it's necessary to set some priorities
9 within that as well.

10 MR. CRANFORD: Right.

11 COMMISSIONER ROGERS: I thought the
12 establishment of a network management center, you
13 didn't say anything about that today but that sounds
14 to me like it's terribly important. I mean, you don't
15 want to get a network up there and running and then
16 you can't really keep it maintained properly or it
17 isn't managed properly so that snarls start to develop
18 in it, so that network management center sounds to me
19 like a very important element here. I personally
20 would like to hear more about that, just how you're
21 going to implement that.

22 Well, I think probably I've covered most
23 of the points that I thought were interesting that
24 were also covered here today, but I just want to
25 compliment you and say that I think this has been an

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 excellent job but it needs continued support from this
2 level and I hope that we all can continue to give it
3 that support.

4 MR. CRANFORD: Good. Appreciate that.

5 CHAIRMAN SELIN: Commissioner Remick?

6 COMMISSIONER REMICK: Just a couple
7 points. As you go about replacing some of the
8 existing hardware that we have, and I assume that goes
9 back to GSA which eventually goes out to auction, is
10 there any precedent or any thought given to whether
11 there's some way of protecting the government's
12 interests by assigning a given value to that, that our
13 own employees who might wish to purchase that
14 equipment for their home use might be -- that option
15 would be available? I have no idea.

16 CHAIRMAN SELIN: We can do that.

17 MR. CRANFORD: We could explore that with
18 GSA. I mean, they are the official custodian of all
19 the equipment. But if that option is available, then
20 we can explore it with them.

21 COMMISSIONER REMICK: I just assume that
22 some people might like to have the equipment that
23 they've been using in the office at home. And I think
24 there'd be benefits to the Agency too, that if they
25 wish they could continue to work at home and so forth,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 but it was just a thought that went through my mind.

2 CHAIRMAN SELIN: You can do that. There's
3 a salvage value on all the standard --

4 COMMISSIONER REMICK: Yes, they would
5 purchase. I'm assuming they would purchase. There
6 would be a salvage value.

7 I don't want to beat upon it, but the
8 reason I had selected ACRS and ASLB is the fact that
9 they are relatively independent offices. If you are
10 looking within one of our bigger offices, there's a
11 kind of uniformity I think. But when you look at
12 offices like ACRS and ASLB that work kind of across
13 the whole agency, different offices, and that's
14 particularly true with ASLB, they're quite independent
15 from the rest of the organization. At times people
16 feel they're too independent, but they are
17 independent. They have a unique function within the
18 organization too, and relatively small offices and
19 perhaps have unique needs.

20 So my only emphasis, I'm not saying they
21 necessarily should be represented on your various
22 boards and things, but I think you have to pay
23 particular attention that you do understand if they do
24 have unique needs that others might not have, other
25 small offices might not have, so I just wanted to try

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 to make my point on why --

2 MR. THOMPSON: Yes, I think we're in
3 frequent communication with a number of those
4 organizations. They don't hesitate to make their
5 needs known.

6 COMMISSIONER REMICK: How about the area
7 of teleconferencing? From time to time we've batted
8 that around, the possibilities and so forth, whether
9 there are advantages and so forth, not only from
10 region to Headquarters, region to region, but
11 Headquarters to licensees or vendors and so forth.
12 What is the status of the teleconferencing
13 possibilities for the Agency?

14 MR. CRANFORD: I'm presently in the
15 process of developing a paper for Mr. Taylor that
16 responds to the question that Commissioner Rogers had
17 asked. The technology is there. It's really going to
18 be a question of cost. Can we afford to do it?

19 I've talked to people who have an
20 installed system and they seem to be very pleased with
21 it, but, again, I think it's going to come down to the
22 cost to the system, the number of people that it might
23 take to maintain the system and systems, particularly
24 when you start moving out to several different
25 locations and attempt to broadcast from the hub out to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 those locations.

2 COMMISSIONER REMICK: We will have the
3 paper soon?

4 MR. THOMPSON: We will bring something up
5 to the Commission. It will try to address these.

6 As you see, we go into what we call the
7 "life cycle management process" and that's trying to
8 look at the whole thing, not just the pizzazz of isn't
9 this an interesting thing, because previously when we
10 ran the pilot program it had lots of drawbacks. We
11 tried it and we tried it and it just really never gave
12 the benefit that we anticipated.

13 Gerald went down I think recently to the
14 educational efforts down in --

15 MR. CRANFORD: Dam Neck, Virginia.

16 MR. THOMPSON: -- Dam Neck, Virginia, to
17 see an application that seemed to be really very
18 effective and one of the applications that seemed to
19 be most potentially beneficial is educationally with
20 the tech training support center and the educational
21 elements. You just really have to know who's going to
22 maintain it, who's going to participate in it, what
23 are the real cost savings, and hopefully it would
24 stand on its merits.

25 Last time we tried it and I tried to get

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 the office directors to say, "okay now, if it's so
2 good, will you pay for it?" and boy did they
3 disappear. And when they disappeared, so did my
4 support for that system.

5 COMMISSIONER REMICK: Well, I'll look
6 forward to at least a paper discussing it.

7 How about some of the other long-term
8 looks? I have been one that has felt that, as I
9 become familiar with what the vendors are doing and
10 architect engineers, some of our licensees putting
11 things on computer-assisted design, doing computer-
12 assisted engineering and so forth -- I was amazed in
13 Indonesia to see in the aircraft industry what they're
14 doing tying these things together even with
15 manufacturing and quality assurance -- but I still
16 wonder about the state we're in where our vendors are
17 out there doing designs and doing computer-assisted
18 engineering and they put it on paper. They take it
19 off the computer and put it on paper and we get about
20 a truckload of those applications when it's a new
21 application and then we send it to a laboratory to put
22 it back in a computer and analyze it.

23 I'm wondering when we're going to reach
24 the stage, if we ever will. I'm sure there are
25 problems with that too. Also, I was impressed. I

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 don't know how many of you saw the demonstration that
2 Duke Services Company had for us here a month or so
3 ago, the type of things that are being done there out
4 in the industry and people with configuration
5 management systems on computer. I don't know the
6 legal problems and the other problems that we might
7 encounter, but I can see the benefit of staff having
8 access to that, that same type of information if
9 possible. But has any thought been given to this type
10 of thing, looking down the road, realizing that's not
11 here for us yet, but hopefully sometime soon?

12 MR. CRANFORD: Well, heretofore we haven't
13 really had the organization to do that. As part of
14 our realignment we will be putting together --, as I
15 was telling Commissioner Rogers, we'll be putting
16 together a group that will be looking at just those
17 things. Now, this group won't be so large that
18 they'll be able to look at everything, but I think if
19 we can concentrate our effort on those things that
20 appear to have the greater payoff, potential payoff
21 for the NRC, we will be able to look at some of them.

22 COMMISSIONER REMICK: Good. I certainly
23 endorse Commissioner Rogers' suggestion that not
24 necessarily an advisory committee, but the use of
25 consultants to get some independent view. They might

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 provide some insights that internally we might not
2 have.

3 I certainly also want to compliment you
4 for the job in developing the plan. I think it's a
5 significant accomplishment. It's certainly needed.
6 Also, I'm very pleased to see the growth in-house of
7 high performance analytical computing and my interests
8 there are in that I think that when we have that type
9 of capability we can attract people coming out of the
10 universities that are used to that type of equipment
11 and environment and I think it provides us with an
12 opportunity for our staff to continue to grow and
13 development on their own.

14 On my comment about the contracting, I
15 realize that there are difficulties there, but Hugh,
16 you mentioned that there was a lot of support for that
17 and that's what caused me to make the statement. I
18 hear many times from our own staff that they're having
19 great difficulty getting things contracted for in a
20 timely manner to get the work done and that's my only
21 interest in it. I think all of us are here to make
22 sure that the staff who are actually out there working
23 and making sure the plants are safe and so forth have
24 all the help they can in getting the job done. So, my
25 comments about hopefully you're highly successful in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 the contracting area, anything we can do to enable
2 them to get the job done is what my interest --

3 MR. TAYLOR: We're working on that problem
4 without needing IRM support, but that problem is being
5 worked.

6 COMMISSIONER REMICK: Good.

7 That's all.

8 CHAIRMAN SELIN: Thank you very much.

9 I also join in the compliments with which
10 you've been showered today. There are just a couple
11 questions.

12 One is how do we budget for IRM? Does
13 each user have a budget plus a central budget or how
14 do you intend to budget? Have you addressed that
15 question?

16 MR. THOMPSON: In general the approach
17 this time was for each office which has a major
18 application which they are the primary sponsor will
19 include that in their budget.

20 CHAIRMAN SELIN: Okay.

21 MR. THOMPSON: Other applications which
22 are Agency-wide will be in the IRM budget and then
23 that's kind of rolled up. I don't know precisely the
24 mechanism, but we are able to --

25 CHAIRMAN SELIN: Well, we can display it,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 but I'm talking about the actual decisions. I want to
2 make sure that the users bear some responsibility and
3 they have to vote by putting up some money.

4 MR. THOMPSON: They do. They do on the
5 major ones and that is another part of the process of
6 the council and the prioritization of new activities.
7 Not only the user offices but when we have the
8 combination of an agency-wide application, that it
9 indeed represents an application which has wide
10 support within the office. So, it's going to be used.
11 That's what we want to do, is to provide something
12 that's useful.

13 CHAIRMAN SELIN: And related to that, I
14 hope we don't get into the box that people used to
15 with big mainframes of having captive customers having
16 to share because somebody gets off and somebody else
17 gets a higher cost for these. You know, these days
18 operating costs are relatively low compared to the
19 purchase cost you turn over quickly. The whole idea
20 with the centralized cost thing is to let the offices
21 control the actual spending, not get dunned for some
22 central facility other than the IRM services which
23 come out of a central budget.

24 In other words, try to make sure that the
25 equipment is in the name of the office that uses it so

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 that they don't end up picking up a share of central
2 equipment or as little as possible of central
3 equipment because if you're a captive, that's not
4 really very meaningful. You just keep raising your
5 costs. Some people have other options, others don't
6 and they get stuck with those high allocated costs,
7 not unlike the fees that we charge our licensees, as
8 a matter of fact.

9 The first point brings me to another
10 question. You should think of this as the
11 authorization cycle. Appropriation is separate. In
12 other words, this is --

13 MR. TAYLOR: He knows that.

14 CHAIRMAN SELIN: Yes. I mean you've got
15 to be in the right ball park. There's no sense in
16 saying if we had \$100 million a year, what would we
17 like to do, but this is -- to be in a ball park and to
18 say, from a user's point of view here are some
19 priorities, and then when it comes down to budgeting.

20 But to go a step further, our total IRM
21 budget is on the order of \$50 million a year. It's
22 ten percent of the Agency's budget. That's a lot of
23 money. We need to go a step further than the
24 strategic plan to say this is what we would like to do
25 and in the budgeting be able to answer questions.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 Number one, are we getting \$50 million worth of
2 information management? Number two, if we had three
3 percent more or three percent less, what would happen?
4 You need to be able to support the budgeting process
5 as well as the strategic planning process. In fact,
6 if anything, even more than the strategic planning
7 process. Is the right answer to say, well, it's not
8 really \$50 million dollars, it's ten budgets each of
9 \$5 million, and that's okay. Is NMSS getting its
10 money's worth or is NRR getting -- it's a legitimate
11 question if you decided that that's the right way to
12 look at it.

13 But one way or another, we can't have such
14 high costs be just a black box that come with the
15 territory. We have to be able to justify to ourselves
16 and to other people getting the money's worth out of
17 the budget and what we would get if we invested a
18 little more or if we cut back a little bit. It can't
19 all be incremental. It can't just be for another
20 three percent we could do this. It has to be, here's
21 what we're getting for the base and here are
22 possibility of some options.

23 I'm not saying this should be in the
24 strategic budget, but when we come to do the -- I mean
25 in the strategic plan, but when we come to do the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 budget, we need to be able to answer questions like
2 that on IRM. It's by far the largest administrative
3 cost that we have and can't be just left at whatever
4 we spend, another ten percent goes to IRM.

5 And the last rather minor point, there are
6 some good systems in the Secretary's office. They're
7 not particular automated, but the reporting and the
8 kind of information that is gathered is really very
9 useful, partly as a structure for supporting some of
10 the document systems, partly just some of the tracking
11 systems that we have. Tracking is something that we
12 do in every office all the time and that's a
13 particularly good candidate to take a look along the
14 lines that Commissioner Rogers was suggesting for what
15 do we have that we can use elsewhere.

16 Any other comments, Commissioners?

17 Fine. Thank you very much. Excellent
18 presentation.

19 (Whereupon, at 3:26 p.m., the meeting was
20 concluded.)

21

22

23

24

25

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

CERTIFICATE OF TRANSCRIBER

This is to certify that the attached events of a meeting
of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON STRATEGIC INFORMATION TECHNOLOGY PLAN

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: AUGUST 11, 1993

were transcribed by me. I further certify that said transcription
is accurate and complete, to the best of my ability, and that the
transcript is a true and accurate record of the foregoing events.



Reporter's name: Peter Lynch

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVENUE, N.W.
WASHINGTON, D.C. 20005



NRC INFORMATION TECHNOLOGY STRATEGIC PLAN

**Gerald F. Cranford
Director, Office of IRM**

August 11, 1993

Agenda

1. The Strategic Planning Process

2. Situation Assessment

3. Strategic Plan

Information Technology (IT) Strategic Planning Goals

Produce a flexible and feasible plan that:

- Sets the 5-year direction for NRC's IT program
- Supports changing needs
- Balances technical and administrative needs

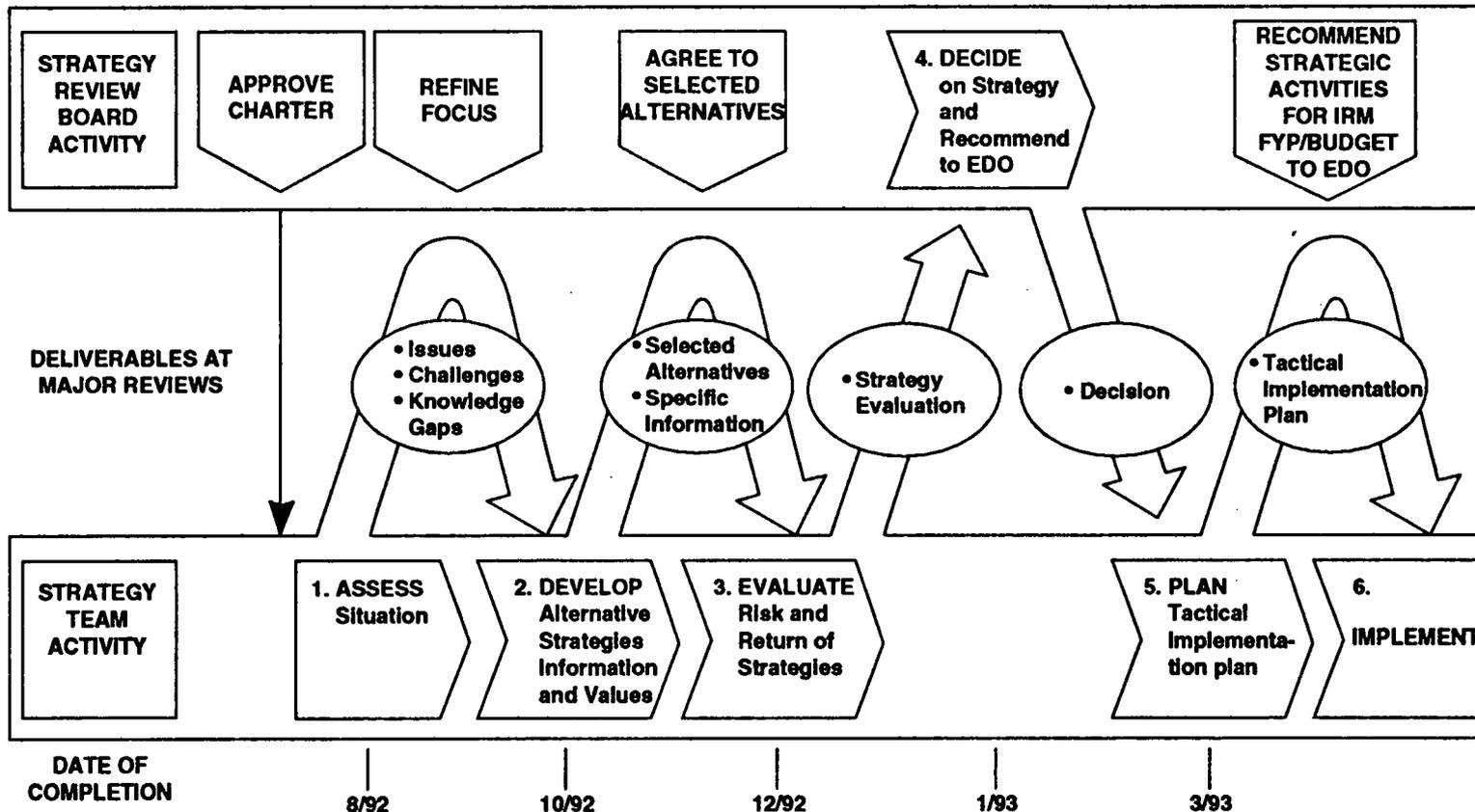
PRODUCT

Institute an agencywide IT strategic planning process:

- Aligned with NRC's mission
- Integrated with the five-year planning process
- Carried out with broad participation

PROCESS

NRC IT Strategy Process



Role of the Review Board

- **Provide direction and feedback to Strategy Team**
- **Decide on strategy forwarded to EDO and Commission**

Review Board Members

Hugh L. Thompson, Jr., DEDS	Gerald F. Cranford, IRM
James H. Sniezek, DEDR	James L. Milhoan, RI
Eric S. Beckjord, RES	Frank J. Miraglia, NRR
Robert M. Bernero, NMSS	Patricia G. Norry, ADM
Ronald M. Scroggins, OC	

Role of the Strategy Team

- Assess the situation
- Develop and evaluate alternative strategies
- Present evaluation and recommendations to Review Board

Strategy Team Members

<p>Alois Burda - RES Donald Chery - NMSS Gerald Cranford - IRM Dennis Dambly - OGC Lloyd Donnelly - LSSA Frank Gillespie - NRR Francine Goldberg - IRM Edward Halman - ADM John Hoyle - SECY William Kane - Region I Malcolm Knapp - NMSS Pamela Kruzic - IRM James McDermott - OP George Messenger - IRM Peter Rabideau - OC Lynn Scattolini - OEDO</p>	<p>Shelly Schwartz - OSP Lee Spessard - AEOD Gerald Tomlin - RES James Turdici - OEDO John Voglewede - IRM Richard Wessman - NRR</p> <p><u>Advisory Members</u> Ogden-ERC (Contractor) Information Strategy Group (Contractor) David Drapkin - IRM Gary Helwig - IRM Brenda Shelton - IRM Janet Thot-Thompson - IRM Karen VanDuser - IRM Guy Wright - IRM</p>
--	---

Agenda

1. The Strategic Planning Process

2. Situation Assessment

3. Strategic Plan

Situation Assessment

NRC Information Resource Management Issues:

- **Planning and budgeting process is not effectively addressing agency information needs**
- **IRM skill mix and organizational structure are not effective in meeting the agency's information resource management needs**
- **Policies and standards need updating to reflect an evolving operating environment**
- **The agency has not been consistently successful in acquiring quality IT products and services in a timely manner**
- **Many duplicate, incompatible, and outdated systems and databases hinder information access and integrity**

Situation Assessment (continued)

NRC-Specific Events/Trends:

- **Additional information processing needs associated with design certification for advanced reactors, plant life extension, and HLW repository**
- **Increased need for connectivity and information sharing with NRC stakeholders**
- **Impact of GSA review of NRC's IRM program**

Situation Assessment (continued)

External Trends:

- **Increased financial accountability to Congress and other stakeholders**
- **Increased requirements for public electronic access to government information**
- **Continued rapid technology evolution**
- **Adoption of business process re-engineering principles by industry and government**

Agenda

1. The Strategic Planning Process

2. Situation Assessment

3. Strategic Plan

Strategic Plan Components

→ IT Program Management

- IT Infrastructure**
- Information and Applications Management**

IT Program Management

- **IT Planning and Budgeting**
- **IT Policy and Standards**
- **IT Acquisition Management**
- **IT Human Resource Strategy**
- **IT Architecture (Current and Planned Blueprints)**

IT Program Management Initiatives

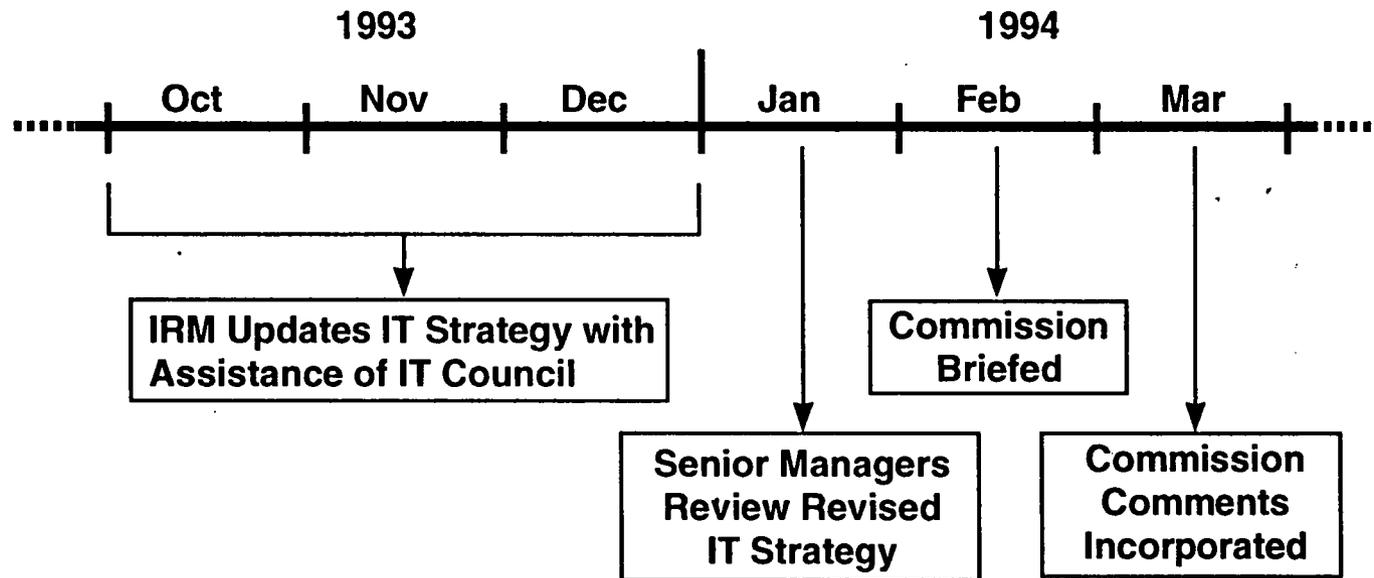
IT Planning and Budgeting

- **Expand the role of NRC headquarters and regional offices in planning and budgeting for IT resources**
- **Create an Information Technology Council**

NRC Information Technology Council

AEOD	<u>FUNCTIONS</u>	NMSS
NRR	<ul style="list-style-type: none"> ● Review and Prioritize Proposed New IT Applications 	RES
OC	<ul style="list-style-type: none"> ● Annually Update Agency IT Strategy 	ADM
SECY	<ul style="list-style-type: none"> ● Review IT Policy, Procedures, and Standards 	OP
OGC	<ul style="list-style-type: none"> ● Review Large Applications at Major Life Cycle Steps 	Regional Office

Annual IT Strategy Update Process



IT Strategy = IT Strategic Plan and IT-Related FYP Program Guidance

Strategic Plan Components

- **IT Program Management**
- ➔ **IT Infrastructure**
- **Information and Applications Management**

IT Infrastructure

- **Workstations**
- **Networking and Connectivity**
- **Applications Development Platform**
- **High Performance Computing**

IT Infrastructure Initiatives

Workstations

- **Accelerate the agency's workstation replacement program**

Networking and Connectivity

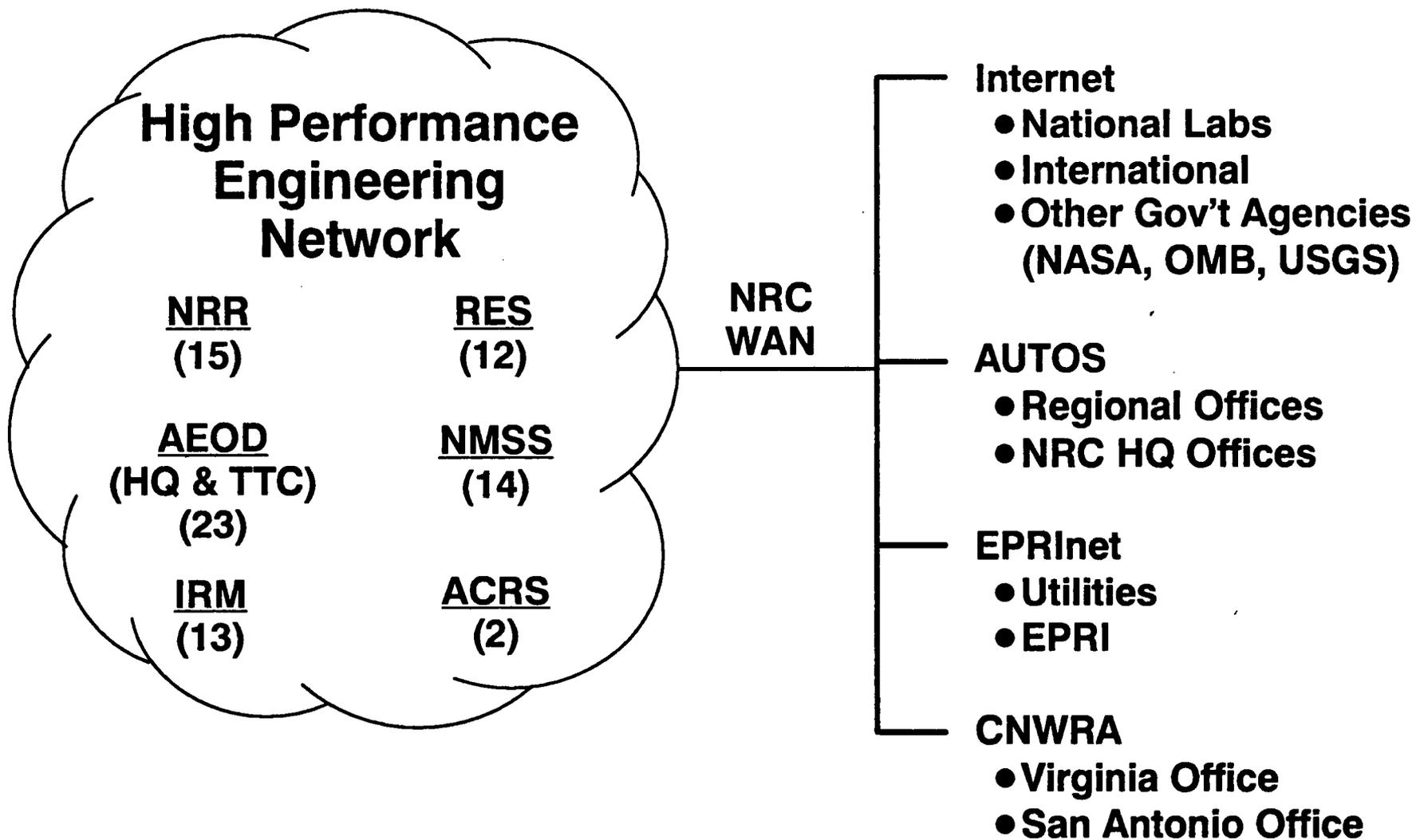
- **Continue with plans to implement a single, expandable multi-function wide area network and Network Management Center**

Applications Development Platform

- **Move aggressively to implement LAN-based client-server technology for new systems**

High Performance Computing

- **Provide the high performance computing infrastructure needed to support future licensing and regulatory activity in the program offices**
 - **Continue to acquire engineering workstations as needed**
 - **Improve connectivity within NRC and with outside resources**
 - **Provide systems engineering support for high performance computing**
 - **Coordinate program office requirements through the Technology Advancement Board**
- **Monitor High Performance Computing Act initiatives**



Strategic Plan Components

- **IT Program Management**
- **IT Infrastructure**
- ➔ **Information and Applications Management**

Information and Applications Management

- **Quality Information Systems**
- **Agency Processes and Workflow**
- **Data and Document Management**

Information and Applications Management Initiatives

Quality Information Systems

- **Strengthen systems life cycle management**

Agency Processes and Workflow

- **Aggressively pursue paper reduction initiatives**
- **Apply business process reengineering to streamline key processes**

Data and Document Management

- **Strengthen agency data administration in key business areas**
- **Implement a modern document management system for agencywide use**

What Is Business Process Reengineering?

Definition:

- Fundamental rethinking and radical redesign of an entire business system to achieve dramatic improvements in critical measures of performance. (Hammer/Champy)

Emerging Philosophy:

- "If it ain't fixed, don't automate it"

Candidates For Reengineering:

- Commercial Acquisition Process
- Document Management
- Materials Licensing and Inspection
- Fee Billing/Manpower

Summary

- **Joint IRM/client office process produced consensus on an agency IT strategy that sets the direction for future IT programs**
- **Similar process will be used for annual strategy update**
- **Implementation is moving ahead quickly based on strong agencywide support and IRM focus on strategic initiatives**

Summary (continued)

- **Strategic initiatives already underway:**
 - **New IT planning and budgeting process**
 - **Formation of IT Council**
 - **Improvement of IT acquisition management**
 - **Realignment of IRM functions**
 - **Workstation replacement program**
 - **High performance computing**
 - **Apply business process reengineering to contracting process**

FY 1994 - 1998

NRC INFORMATION TECHNOLOGY STRATEGIC PLAN

SUMMARY TABLES

Table 1 IT Program Management

PROGRAM ELEMENTS	CHALLENGES	STRATEGIC INITIATIVES
IT Planning and Budgeting	Institute an annual IT planning and budgeting process that is designed to support the NRC mission, focuses on IT throughout the Agency, increases customer (office and region) participation and accountability, enhances the ability of senior executives to make IT decisions, and is integrated with the Agency's five-year planning process.	<ul style="list-style-type: none"> • Create an Information Technology Council • Expand the role of NRC Headquarters and regional offices in planning and budgeting for IT resources
IT Policy and Standards	Develop clear IRM policies and standards, with client participation, that support the Agency's IT strategy and maintain a balance between the benefits of standardization and the need for flexibility.	<ul style="list-style-type: none"> • Assess status of Agency IT policies and standards • Update/develop new IT policies and standards
IT Acquisition Management	Develop an IT acquisition strategy to provide quality IRM products and services in a timely manner, and to accommodate rapid changes in technology.	<ul style="list-style-type: none"> • Develop strategic and tactical IT acquisition plans • Reevaluate and document FIP acquisition processes, policies and procedures
IT Human Resource Strategy	Develop a new human resource strategy to (1) increase the proficiency of the NRC staff with information systems and encourage effective use of electronic systems and media, and (2) develop and maintain a highly competent and motivated Agency IRM staff, organized to effectively support customers and conduct the IRM program.	<ul style="list-style-type: none"> • Develop IT proficiency standards for all employees • Perform an IRM skills assessment and implement an IRM employee development program • Realign IRM work activities
IT Architecture	Define information and technology architectures to guide the planning and implementation of technology for both infrastructure and applications.	<ul style="list-style-type: none"> • Plan the update/development of information, applications, and technology architectures

Table 2 IT Infrastructure

PROGRAM ELEMENTS	CHALLENGES	STRATEGIC INITIATIVES
Workstation Replacement	Ensure that NRC's technology infrastructure is robust, reliable, and capable of supporting current and future applications needs.	<ul style="list-style-type: none"> • Adopt a new workstation replacement strategy
Networking and Connectivity		<ul style="list-style-type: none"> • Continue with plans to implement a single multi-function wide area network • Continue with plans to implement a network management center
Applications Development Platforms		<ul style="list-style-type: none"> • Move aggressively to implement client-server technology for new systems
High-performance Computing Infrastructure		<ul style="list-style-type: none"> • Continue emphasis on improved connectivity, increased training and technical assistance, acquisition of engineering workstations, and program office coordination through the Technology Advancement Board

Table 3 IT Information and Applications Management

PROGRAM ELEMENTS	CHALLENGES	STRATEGIC INITIATIVES
Improving the Quality of NRC Information Systems	Efficiently and effectively implement easily accessible, reliable, secure, and integrated information systems for high-priority administrative and mission-related needs.	<ul style="list-style-type: none"> • Strengthen systems life cycle management
Agency Processes and Workflow	Apply technology to improve NRC workflow management processes; increase NRC ability to communicate electronically with licensees and other agencies; and increase the effective and efficient use of electronic forms, mail, signatures, and records.	<ul style="list-style-type: none"> • Pilot "business process reengineering" to streamline important processes • Implement paper reduction initiatives
Data and Document Management	Manage shared data and documents as Agency resources and ensure they are accessible, secure, and reliable. Update the Agency's document management capabilities to meet current and anticipated programmatic needs.	<ul style="list-style-type: none"> • Strengthen Agency data administration in key business areas • Implement a modern document management system for agencywide use
High-Performance Computing Applications	Increase activities to develop and implement technical computing applications needed to support future licensing and regulatory activity in the program offices, such as for advanced reactor design certification, plant life extension, and high level waste (HLW) repository licensing.	<ul style="list-style-type: none"> • See Section 3.3.4, High-Performance Computing Applications



POLICY ISSUE

(NEGATIVE CONSENT)

July 20, 1993

SECY-93-198

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: NRC STRATEGIC INFORMATION TECHNOLOGY PLAN

PURPOSE:

To obtain the Commission's approval of the NRC Fiscal Year 1994-1998 Strategic Information Technology (IT) Plan (Enclosure 1).

SUMMARY:

A team of senior managers and executives from across the Agency, working with the Office of Information Resources Management (IRM), has completed an NRC Strategic Information Technology Plan. This strategic plan is the basis for the Agency's IT program guidance and activities in the NRC Five-Year Plan (FYP) and will be submitted with the IT-related portions of the FYP to the Office of Management and Budget (OMB) to satisfy IT planning requirements in OMB Circular A-130, "Management of Federal Information Resources." In the future, I will give the Commission an annual update to the Information Technology Strategy in January or February of each year so that it can be reviewed in conjunction with the FYP program guidance.

The Strategic Information Technology Plan addresses three major areas: (1) IT Program Management, (2) IT Infrastructure, and (3) Information and Applications Management. Key recommendations call for accelerating the replacement of Agency workstations, implementing a new document management system, applying business process reengineering to selected Agency work processes, and establishing an Information Technology Council to advise the Director of IRM. The FY 1994-1998 Five-Year Plan includes resources to implement these strategic initiatives with the exception of funding that will

Contact: Francine Goldberg, IRM
492-7216

NOTE: TO BE MADE PUBLICLY AVAILABLE
WHEN THE FINAL SRM IS MADE
AVAILABLE

be needed in the out-years for implementing a new Agency document management system. The staff will evaluate the funding for this system after completing the requirements analysis in FY 1995.

BACKGROUND:

OMB Circular A-130 requires Federal agencies to "establish multi-year strategic planning processes for acquiring and operating information technology that meet program and mission needs, reflect budget constraints, and form the bases of their budget requests." Each year the agency must submit its strategic IT plan to OMB. In the past, the Agency has satisfied this requirement by submitting the IRM portion of the NRC FYP. While this approach has met Circular A-130 requirements, it did not produce an agencywide strategy that would enable the NRC to take full advantage of information technology in meeting programmatic and administrative needs.

In 1990, a team of IRM and customer office representatives found the need to focus more attention on long-range planning as critical to improving the Agency's IRM programs. As a result, the Steering Committee for Strategic Planning recommended changes in IRM's strategic guidance which were forwarded to the Commission in February 1991 (Reference 1). In August 1991, the Commission approved these changes to the FY 1992-1996 FYP, including staffing for the planning effort. In November 1991, the Director of IRM established the Strategic Planning and Technical Advisory Staff which began a formal strategic planning process in June 1992.

Enclosure 2 includes information on the relationship of strategic IT planning to other issues of interest to the Commission.

DISCUSSION:

The Strategic Planning Process

The quality of the strategic IT planning process is critical to building consensus for the selected strategies and commitment for successful implementation. The NRC IT planning process was carried out by two groups of NRC employees representing a broad range of agency interests. A nine-member IRM Review Board at the level of deputy office director and above provided oversight for the planning process. An IRM Strategy Team of senior managers representing both large and small offices and Regions developed the strategy (See Enclosure 3 for a list of participants). An experienced strategic planning facilitator led the Strategy Team and the Review Board through a planning process that has been used successfully by many large companies and government agencies. In 1987, the NRC used this process to develop its strategic plan that was the basis for the original version of the Five-Year Plan.

The Strategy Team and Review Board developed the strategy in a 5 step process: (1) assess the current situation and develop IT challenges; (2) develop alternatives to meet IT challenges; (3) evaluate the costs and benefits of

alternatives; (4) decide among the alternatives; and (5) prepare implementation plans. At each step, the Review Board gave the Strategy Team guidance to ensure that the concerns and viewpoints of senior executives were addressed. This approach, involving a broad spectrum of participants, with review by senior executives at each step, resulted in a strategy that is fully supported by the offices, regions and senior executives.

Strategic Planning Goals

The Strategy Team and Review Board developed the following two fundamental goals for the strategic planning effort:

1. To produce a flexible and feasible plan that effectively supports the evolving needs of the NRC and its stakeholders and is appropriately balanced in addressing both technical and administrative needs
2. To institute an agencywide strategic IT planning process that is designed to support the NRC's mission, integrated with the five-year planning process, and performed by participants representing the spectrum of NRC's information technology needs

Key Elements of the Strategic IT Plan

The Strategic IT Plan addresses three major areas: IT Program Management; IT Infrastructure; and Information and Applications Management.

IT Program Management

The Strategy Team and Review Board made several recommendations for IT Program management. The most significant of these were to modify the IT planning and budgeting process and establish an IT Council to advise the IRM Director.

In the past, the IT planning and budgeting process emphasized the needs of individual offices and tended to elicit short-term requirements rather than long-term strategic direction. The budgeting approach was not always effective or equitable in allocating resources to the most important IT projects. The new strategy for IT planning and budgeting was designed to address all the elements of Goal 2, described previously. In particular, it is directed at expanding the participation of Headquarters and regional offices to achieve more effective agencywide solutions and to allocate resources to the projects with the greatest benefits to the Agency.

The IT Council, chaired by a customer office representative, plays a key role in the new approach to IT planning and budgeting. The goals of the Council are to:

- Shape the development of NRC's IT strategies
- Maintain agencywide support for and adherence to IT policies, standards, and guidelines

- Optimize the allocation and use of IT resources agencywide
- Improve decisions regarding IT initiatives
- Improve communication and coordination among Headquarters and regional offices regarding common IT needs

The Council will give the Director, IRM, advice and assistance in:

- Annually reviewing and recommending changes to the Agency's IT strategies for incorporation in the NRC FYP and the Strategic IT Plan
- Establishing a framework of IT policies, standards, and guidelines
- Reviewing proposed new IT applications and major modifications, and recommending priorities as part of the budget process
- Reviewing significant IT application projects before beginning key phases of the project

Chartered in March 1993, the IT Council held its first meeting in April to begin the review of proposed IT applications for the FY 1995 budget cycle.

The IT Program management strategy also calls for improving the IT acquisition process; revising current IT policies and standards to emphasize "open systems;" developing architectures for the Agency's information, applications, and technology; and preparing a new IT human resources strategy. The two goals of the human resource strategy are (1) to increase the proficiency of the NRC staff with information systems and encourage effective use of electronic systems and media and (2) to develop and maintain a highly competent and motivated Agency IRM staff, organized to effectively support customers and carry out the IRM program.

IT Infrastructure

The strategy for IT infrastructure emphasizes significant investment in the hardware, software, and telecommunications technologies needed to create a robust and reliable automation environment capable of supporting the Agency's current and future applications and communication needs. These needs are associated with both administrative and programmatic information systems and with technical computing and scientific modeling applications that support NRC's mission.

The strategy discusses four key areas of the infrastructure: workstation replacement, networking and connectivity, local area network (LAN)-based development platforms, and high-performance computing infrastructure. The new workstation replacement strategy emphasizes an accelerated investment in office automation workstations to avoid the costs of operating and maintaining old equipment and to provide the capability needed to run current and future LAN-based applications. The strategy is to update NRC's office automation workstations to meet a high standard for functionality, reliability,

performance, and interoperability by maintaining a workstation inventory that, on average, lags current technology by one generation.

The second component of the infrastructure strategy is networking and connectivity. The main element of the networking and connectivity strategy is to continue current plans to connect all NRC computer resources to a single, expandable, multi-function NRC telecommunications network providing connectivity and high speed information transfers among diverse workstations, NRC-owned minicomputers, regional sites, outside locations such as the Southwest Research Institute, the U.S. Department of Energy laboratories, and timesharing facilities. The networking strategy also calls for establishing a network management center to monitor, maintain, and support the NRC computer and network environment.

The third component of the infrastructure strategy calls for the more aggressive use of LAN-based platforms for new applications to improve functionality and ease of use. The fourth component focuses on special infrastructure needs for high-performance computing, in which the Agency will continue to improve connectivity, increase training and technical assistance, acquire the necessary engineering workstations, and enable the program offices to coordinate common needs through the Technology Advancement Board.

Information and Applications Management

The strategy for Information and Applications Management focuses primarily on improving the overall quality and integration of the Agency's information and applications by strengthening the way that information systems are developed and managed. The strategy covers four major areas: quality of NRC information systems, Agency processes and workflow, data and document management, and high-performance computing applications.

The goal for improving the quality of NRC information systems is to efficiently and effectively implement easily accessible, reliable, secure, and integrated information systems for high priority administrative and mission-related needs. The key element of the strategy is to strengthen the Agency's computer systems life cycle management (LCM) methods. The new LCM methodology would be applied to all major systems development projects over an established threshold.

The goals for Agency processes and workflow are to apply technology to improve workflows; increase NRC's ability to communicate electronically with licensees and other agencies; and increase the effective and efficient use of electronic media for such information as forms, mail, and records. Key components of the strategy are to aggressively pursue paperwork reduction initiatives and pilot the use of business process reengineering (BPR) as a technique for streamlining Agency processes. The primary objectives of BPR are to eliminate redundant and unproductive activities and to simplify and integrate essential activities before automating them. After reviewing suggestions submitted by the Headquarters and regional offices, the staff selected four applications areas as candidates for business process reengineering. These applications

areas are document management, commercial contracting, materials licensing, and fee billing (including associated staff-hour reporting systems).

The goal for data and document management is to manage shared data and documents as Agency resources to ensure they are accessible, secure, and reliable. The staff determined that the implementation of a new document management system for agencywide use was the single most important initiative in this area. The limitations of current systems hamper access to documents, which are one of the Agency's most valuable information resources. Benefits of the proposed document strategy would include:

- Improved return on the Agency's large document capture investment
- Availability of more of the Agency's documents in full text
- Improved ease of use and greater functionality for search and retrieval, especially for full text
- Faster, more efficient, and less expensive means to process and distribute documents by using electronic methods instead of paper
- Elimination of redundant entry and retrieval systems, and multiple computer hardware and software vendors and maintenance suppliers

The goal for high-performance computing applications is to focus on supporting future licensing and regulatory activity in the program offices. Application areas include design certification for advanced reactors, plant life extension, high-level waste repository licensing and technical training of the NRC staff. The plan describes each office's strategy for developing future applications.

Relationship of the IT Strategy to the NRC Five-Year Planning Process

The Strategic IT Plan is the basis for the Agency's IT program guidance and activities in the NRC FYP. I will give the Commission an annual update to the Information Technology Strategy with the draft FYP program guidance. In this first year of the new planning process, the plan was not completed in time to be given to the Commission with the program guidance on March 23, 1993. Nevertheless, most aspects of the plan were incorporated into the draft FYP program guidance submitted to the Commission.

Now that the initial plan has been completed, the Agency's IT strategy will be updated annually using a facilitated, agencywide process shorter than, but similar to, the process used to prepare the initial strategy.

Response to Staff Requirements Memorandum Concerning an External Advisory Committee

In COMKR-91-002/COMFR-91-002 (Reference 2), the Commission requested that NRC consider creating an external ad hoc advisory committee to review the Agency's plans, programs, and capabilities for using computers and computer systems.

In view of the Executive Order of February 10, 1993, concerning the termination and limitation of such committees, the staff does not recommend this approach. The Director of IRM will continue to seek the technical advice of external parties, including expert and IT industry comments on major technology acquisitions, review of NRC's strategies by other Federal agencies, and comments by information service providers that specialize in technology trends and government applications. The staff also plans to obtain the views of the Nuclear Information and Records Management Association and other industry groups on electronic submittals and on information that the NRC could make available by electronic bulletin boards or other mechanisms. In this manner, the Director of IRM will continue to seek external review and comment using methods judged most appropriate and cost-effective for the Agency.

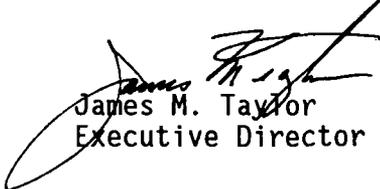
A Commission briefing on the IT Strategic Plan is scheduled for early August.

RECOMMENDATION:

Unless the Commission directs otherwise, the staff plans to proceed with implementation of the NRC Fiscal Year 1994-1998 Strategic Information Technology Plan after the Commission meeting.

RESOURCES:

The FY 1994-1998 Five-Year Plan includes resources to implement these strategic initiatives with the exception of funding that will be needed in the out-years for implementing a new Agency document management system. The staff will evaluate the funding for this system after completing the requirements analysis in FY 1995.



James M. Taylor
Executive Director for Operations

Enclosures:

1. NRC Strategic Information
Technology Plan (Draft)
2. Additional Background Information
3. IRM Review Board and IRM Strategy
Team Membership

References:

1. February 21, 1991, memorandum, EDO
to Chairman Carr
2. Staff Requirements Memorandum
COMKR-91-002/COMFR-91-002,
April 10, 1991
3. September 18, 1991, memorandum, EDO
to the Chairman and Commissioners

SECY NOTE: In the absence of instructions to the contrary, SECY will notify the staff on Wednesday, August 4, 1993, that the Commission, by negative consent, assents to the action proposed in this paper.

DISTRIBUTION:

Commissioners
OGC
OCAA
OIG
OCA
OPP
EDO
ACRS
ACNW
ASLBP
SECY

Enclosure 1

D R A F T

U.S. Nuclear Regulatory Commission
Strategic Information Technology Plan

**United States
Nuclear Regulatory Commission**



Fiscal Year 1994-1998 Strategic Information Technology Plan

**Strategic Planning and Technical Advisory Staff
Office of Information Resources Management**

**U.S. Nuclear Regulatory Commission
Strategic Information Technology Plan**

Table of Contents

EXECUTIVE SUMMARY	2
1 INTRODUCTION	4
2 NRC STRATEGIC INFORMATION TECHNOLOGY PLANNING PROCESS ..	5
3 NRC STRATEGIC IT PLAN	8
3.1 IT Program Management	8
3.1.1 IT Planning and Budgeting	9
3.1.2 IT Policy and Standards	11
3.1.3 IT Acquisition Management	12
3.1.4 IT Human Resource Strategy	14
3.1.5 IT Architectures	16
3.2 IT Infrastructure	17
3.2.1 Workstation Replacement	18
3.2.2 Networking and Connectivity	18
3.2.3 Applications Development Platforms	19
3.2.4 High-Performance Computing Infrastructure	20
3.3 IT Information and Applications Management	23
3.3.1 Improving the Quality of NRC Information Systems	24
3.3.2 Agency Processes and Workflow	26
3.3.3 Data and Document Management	27
3.3.4 High-Performance Computing Applications	28
LIST OF ACRONYMS	32
FIGURES	
Figure 1 Information Technology Council	7
TABLES	
Table 1 IT Program Management	9
Table 2 IT Infrastructure	17
Table 3 IT Information and Applications Management	24
APPENDIX A - Agency IT Management	A1

EXECUTIVE SUMMARY

A team of senior and executive managers from across the Agency, working with the Office of Information Resources Management (IRM), has completed a U.S. Nuclear Regulatory Commission (NRC) Strategic Information Technology Plan. This strategic plan is the basis for the Agency's information technology (IT) program guidance and activities in the NRC Five-Year Plan (FYP) and will be submitted to the Office of Management and Budget to satisfy the IT planning requirements of OMB Circular A-130, "Management of Federal Information Resources."

The Strategic Information Technology Plan addresses three major areas: (1) IT Program Management, (2) IT Infrastructure, and (3) Information and Applications Management. Key recommendations call for accelerating the replacement of Agency workstations, implementing a new document management system, applying business process reengineering (BPR) to selected Agency work processes, and establishing an Information Technology Council to advise the Director of IRM.

The strategy for **IT Program Management** emphasizes the need to expand the role of NRC Headquarters and regional offices in planning and budgeting for information resources to ensure that these resources are effectively deployed to support the Agency's mission. A key element is the establishment of an IT Council that includes senior managers representing the major NRC offices and regions. The Council will assist the Agency's IRM Director in annually updating the IT strategy, establishing agencywide IT policies and standards, prioritizing new applications and major enhancements to existing systems, and performing management reviews of major systems. The IT program management strategy also calls for improving the IT acquisition process, revising current IT policies and standards to emphasize "open" systems, developing architectures for the Agency's information, applications, and technology, and preparing a new IT human resource strategy."

The strategy for **IT Infrastructure** emphasizes significant investment in the underlying hardware, software, and telecommunications technologies needed to create a robust and reliable automation environment capable of supporting the Agency's current and future applications and communication needs. These needs are associated with both administrative and programmatic information systems and with technical computing and scientific modeling applications that support NRC's mission. Although the Agency has been installing microcomputers and has been networking offices through an extended local and wide area network over the past several years, the rapid growth of decentralized local area network (LAN) applications will require more robust and higher capacity networks, more powerful workstations, and more aggressive adoption of new LAN-based systems development platforms to meet the Agency's needs. The new strategy calls for greater investment in workstations and distributed client-server architectures and continuation of the Agency's network upgrade plans to support both technical computing and office systems.

The strategy for **Information and Applications Management** focuses primarily on improving the overall quality and integration of the Agency's information and applications by changing the way that information systems are developed and managed. This strategy includes three major components: (1) strengthening systems life cycle management for all new systems, focusing on major development projects; (2) piloting BPR as a routine part of the systems life cycle process to reevaluate and streamline current processes before they are automated; and (3) implementing a data management program to improve the quality and accessibility of the Agency's information, with a focus on key application areas. By completing these components, the Agency would improve the overall quality of its applications. The strategy also includes the investment of resources in two key application areas: document management and high-performance computing applications.

1 INTRODUCTION

Agency Mission

The U.S. Congress has determined that the safe use of nuclear materials for peaceful purposes is a legitimate and important national goal. It has entrusted the U.S. Nuclear Regulatory Commission (NRC) with the primary Federal responsibility for achieving that goal. NRC's mission is to ensure adequate protection for the public health and safety, the common defense and security, and the environment, in the use of nuclear materials in the United States.

NRC's scope of responsibility includes regulation of commercial nuclear power plants; research, test, and training reactors; fuel cycle facilities; medical, academic, and industrial uses of nuclear materials; and the transport, storage, and disposal of nuclear materials and wastes. NRC carries out its mission by developing, adopting, and enforcing standards and requirements that licensees must meet to design, construct, and operate safe facilities, in the form of rules, license conditions, and regulatory guidance; inspecting facilities and taking enforcement action as necessary to ensure that such standards are followed; and conducting research to support, assess, or refine judgements used in regulatory decisions.

Agency Goals

The NRC Five-Year Plan (FYP) for FY 1994-1998 includes ten agencywide goals that address the regulatory mission and objectives of the Agency. These are listed below in four categories: regulation of nuclear reactors, nuclear regulatory research, regulation of nuclear materials, and effective Agency management.

Nuclear Reactor Regulation

- Goal 1** Ensure that nuclear power plants and other licensed facilities are operated safely and that licensees are adequately prepared to respond to accidents.
- Goal 2** Ensure that facilities, when no longer in operation, are adequately and safely decommissioned.
- Goal 3** Ensure that nuclear power plants under construction are designed and constructed properly and are ready for safe operation.
- Goal 4** Prepare for future standard reactor design licensing and reactor license renewal activities, including making revisions to regulatory guidance and standard review plans.

Nuclear Regulatory Research

- Goal 5** Ensure that research provides the technical bases for timely and sound rulemaking and regulatory decisions in support of NRC licensing and inspection activities.

Nuclear Materials Management

- Goal 6** Ensure that current and future uses and transportation of nuclear and radioactive materials are safe and have adequate safeguards.
- Goal 7** Ensure that high-level and low-level nuclear waste and uranium mill tailings are safely managed and disposed of.

Agency Management

- Goal 8** Continue to maintain special and independent reviews and investigations of NRC activities.
- Goal 9** Allocate NRC's human and capital resources and direct the Agency's affairs so that they contribute most effectively to the mission of protecting the public health and safety.
- Goal 10** Ensure that the NRC has effective external communications and relations with outside organizations, the public, international organizations, and foreign governments.

2 NRC STRATEGIC INFORMATION TECHNOLOGY PLANNING PROCESS

This is the first year that the NRC has addressed the need for a strategic information technology (IT) planning process that involves significant agencywide participation with a focus on long-range direction. During this first year, the NRC established the foundation, emphasizing technology infrastructure and cooperative IT management practices. In future years, the NRC will fully integrate the IT planning process with other Agency planning processes and focus more attention on technology standards, architectures, and major information systems.

Agency Strategic Information Technology Planning

Office of Management and Budget (OMB) Circular A-130 requires Federal agencies to "establish multi-year strategic processes for acquiring and operating information technologies that meet program and mission needs, reflect budget constraints, and form the basis of their budget requests." Until recently, the planning and budgeting for information technologies has been

carried out by the NRC's Office of Information Resources Management (IRM) with other offices submitting written responses to an annual request by IRM for planning information.

Recently, the Agency recognized the need to plan for the more distant future and expand the role of other NRC components in planning and budgeting for IT resources to more effectively support NRC's mission and the goals enumerated in Section 1. The General Services Administration (GSA) endorsed this approach in its recent triennial review of NRC's IRM program. The new IT planning process involves a broad spectrum of participants from across the Agency and covers all NRC major programs involving information technology, both centralized IT programs carried out by IRM and office-sponsored IT programs.

Initiating the New Strategic Planning Process

The new strategic planning process was based on the following two fundamental goals:

- To produce a flexible and feasible plan that effectively supports the evolving needs of the NRC and its stakeholders and is appropriately balanced in addressing both technical and administrative needs; and
- To institute an agencywide strategic IT planning process that is designed to support the NRC's mission, integrated with the five-year planning process, and performed by participants representing the spectrum of NRC's information technology needs.

The quality of the strategic IT planning process is critical to building consensus for the selected strategies and commitment for successful implementation. The NRC strategic IT planning process was carried out by two groups of participants representing a broad perspective of Agency interests. Agency executives were represented by a nine-member IRM Review Board. Senior management were represented by a Strategy Team of staff and line managers from both large and small offices and regions. An experienced facilitator led the IRM Review Board and the Strategy Team through the strategic planning process which the NRC had also successfully used to prepare the first NRC FYP.

The IT strategy was developed in a five-step process:

- (1) assess the current situation and develop IT challenges
- (2) develop alternatives to meet IT challenges
- (3) evaluate the costs and benefits of alternatives
- (4) decide among the alternatives
- (5) prepare implementation plans

Initially, senior executives were asked to give overall guidelines and direction for the process. A series of IT challenges were clarified and used throughout the process for focus and vision. At each step, the Information Resources Management Review Board gave the Strategy Team

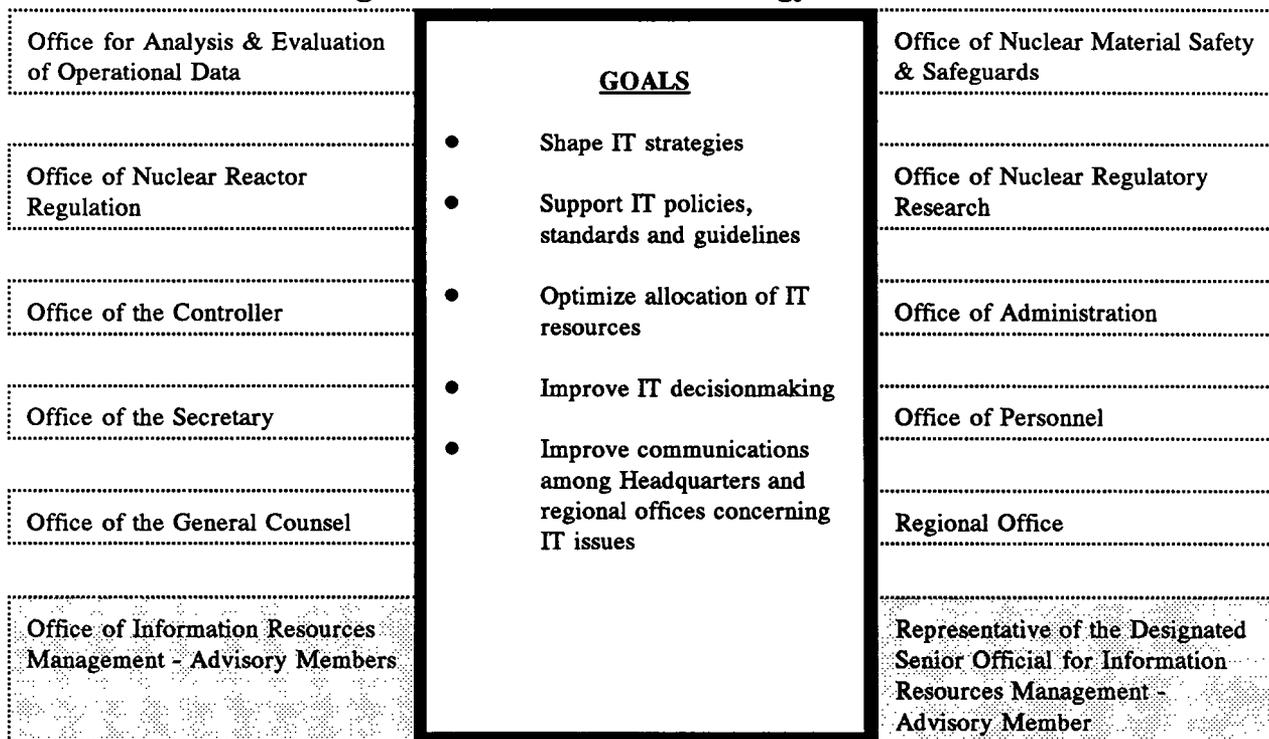
guidance to ensure that senior executives' concerns and views were addressed. This approach, involving a broad spectrum of participants, with review by senior executives at each step, has resulted in a strategy that is fully supported by the NRC offices, regions, and senior executives.

The Future Strategic Planning Process

One of the fundamental goals of the strategic planning initiative was to institute an agencywide strategic IT planning process and integrate it with the Agency five-year planning process. To accomplish this goal, the Agency must annually revise the plan and incorporate the results of the planning process into the Agency's program guidance approved by the Commission as the basis for planned accomplishments and resources in the NRC FYP.

In the future, the strategic IT planning process will be carried out by a permanent IT Council composed of senior managers from the major NRC Headquarters and regional offices.

Figure 1 Information Technology Council



The Council will help to annually update the Strategic IT Plan for IRM and the other NRC offices to use in revising their program guidance for the FYP. Both the Strategic IT Plan and the resulting revised guidance will be submitted to the Agency's Steering Committee for Strategic Planning, the Executive Director for Operations, and the Commission for review as part of the Agency's five-year planning process.

Relationship of the Strategic IT Plan to Other Documents

This document describes the NRC IT challenges, long-range strategic directions, and the strategic initiatives which will be undertaken to meet the challenges. This "strategic" document is the basis for many of the IT goals, objectives, assumptions, and program guidance in the NRC FYP. A separate "tactical" document contains the implementation plans which describe the tactical, scheduling, and fiscal estimates for implementing the strategic initiatives. This "tactical" document describes the basis for major IT planned accomplishments and associated resources in the NRC FYP.

3 NRC STRATEGIC IT PLAN

The goal of the strategic plan is to improve the effectiveness of the NRC in meeting its program and mission needs by successfully acquiring and deploying information technologies. This includes specific information systems and the infrastructure and IT program management activities needed to support those applications.

The strategic plan describes the challenges, the current environment, and strategies in three major strategic areas: (1) IT program management, (2) IT infrastructure, and (3) information and applications management. In this first year of the new planning process, key recommendations include major initiatives for accelerating the Agency's workstation replacement strategy, implementing a new document management system, applying business process reengineering (BPR) to selected work processes for the Agency, and establishing an IT Council to advise the Director of IRM. In future planning years, initiatives will be more aligned with specific program and mission needs of the NRC, addressing technology standards and architectures and integrating major information systems.

3.1 IT Program Management

The strategy for **IT Program Management** emphasizes the need to expand the role of NRC Headquarters and regional offices in planning and budgeting for information resources to ensure that these resources are effectively deployed to support the Agency's mission. A key element is the establishment of an IT Council that includes senior managers representing the major NRC offices and regions. The Council will assist the Agency's IRM Director in annually updating the IT strategy, establishing agencywide IT policies and standards, prioritizing new applications and major enhancements to existing systems, and performing management reviews of major systems. The IT program management strategy also calls for improving the IT acquisition process, revising current IT policies and standards to emphasize "open" systems, developing architectures for the Agency's information, applications, and technology, and preparing a new IT human resource strategy."

Table 1 summarizes the program elements, challenges, and strategic initiatives for IT program management. The program elements for IT program management are IT planning and

budgeting, IT policy and standards, IT acquisition management, IT human resource strategy, and IT architecture.

Table 1 IT Program Management

PROGRAM ELEMENTS	CHALLENGES	STRATEGIC INITIATIVES
IT Planning and Budgeting	Institute an annual IT planning and budgeting process that is designed to support the NRC mission, focuses on IT throughout the Agency, increases customer (office and region) participation and accountability, enhances the ability of senior executives to make IT decisions, and is integrated with the Agency’s five-year planning process.	<ul style="list-style-type: none"> ● Create an Information Technology Council ● Expand the role of NRC Headquarters and regional offices in planning and budgeting for IT resources
IT Policy and Standards	Develop clear IRM policies and standards, with client participation, that support the Agency’s IT strategy and maintain a balance between the benefits of standardization and the need for flexibility.	<ul style="list-style-type: none"> ● Assess status of Agency IT policies and standards ● Update/develop new IT policies and standards
IT Acquisition Management	Develop an IT acquisition strategy to provide quality IRM products and services in a timely manner, and to accommodate rapid changes in technology.	<ul style="list-style-type: none"> ● Develop strategic and tactical IT acquisition plans ● Reevaluate and document FIP acquisition processes, policies and procedures
IT Human Resource Strategy	Develop a new human resource strategy to (1) increase the proficiency of the NRC staff with information systems and encourage effective use of electronic systems and media, and (2) develop and maintain a highly competent and motivated Agency IRM staff, organized to effectively support customers and conduct the IRM program.	<ul style="list-style-type: none"> ● Develop IT proficiency standards for all employees ● Perform an IRM skills assessment and implement an IRM employee development program ● Realign IRM work activities
IT Architecture	Define information and technology architectures to guide the planning and implementation of technology for both infrastructure and applications.	<ul style="list-style-type: none"> ● Plan the update/development of information, applications, and technology architectures

3.1.1 IT Planning and Budgeting

The Challenge/Vision

Institute an annual IT planning and budgeting process that is designed to support the NRC mission, focuses on IT throughout the Agency, increases customer (office and region) participation and accountability, enhances the ability of senior executives to make IT decisions, and is integrated with the Agency’s five-year planning process.

Description of the Current Environment

In the past, the IT long-range planning and budgeting process was conducted principally by IRM, with information from NRC Headquarters and regional offices supplied in their responses to an annual request by IRM for planning information. The planning process emphasized the needs of individual offices and gave the offices little opportunity for communication and coordination to achieve effective agencywide solutions. The information requested by IRM was closely associated with the Agency's budgeting process, which resulted in short-term requirements rather than long-term strategic direction. Most of the Agency's IT activities were prioritized, budgeted and defended by IRM, with little participation by the offices. This made it difficult for the offices to defend their IT needs in the budget process and was not always effective or equitable in allocating resources to the most important IT projects.

Strategy for IT Planning and Budgeting

The new strategy for IT planning and budgeting proposes to expand the participation of Headquarters and regional offices to achieve more effective agencywide solutions and to allocate resources to the projects with the greatest benefits to the Agency. The new strategy will encourage agencywide communication, priority-setting, and shared perspective.

The IT Council, chaired by a customer office representative, will be vitally important for instituting the new approach to IT planning and budgeting throughout the Agency. The goals of the Council are:

- Shape the development of NRC's IT strategies
- Maintain agencywide support for and adherence to IT policies, standards and guidelines
- Optimize the allocation of IT resources agencywide
- Improve IT decisionmaking
- Improve communication and coordination among Headquarters and regional offices concerning IT issues

The Council will give the Director, IRM, advice and assistance in:

- Annually reviewing and recommending changes to the Agency's IT strategies for incorporation in the NRC FYP and the Strategic IT Plan
- Establishing a framework of IT policies, standards, and guidelines
- Reviewing proposed new IT applications and major modifications, and recommending priorities as part of the budget process

- Reviewing significant IT application projects before beginning key project phases

The new planning and budgeting strategy transfers from IRM to the large offices and regions the responsibility for defending and budgeting new sponsored applications, special workstation equipment and software, and data entry. IRM will continue to budget for smaller offices and most of the IT resources, including all infrastructure and agencywide applications. The Agency will consolidate the descriptions of all IT activities into an agencywide IT technology plan.

3.1.2 IT Policy and Standards

The Challenge/Vision

Develop clear IRM policies and standards, with client participation, that support the Agency's IT strategy and maintain a balance between the benefits of standardization and the need for flexibility.

Description of the Current Environment

The current framework of Agency IT strategies, policies, and standards is out-of-date for planning or managing programs within the Agency. For example, existing policies and standards do not reflect changes in the IRM organization, current organizational placement of the designated senior official (DSO) for information resources management, changes in technologies, or the move to open systems. Limited policies and standards result in high maintenance and support costs, difficulty in sharing information, and duplicative data and applications. An up-to-date framework is important for establishing a consistent, integrated IT environment throughout the Agency.

The process for updating the IT framework also needs modification. In the past, strategies, policies and standards were often developed by IRM. Other NRC components were not involved until late in the process, when they were asked to comment on near final products.

Strategy for IT Policy and Standards

IRM, in collaboration with Headquarters and regional offices, will develop and institute an updated framework of Agency IT strategies, policies, and standards. The IT Council and Senior Information Resource Management Officials (SIRMOs) representing the major Headquarters and Regional offices will be involved throughout the process to assist in developing and implementing clear practices, policies and standards that satisfy user office needs.

IT policies will be updated to establish roles and responsibilities for planning and budgeting, acquiring Federal Information Processing (FIP) resources, reviewing and implementing major information systems, and managing documents and data as Agency resources.

IT standards will be updated to implement open systems and life cycle management and to support the management of documents and data as Agency resources consistent with user office needs.

3.1.3 IT Acquisition Management

The Challenge/Vision

Develop an IT acquisition management strategy to provide quality IRM products and services in a timely manner, and to accommodate rapid changes in technology.

Description of the Current Environment

IRM relies to a great extent on contractors to perform its basic functions and deliver services to its customers. Performance in acquiring information technology and services and in managing IRM contracts affects the ability of the Agency to successfully execute its information resources management program. Areas that could be improved are FIP acquisition planning; acquisition processes, policies, and standards; and staffing.

Acquisition Planning

IRM has many small contracts that may cover similar aspects of certain work processes or work areas (for example, six separate contracts support the local area network (LAN) and microcomputer environment). This results in complex and costly contract management by NRC staff. More attention to planning acquisition strategies ahead of time could consolidate individual acquisition requests into larger contracts with broader scopes of work, where appropriate.

Acquisition Process, Policies, and Standards

The IT contracting function requires many FTEs, includes numerous steps and procedures, and requires effective cross-functional efforts by NRC acquisition specialists, lawyers, and internal customers. Although many of the contracting procedures are determined by external rules and regulations such as the Federal Acquisition Regulation (FAR) and Federal Information Resource Management Regulation (FIRMR), there may be ways to increase flexibility in the implementation of these requirements.

An effective acquisition process would generally include clearly defined roles and responsibilities for all participants, collegial relationships among participants who work as a team to achieve a common objective, incentives and accountability for completing the acquisition process in an efficient and timely manner and for getting the best value for the Agency, clear and consistent acquisition procedures, and early consideration of whether the FTE time spent in procurement effort and risk management (steps taken to avoid protests) are commensurate with the size of the procurement.

The current IT acquisition process does not always include the above characteristics and the complex information resources acquisitions often take longer than expected for a variety of reasons. The lengthy acquisition process and the rapidly changing technology have at times resulted in the purchase of equipment that was nearly obsolete by the time the procurement was completed. Acquisition procedures are not always well understood and acquisition documents are sometimes inadequate or incomplete. Although much effort is expended on acquisitions, this effort is not always perceived as effective or appropriate for the cost of the goods or services being acquired.

Although the Office of Administration (ADM) has recently updated the NRC Acquisition Regulation, which covers the Agency's general acquisition policies, more specific NRC policies and guidance are needed to address FIP acquisitions. IRM is working with ADM to develop FIP-specific acquisition policies.

In its recent review of IRM, GSA noted that "careful attention should be paid to the definition of roles and responsibilities, in IRM and ADM, to DPA [Delegation of Procurement Authority] tracking responsibilities, and to establishing guidance on entering into and approving interagency agreements."

Staffing

The balance between NRC and contractor staff in performing technical work is weighted toward contractors, which raises concerns about maintaining an adequate level of NRC expertise and talent. The following are problems that have been identified: (1) too much technical FIP work is being contracted, (2) insufficient use of computing skills is affecting the ability of NRC computer professionals to stay technologically current, and (3) insufficient direct technical involvement by NRC computer professionals is affecting their ability to adequately manage contractors performing technical work.

In reviewing IRM, GSA also noted this problem with balancing NRC and contractor staff:

" [the] IRM program at NRC is heavily dependent on contract support. At the end of fiscal year 1992, IRM was using 33 contracts with 275 contractor employees and had 137 full time employees. The ratio of contractors to staff is even greater in one IRM Division, where there are as many as seven contractors for every NRC employee."

Strategy for IT Acquisition Management

A new IT acquisition management strategy is critical to implementing other strategic initiatives defined in this document. For the Agency to update its technology and equipment, it must process acquisition requests in a timely and effective manner. The following sections describe the proposed improvements in the planning, process, policies, standards, and staffing for acquisitions.

Acquisition Planning

The NRC will develop both strategic and tactical IT acquisition plans to consolidate and reduce the number of procurement actions and to save administrative time and costs, while improving the quality of acquisitions. The NRC will establish agencywide contracts for IT architectural and infrastructure components described elsewhere in this document such as the workstation replacement effort. The NRC will examine other means of acquisition, including the GSA Government-wide Agency Contracts program.

Acquisition Process, Policies and Standards

The NRC will improve the FIP acquisition management process by increasing management attention and staff resources. IRM and ADM have each hired a senior IT acquisition specialist with expertise in FIP acquisitions. The NRC is beginning to define and document NRC FIP acquisition procedures, policies, and guidance, including DPA tracking responsibilities, and oversight of interagency agreements.

The Agency will use BPR to analyze and improve a selected area of acquisition procedures, processing practices, and the use of automation. (See Section 3.3.2 on BPR pilot projects). This acquisition strategy may be expanded to include other areas of the FIP acquisition life cycle process and resolve other recurring procedural problems.

In implementing the Agency's standards in FIP acquisitions, all Agency project managers will be required to attend training and obtain certification in FIP acquisition. A substantial investment has already been made in preparing a comprehensive course in "FIP acquisitions for Project Officers" which will be mandatory for certification as an IRM project officer.

Staffing

IRM is analyzing the skills of its staff to address the concerns of balance between contractors and NRC expertise. IRM will make adjustments as needed to its organization and plans for contracting systems work. Better acquisition planning and consolidated contracts can also make contract management more efficient.

3.1.4 IT Human Resource Strategy**The Challenge/Vision**

Develop a new human resource strategy to (1) increase proficiency of the NRC staff with information systems and encourage effective use of electronic systems and media, and (2) develop and maintain a highly competent and motivated Agency IRM staff, organized to effectively support customers and conduct the IRM program.

Description of the Current Environment

Only a few years ago, the Agency's original microcomputers were viewed as little more than "glorified" typewriters. Today powerful microcomputers, plentiful software options, improved

technology, and improved computer literacy skills have significantly changed the way we perform our work. This change has also raised the level of IT literacy expected of most Federal employees. The NRC now has the capability to reduce its paper laden processes by using computers to transmit information electronically. With the completion of the Agency Upgrade of Technology for Office Systems (AUTOS) project during fiscal year 1993, almost all NRC staff will have access to workstations and basic office automation functions. In the near future, many office functions, currently accomplished by telephone or through the mail with paper distribution, will be performed in the LAN environment. It will soon be essential for all NRC employees to possess at least a minimum level of proficiency in using IT capabilities such as electronic mail (e-mail) and word processing. Many NRC staff will also require IT competencies in such software applications as spreadsheets, graphics, and information retrieval.

NRC's Information Technology Services Training Lab and Individual Learning Center give all NRC employees opportunities for hands-on classroom instruction and individual study in the use of NRC's IT capabilities. Information on training courses and prerequisites are routinely distributed to all staff. For the most part, employees in Headquarters and the regions can obtain the instruction they need to use the NRC's IT resources.

Although most employees believe that the NRC offers excellent IT training opportunities, the IT Strategy Team recommended further steps to bring about the cultural changes needed for the Agency to effectively use the technology. Particular attention is needed to address requirements of senior managers who have little time for formal training and who frequently have the least experience with computer technologies.

Strategy for Human Resources

IT Proficiency of Agency staff

To begin improving overall IT proficiency at the Agency, the NRC will assess the cultural problems and needs associated with the increasing use of technology. The NRC will establish basic competency goals for clerical, professional, supervisory, and executive positions. To meet these assessed needs and competency goals, the Agency will establish necessary training and development programs to assist employees in achieving the target competency levels and effectively using technology.

IT Proficiency of IRM Staff

IRM recognizes the importance of maintaining the technical proficiency of its staff. IRM recently assessed the skills of IRM staff to determine both strengths and weaknesses. IRM will use the results of this assessment in conducting initiatives to better use existing skills and develop or acquire those skills needed to more effectively perform the IRM program.

3.1.5 IT Architectures

The Challenge/Vision

Define information and technology architectures to guide the planning and implementation of technology for both infrastructure and applications.

Description of the Current Environment

NRC information technology systems have been developed over time in a mixture of technologies and architectures. Most of NRC's major agencywide systems were developed as separate applications running in a timeshared mainframe environment with remote access. These applications were developed using a variety of often incompatible languages and database management systems. As distributed minicomputer systems became cost-effective, the Agency developed its payroll, personnel, property, and financial systems in local minicomputer environments. In the mid 1980s, the Agency developed a data architecture and began implementing an integrated "corporate" database, primarily supporting reactor applications. Recently, with the advent of powerful microcomputers, some Agency users developed office systems on stand-alone or LAN-connected microcomputers. While the ease-of-use and flexibility of microcomputer applications have provided many benefits to NRC users, it has also caused problems with application and data integration. Many of the problems occurred because the NRC has not yet prepared architectures for information, applications, and technology which would give the staff a consistent environment for implementing individual microcomputer applications.

Although a data architecture was used in developing some of the Agency's reactor-related applications, the Agency has not made a consistent, sustained effort to define its data, applications, and supporting technology architectures. Guidelines and policies to encourage adherence by offices to such architectures have never been defined. The growth of distributed LAN-based systems emphasizes the need for a coherent, complete architectural model that will foster the ability to share and effectively use information.

GSA noted that:

NRC has begun initiatives that could be coordinated into an architectural strategy addressing long-term needs... [W]ithout coordinating individual modernization efforts and directing them toward a strategic IRM plan, NRC risks a severe cost impact. A coordinated approach to modernization can help avoid potential redundancies, establish Agencywide standards, enhance identification of emerging technologies, and reduce costs.

Strategy for IT Architectures

IRM will work jointly with the Headquarters and regional offices to develop and institute Agency information, application, and technology architectures to define the context and standards for future applications and to assure that user office applications needs are met.

3.2 IT Infrastructure

The strategy for **IT Infrastructure** emphasizes significant investment in the hardware, software, and telecommunications technologies needed to create a robust and reliable automation environment to support the Agency’s current and future applications and communication needs. These needs are associated with both administrative and programmatic information systems and technical computing and scientific modeling applications that support NRC’s mission. Although the Agency has been installing microcomputers and has been networking offices through an extended local and wide area network over the past several years, the rapid growth of decentralized LAN applications will require more robust and higher capacity networks, more powerful workstations, and more aggressive adoption of new LAN-based systems development platforms to meet the Agency’s needs. The new strategy calls for greater investment in workstations and distributed client-server architectures, and continuation of the Agency’s network upgrade plans to support both technical computing and office systems.

Table 2 summarizes the program elements, challenges, and strategic initiatives for IT Infrastructure. The program elements for IT Infrastructure are: workstation replacement, networking and connectivity, applications development platforms, and high-performance computing infrastructure.

Table 2 IT Infrastructure

PROGRAM ELEMENTS	CHALLENGES	STRATEGIC INITIATIVES
Workstation Replacement	Ensure that NRC’s technology infrastructure is robust, reliable, and capable of supporting current and future applications needs.	<ul style="list-style-type: none"> ● Adopt a new workstation replacement strategy
Networking and Connectivity		<ul style="list-style-type: none"> ● Continue with plans to implement a single multi-function wide area network ● Continue with plans to implement a network management center
Applications Development Platforms		<ul style="list-style-type: none"> ● Move aggressively to implement client-server technology for new systems
High-performance Computing Infrastructure		<ul style="list-style-type: none"> ● Continue emphasis on improved connectivity, increased training and technical assistance, acquisition of engineering workstations, and program office coordination through the Technology Advancement Board

The Challenge/Vision

Ensure that NRC's technology infrastructure is robust, reliable, and capable of supporting current and future applications needs.

3.2.1 Workstation Replacement**Description of the Current Environment**

In FY 1993, NRC will complete an agencywide program to supply Headquarters and regional offices with microcomputers attached to standardized LANs and to provide agencywide communications capabilities among the LANs. Although the original objective was to replace the agency's aging word processing systems, the Agency later expanded the plan to give most clerical, professional and managerial staff microcomputers connected to LANs capable of supporting standard office automation functions. As the staff became familiar with microcomputer technology and the varieties of available software increased, the staff identified many new applications and productivity tools that could be used to improve the efficiency and effectiveness of the Agency's programs. Many of the Agency's original workstations could not support newer application requirements and could not be maintained cost effectively. Demand for replacement of technologically obsolete machines was growing before the Agency met its initial goal of providing workstations to all employees who needed them. The NRC recognized that the existing workstation strategy and level of investment in replacement workstations were insufficient to support growing application needs.

Strategy for Workstation Replacement

The new long-term workstation strategy emphasizes an accelerated investment in office automation workstations to avoid the costs of operating and maintaining old equipment and to provide workstations capable of running current and future applications. The strategy is to (1) replace NRC's office automation workstations to meet high standards for functionality, reliability, performance, and interoperability by maintaining a workstation inventory that, on average, lags current technology by one generation; (2) meet this standard within 2 years; (3) after achieving this standard, maintain it by replacing approximately one fifth of NRC's workstations each year with new technology.

The NRC will establish standards and policies to acquire, install, maintain, and replace workstations as appropriate. Finally, NRC will implement a configuration management and inventory control project to efficiently manage the use, maintenance, and timely replacement of workstations, and the disposal of obsolete equipment.

3.2.2 Networking and Connectivity**Description of the Current Environment**

NRC has three separate data communications networks -- a LAN-to-LAN communications network, a network for printing from the National Institutes of Health (NIH), and a network

providing access to various computer facilities -- in addition to special purpose connections. NRC staff must also understand a variety of communications software and often cumbersome procedures for connecting to various applications or data sources. These procedures are unique for specific types of computers, hardware, and software being used, with, for example, one procedure to access the Nuclear Document System (NUDOCS), another to access event data, and a third to enter inspection plans.

This multiplicity of data circuits and communication protocols results in complexity for customers and the telecommunications staff and difficulties in integrating information from different applications. IRM would like to simplify this environment so that a customer would simply select an application or data source from a workstation menu, without needing to know the specifics of an application's location, hardware, or software platform. This simplification would ultimately extend to the use of a single communication protocol for most NRC applications. An important step in moving towards this desired environment is to implement one multi-function network to replace the three existing data communications networks. This step is an important one in moving towards a single, vendor-independent (open) communications protocol for all NRC applications.

Strategy for Networking and Connectivity

IRM will extend NRC networks to accommodate the connection of all NRC computer resources to a single NRC communications network. This network will support an open systems architecture to enable connectivity and high-speed information transfers among diverse workstations, NRC-owned minicomputers, regional and resident sites, outside locations such as the Southwest Research Institute, the U.S. Department of Energy laboratories, national and international public networks such as Internet, and timesharing facilities. The network must function reliably and must be implemented in a cost-effective manner that provides adequate speed and capacity as traffic increases, but does not provide the capacity before it is needed.

As the NRC increasingly depends on the network for its critical functions, more sophisticated network-monitoring and configuration management methods will be needed to adequately monitor, maintain, and support the NRC computer and network environment. The NRC will establish a network management center to manage the operation and configuration of the network.

3.2.3 Applications Development Platforms

Description of the Current Environment

Applications within NRC have been implemented across a variety of development platforms that include timesharing services on NIH IBM mainframes, internal IBM and Data General minicomputers, standalone microcomputers, and LAN servers. Over time it has become increasingly ineffective and costly for the Agency to develop and maintain applications over this

wide range of platforms. Even more importantly, access to information is hindered by incompatibilities between the proprietary products of various vendors.

Other businesses and agencies have similar problems with the cost and support for their older systems. The computer industry is addressing this problem by developing "client-server" application architectures which can interconnect diverse systems across platforms. These client-server architectures have the following additional advantages: (1) user-friendly interfaces, allowing the user to operate the "client" part of the application on an intelligent microcomputer workstation, and (2) scalability, since the server part of the application, which stores the data and does most of the processing, can be a microcomputer, minicomputer, or mainframe, as necessary.

Strategy for Applications Development Platforms

NRC's strategy is to move aggressively to implement client-server technology for new systems. Required tasks will include training IRM staff in the new technology, planning and implementing operational support for the new platform, establishing necessary development contracts, establishing policies and standards, and using client-server technology for pilot applications.

As a first step, IRM is developing a pilot application for the Office of Personnel using client-server technology to enable NRC staff to perform onsite computing using the data from mainframe, minicomputer, and microcomputer systems. The goal is to replace these various platforms with a high-performance desktop computer connected to the LAN and wide area network (WAN). NRC will pilot and evaluate other applications in the LAN environment using client-server technologies. The results of these pilots will be assessed jointly by IRM and client offices and integrated with the policy, standards, and architecture activities.

Other elements of NRC's strategy for its development platforms are to reduce the costs and improve the effectiveness of applications by (1) moving applications from the NIH timesharing platform, (2) pursuing cross-servicing or acquiring common applications, such as those supporting administrative, financial, personnel, payroll functions, and (3) establishing standards for application platforms based on newer technologies supporting an "open systems" approach.

3.2.4 High-Performance Computing Infrastructure

Advances in high-performance computing are bringing scientific computing and analytical modelling to the desktop. Existing codes are being moved from large mainframe environments to less expensive and more accessible engineering workstations. Scientific user communities are dynamically exchanging codes and data using electronic interfaces. The NRC has been responding to these changes by planning and implementing the infrastructure needed to support the staff in making the most effective use of the new high-performance computing technologies for licensing and regulatory applications.

The main elements of the infrastructure strategy for high-performance computing are interoffice coordination, high-performance workstations, networking and connectivity, network security, and high-performance computing support services. See Section 3.3.4, "High-performance Computing Applications" for a description of planned applications.

Description of the Current Environment

Interoffice Coordination

A Technology Advancement Board (TAB) has been established to coordinate interoffice needs for advanced computing and to assist the Office of IRM and major program offices in identifying and transferring applicable information technologies to projects related to the agency's safety mission. TAB activities will also address the use of new technologies to facilitate the sharing and exchange of information with licensees, the nuclear industry, the States, Federal agencies, and the public.

High-Performance Workstations and Associated Computing Resources

To meet Agency high-performance computing needs, the NRC is using the National Aeronautics and Space Administration (NASA) Governmentwide Agency Contract to acquire a variety of RISC (reduced instruction set computation) workstations, all of which can run in the UNIX environment. UNIX is the de facto standard non-proprietary ("open") operating system that has been adopted for NRC's high-performance networks. The agreement with NASA also provides the NRC with related software, hardware, networking equipment and maintenance. By the end of the year, the high-performance workstations available to the technical staff will have doubled, reaching an inventory of over fifty RISC units.

Networking and Connectivity

To meet needs for sharing and communication among high-performance computing users, the NRC has developed an initial high-performance computing systems architecture. The basic concept is that most RISC stations will be networked to enable resource sharing within each of the program offices. To date, UNIX networks have been established in NRC's Office of Nuclear Reactor Regulation (NRR), Office for Analysis and Evaluation of Operational Data (AEOD) and Office of Nuclear Material Safety and Safeguards (NMSS). For example, a high-performance UNIX-based network server has been installed in NMSS Division of High-Level Waste Management (DHLWM) to support high-level waste repository licensing and will soon be linked to other RISC stations, a graphics station and standard microcomputers.

The local program office high-performance networks are, in turn, being integrated into the NRC WAN. The NRC WAN will have fully integrated e-mail and directory services. This will allow high-performance computing users to have e-mail and document transfer capability with all NRC staff, the Center for Nuclear Waste Regulatory Analyses (CNWRA), certain U.S. Department of Energy (DOE) laboratories, and with outside users over the public Internet network.

NRC is standardizing on the Transmissions Control Protocol/Internet Protocol (TCP/IP) for LAN/WAN communications among high-performance UNIX workstations, NRC minicomputers, the NIH mainframes, and Internet. Initial implementation of TCP/IP has begun and will continue through next year. Adopting the TCP/IP protocol will simplify and reduce the number of communications procedures that a user must know to access different computing facilities, and will make it possible for NRC staff to access Internet directly from the NRC LANs.

The program offices with high-performance networks have requested two features available on Internet: file transfer protocol (FTP) and remote interactive access (TELNET). FTP provides the capability to transmit high volumes of data and TELNET allows outside users, such as DOE laboratory staff, to interactively access NRC high-performance computers to diagnose problems, install code, configure files, and provide other technical assistance. While only implemented on a limited basis, the FTP has already proved a valuable resource for the technical staff. NRR employed the FTP features to receive and configure the RELAP5 facility decks for the Westinghouse AP600 advanced design and the SPES test facility directly from the Idaho National Engineering Laboratory. The NRC Technical Training Center used the interactive capabilities to work with the graphical interface package, PICASSO, with experts from the European community on the Halden Reactor Project.

The use of the Internet TELNET feature, which allows outside users to access NRC machines, has required NRC to enhance the security architecture of its networks. A "fire wall" approach using special network configurations, software, and hardware will protect the NRC networks by monitoring, checking, and controlling outside access. NRC plans to implement the new security features by the end of the fiscal year.

In addition to the use of Internet for large volume data transfers, NRC has installed a direct line for such transfers between DHLWM high-performance workstations and the CNWRA computer facility in San Antonio, Texas and the CNWRA Washington Technical Support Office in Arlington, Virginia. The large volume file transfer techniques used by DHLWM will be expanded to other Agency high-performance computing projects as needed.

High-Performance Computing Support Services

A technical assistance program has been established to support the high-performance computing environment. This program combines in-house training and technical exchanges with industry to encourage and accelerate the development and implementation of high-performance computing within NRC. Two DOE Laboratories that currently support NRC have been tasked to review and integrate requirements and provide assistance to bring advanced computing resources in-house. Current tasks include an assessment of NRR high-performance computing requirements to support the licensing of advanced design reactors and an overall assessment of program office networking needs.

IRM staff have been trained in the UNIX/RISC technologies to install software, administer networks, and provide onsite customer support to the program offices. This staff expertise is currently augmented with contractor support for hardware and software installation and maintenance.

Technical exchanges with industry, vendors and other government agencies have also enhanced the program. For example, NRC staff have met with experts from the Electric Power Research Institute (EPRI), Construction Systems Association, and The Georgia Institute of Technology. Access to EPRI net has been established and the staff reviewed the EPRI management information system requirements for the advanced design reactors. NRC staff have seen the Westinghouse computerized information management system for the AP600 project, have scheduled a demonstration of the Duke Power Computer Aided Design/Computer Aided Manufacturing system, and also plan to meet with General Electric (GE) to review the computing resources used by GE to implement the management information system for their simplified boiling water reactor (SBWR) design.

Strategy for Technical Computing Infrastructure

NRC will continue to develop in-house technical knowledge and skills for high-performance computing through training and technical exchanges with industry and vendors. IRM will continue to place a high priority on TAB member requirements for future licensing and regulatory activity in the program offices. Connectivity and accessibility will be enhanced to take advantage of and share resources among high-performance networks. With the implementation of the security fire wall and TCP/IP protocols, users will have faster, more flexible access to one another and well as to Internet and other external networks.

In a related area, NRC has established office guidance to monitor the development of the National Education and Research Network, established by the High-performance Computing Act of 1991, and will evaluate the utility of the network to the NRC when it is available.

3.3 IT Information and Applications Management

The strategy for **Information and Applications Management** focuses primarily on improving the overall quality and integration of the Agency's information and applications by changing the way that information systems are developed and managed. This strategy includes three major components: (1) strengthening systems life cycle management for all new systems, focusing on major development projects; (2) piloting BPR as a routine part of the systems life cycle process to reevaluate and streamline current processes before they are automated; and (3) implementing a data management program to improve the quality and accessibility of the Agency's information, with a focus on key application areas. By completing these components, the Agency would improve the overall quality of its applications. The strategy also includes the

investment of resources in two key application areas: document management and high-performance computing applications.

Table 3 summarizes the program elements, challenges, and strategic initiatives for IT Information and Applications Management. The program elements for Information and Applications Management are: improving the quality of NRC information systems, Agency processes and workflow, data and document management, and high-performance computing applications.

Table 3 IT Information and Applications Management

PROGRAM ELEMENTS	CHALLENGES	STRATEGIC INITIATIVES
Improving the Quality of NRC Information Systems	Efficiently and effectively implement easily accessible, reliable, secure, and integrated information systems for high-priority administrative and mission-related needs.	<ul style="list-style-type: none"> ● Strengthen systems life cycle management
Agency Processes and Workflow	Apply technology to improve NRC workflow management processes; increase NRC ability to communicate electronically with licensees and other agencies; and increase the effective and efficient use of electronic forms, mail, signatures, and records.	<ul style="list-style-type: none"> ● Pilot "business process reengineering" to streamline important processes ● Implement paper reduction initiatives
Data and Document Management	Manage shared data and documents as Agency resources and ensure they are accessible, secure, and reliable. Update the Agency's document management capabilities to meet current and anticipated programmatic needs.	<ul style="list-style-type: none"> ● Strengthen Agency data administration in key business areas ● Implement a modern document management system for agencywide use
High-Performance Computing Applications	Increase activities to develop and implement technical computing applications needed to support future licensing and regulatory activity in the program offices, such as for advanced reactor design certification, plant life extension, and high level waste (HLW) repository licensing.	<ul style="list-style-type: none"> ● See Section 3.3.4, High-Performance Computing Applications

3.3.1 Improving the Quality of NRC Information Systems

The Challenge/Vision

Efficiently and effectively implement easily accessible, reliable, secure, and integrated information systems for high-priority administrative and mission-related needs.

Description of the Current Environment

The NRC developed its information systems over the years using a variety of technologies and approaches. Systems development project managers had few operational guidelines and the NRC had few development standards to encourage a consistent level of quality in developing, testing and maintaining these systems. With the introduction of microcomputers, the problem of compatibility and quality expanded as individual users and offices began to implement individualized, unique systems.

One way that IT managers have found to improve the quality and consistency of information systems is to practice a standard systems life cycle management (LCM) approach to structure the systems development process of new information systems from initial requirements and programming activity through obsolescence and replacement. LCM generally encompasses the key components that make up a system: software, data, hardware, telecommunications, training, user support, and systems maintenance.

An effective LCM should include a rigorous, proven methodology; standards; project management; computer-aided systems engineering (CASE) tools; data management; configuration and software management; and independent reviews. The use of CASE tools as part of LCM can significantly reduce the costs of system maintenance, improve quality and reliability, and increase the productivity of development staff. For these reasons, over 90 percent of Fortune 500 companies use CASE tools to develop and maintain their information systems. Most Federal agencies are also establishing LCM frameworks and using CASE tools.

NRC has practiced LCM primarily by applying internally drafted guidelines, using CASE tools in only a few development projects.

Strategy for Improving the Quality of NRC Information Systems

IRM, with client office input and review, will acquire and implement within the Agency a standard LCM and CASE tool set, implement standards for all major IT deliverables, assign customer and IRM responsibilities for life cycle steps, revise project management standards, and require independent monitoring and reviews for each life cycle step. The NRC will use the new standard LCM for all major projects over an established threshold. Smaller, more simple applications will have an LCM commensurate with their size and complexity and may not require the use of CASE tools.

Initiatives under "IT Architectures" (Section 3.1.5), "Applications Development Platforms" (Section 3.2.3), "Agency Processes and Workflow" (Section 3.3.2), and "Data and Document Management" (Section 3.3.3) also will contribute to the improvement of NRC Information Systems.

3.3.2 Agency Processes and Workflow

The Challenge/Vision

Apply technology to improve NRC workflow management processes; increase NRC ability to communicate electronically with licensees and other agencies; and increase the effective and efficient use of electronic forms, mail, signatures, and records.

Description of the Current Environment

Most business processes and workflow systems in the NRC are paper-based and rely on internal desk procedures or mailroom distribution of paper copy. As distributed office automation capabilities, e-mail, and networks are implemented in the Agency, many of these paper-based workflow systems can be replaced with electronic media and communications methods. NRC is conducting three agencywide projects to increase the application of electronic technology to business processes.

First, a Paperwork Reduction Task Force is determining types of information that are good candidates for electronic access. These types have been categorized as follows: forms of information that can be provided within the current LAN configuration, those that can be implemented with a WAN, and those that are part of other systems development efforts. Second, a Forms Automation Project team is examining the many forms used in the Agency to determine those that are likely candidates for converting to an electronic format on the AUTOS LAN. Third, an electronic communications project team is determining and coordinating requirements and planning for known electronic information receipt and dissemination projects. The NRC is implementing several pilot projects for electronic communications with licensees.

With these three projects, the NRC is exploring the application of technology to existing paper-based systems. Many companies and federal agencies are also streamlining their existing processes using BPR to eliminate redundant and unproductive activities and simplify and integrate essential activities. A typical BPR initiative includes consolidating tasks; reducing centralized processing; assigning local authority for decision-making; analyzing workflow across organizations and processes; modeling and measuring costs to help reduce them; eliminating redundancy; and evaluating and applying new technologies. Although there has been some discussion within NRC of streamlining specific internal processes, a structured approach such as BPR has not yet been applied.

Strategy for Improving Agency Processes and Workflow

As workstations and networking are extended to every NRC employee, the Agency will focus on replacing its paper-based systems by expanding the current paperwork reduction, forms automation, and electronic communication projects to include more processes. The Agency will need to establish policy for electronic workflow management, including criteria for accepting electronic signatures and electronic media for official Agency records.

NRC will explore the use of BPR by conducting BPR pilot projects and evaluating their effectiveness to determine how BPR might be further applied within the Agency. Candidate areas being considered for piloting BPR are document management, commercial contracting, materials licensing, and fee billing.

3.3.3 Data and Document Management

The Challenge/Vision

Manage shared data and documents as Agency resources and ensure they are accessible, secure, and reliable. Update the Agency's document management capabilities to meet current and anticipated programmatic needs.

Description of the Current Environment

Data Management

Like many agencies, NRC has experienced problems with the quality, redundancy, and integrity of data in many of its existing systems. In 1985, the Agency developed a data architecture and began to apply data management principles to a portion of its information in order to reduce development and maintenance costs, improve data for management decision-making, improve the integrity and reliability of data, reduce data redundancy, and provide for more efficient data entry.

In conducting its initial data management efforts, the Agency used mainframe systems which supported reactor-related functions, including inspection, enforcement and event data. Many benefits resulted from this central data management program; for example, the Agency (1) improved analysis and management in the inspection program by instituting a uniform inspection planning process and database across all regions with the ability to track the actions taken to followup and close out inspectable items; (2) found national trends in safety performance by making uniform comparisons of licensee performance and inspection activity data; and (3) improved the scheduling and coordination of licensee site activities by the use of the shared centralized database.

Although obtaining good results from this initial data management initiative, NRC found difficulty extending the program to other areas. The program relied on a highly controlled, centralized mainframe data repository, dial-up user access, and data management staffing by IRM. The NRC was replacing mainframe systems with newer, more user-friendly, cost-effective, microcomputer-based systems. While these new systems had many benefits, the distributed microcomputer environment was making data management much harder. Integration and uniformity can be achieved only with a strong data administration program and with customer support for policies to ensure that data structures are uniform and designed for sharing.

Document Management

Document management in the Agency includes a range of office document management systems and the Agency's major centralized NUDOCS. Although the NRC program and support offices rely on these older systems, users accustomed to newer and more flexible technologies are becoming increasingly dissatisfied with their limitations. These limitations include redundant document scanning and entry systems; the inability to use certain methods for search and retrieval, such as full-text and proximity searching; the inability to cut and paste from existing text; and the lack of cost-effective methods for distributing documents. In many cases, document management systems are being developed by the NRC program offices to address unique needs not satisfied by NUDOCS. Although further investment in the current NUDOCS system could overcome certain document-processing limitations and provide additional search features, this would not be cost-effective, significantly improve user satisfaction, or address inherent retrieval limitations.

Strategy for Data and Document Management**Data Management**

To support improved integration and data management, NRC will implement a strong data administration program to ensure that data is managed as an Agency resource by (1) establishing policies and standards for shared data, (2) defining roles and responsibilities for shared data, and (3) implementing a data quality assurance program. The staff will apply these data management policies and standards to major functional areas, including financial and contracts data.

Document Management

To improve document management systems in the Agency, NRC will undertake a major initiative to implement a modern text and image management system to replace NUDOCS, provide the staff with robust document management systems, and reduce the need for other systems. The NRC will begin by applying BPR to streamline document management processes. In performing the analysis, the NRC will categorize existing and proposed text management applications, to determine their requirements. The staff will select the new approach based on the results of cost/benefit and alternatives analyses.

3.3.4 High-Performance Computing Applications**The Challenge/Vision**

Increase activities to develop and implement technical computing applications needed to support future licensing and regulatory activity in the program offices, such as for advanced reactor design certification, plant life extension, and high level waste (HLW) repository licensing.

Description of the Current Environment

The new, more powerful, microcomputer technologies enable the staff to perform scientific modeling and simulation in distributed high-performance computing environments. These systems have the potential to greatly enhance the way the Agency conducts its mission activities in such areas as advanced reactor design certification, plant life extension, HLW repository licensing, and technical training of NRC the staff. Although many of the staff recognize the potential benefits of high-performance computing, most NRC offices are still in the experimental stages of using this new technology. More training and experience will be needed before the staff can take full advantage of high-performance computing applications in performing licensing and regulatory work. The following high-performance computing projects are currently underway in the program offices:

Office of Nuclear Reactor Regulation

In NRR, networked RISC/UNIX workstations have been installed to enable the staff to share computer codes and data between NRR Divisions. The staff uses these workstations to run computer models for analyzing advanced reactors and operating reactor events. For example, high-performance models have been used to more clearly understand the behavior and containment concerns for advanced light water reactors such as the AP600 and the SBWR. Models have also been used to analyze the significance of inspection findings at operating reactors. For example, the staff modeled a degraded high pressure emergency cooling system at an operating plant to determine the effect on safety.

Office of Nuclear Regulatory Research

The Office of Nuclear Regulatory Research (RES) staff use networked UNIX workstations to support evaluation and engineering activities associated with the design, acceptance, and implementation of computer codes. These codes perform analyses for graphical system interfaces, reactor simulation, plant process protection and control applications, seismic analysis, severe accident analysis, and other engineering simulations. The staff is moving existing codes from mainframe environments to these high-performance workstations; is updating, enhancing, or consolidating other codes; and is using satellite data communications to connect with outside networks such as the U.S. Geological Survey's National Seismic Network to obtain specialized data.

Office for Analysis and Evaluation of Operational Data

The Technical Training Center (TTC) is using a variety of analytical codes for upgrading of reactor simulator models and for development of classroom simulations. The classroom simulations will be accomplished using these codes on RISC/UNIX-based workstations to compute and display information that cannot be observed on simulator instrumentation. As part of this effort, the staff is using advanced graphics software for process control applications, obtained through the Halden Reactor Project, to develop the graphical interface through which the information will be dynamically displayed for classroom simulations. A necessary part of

this effort is the electronic exchange of data and code among AEOD, the Halden Reactor Project, and the national laboratories.

A high-performance Ethernet network enables TTC instructors to control the center's GE and Babcock and Wilcox (B&W) reactor simulators using Macintosh-based instructor stations. The recently-acquired Combustion Engineering (CE) simulator uses a RISC/UNIX-based Silicon Graphics 4D system and three Silicon Graphics workstations. These Silicon Graphics workstations and several Sun SPARCstations are, likewise, connected to the Ethernet network.

At Headquarters, the AEOD is developing a Reactor Safety Assessment System on a Sun SPARCstation which uses expert system technology to support the analysis of operational events at the NRC Operations Center.

Office of Nuclear Material Safety and Safeguards

NMSS has completed the initial installation phase of an Advanced Computer Review System that will be used to develop methods needed for review and licensing of the proposed Yucca Mountain repository by the DHLWM. Regulatory activities that will be supported by the system include (1) development of the NRC License Application Review Plan, (2) review of DOE pre-licensing activities, (3) development of guidance for DOE on regulatory requirements (4) iterative performance assessments (IPAs) of the repository, and, eventually, (5) review the license application. These functions will require the staff and its consultants to develop and use a variety of engineering and scientific computer programs to evaluate repository design and performance. The staff needs to communicate large computer files and source code to its consultants and to outside mainframe computers using INTERNET and other networks to work effectively at long distances on such tasks as the IPA. Graphical hardware and software will be needed to allow the staff and its consultants to analyze large quantities of complex spatial and temporal data describing repository site characteristics, environment, and projected repository behavior and to help communicate and publish complex engineering drawings, site characterization data, and results of computer models. To meet these needs, the review system design presently utilizes a high-performance UNIX-based network comprised of a SPARCstation server, SUN-IPX workstations, a high-resolution printer, and 486 microcomputers. Other components to be added include an advanced graphics server, a color printer, a digitizer, a scanner, a drum plotter, additional workstations, and extensive software and software support.

Strategy for Analytical and Scientific Computing

The Agency will continue and expand analytical and scientific computing on high-performance workstations to support licensing and regulatory activities. Following are future plans for individual NRC offices:

Office of Nuclear Reactor Regulation

NRC will continue using RISC/UNIX workstations to model and analyze reactor systems and containment behavior for advanced reactors. The staff will increasingly use models and scientific codes to analyze the significance of inspection findings and assess reportable events at operating reactors.

Office of Nuclear Regulatory Research

It is planned that RES activities requiring analytical and scientific computing on high-performance workstations will be continued and enhanced as needed. Future activities will include additional analytical codes and modifications to existing codes, graphical data transfers over high-speed communication lines, improvements in satellite data communications techniques, and faster data exchanges between workstations and on high-performance computing networks.

Office for Analysis and Evaluation of Operational Data

The TTC will continue to develop workstation-based classroom simulations using RISC/UNIX workstations at the best speed permitted by available resources, including coordinating with other offices to provide access, as requested, to the simulation codes and tools acquired through TTC procurements. The TTC will prepare to do advanced reactor simulation, as time is available, as part of the Multiple Advanced Reactor Simulator project and will work toward moving more of the full scope simulator models to the UNIX environment.

As a result of major software improvements to several of TTC's full scope simulators (completed for GE BWR/6, in progress for B&W, and currently planned for Westinghouse), the existing super-minicomputer systems are fully utilized with little or no excess capacity. Future enhancements will therefore require additional computer capacity. RISC-based processors capable of executing code from earlier platforms appears to be the best option for this needed additional computer capability. The new processors will be integrated in the TTC's high-performance network architecture, which enables the use of new UNIX tools while preserving the investment in older simulation software.

Office of Nuclear Material Safety and Safeguards

The Division of High-Level Waste Management will continue to develop the Advanced Computer Review System, described previously, according to the 3-year implementation schedule. Upon completion, the system will serve about 30 DHLW staff. IRM will assist NMSS by acquiring special commercial software and providing system support.

LIST OF ACRONYMS

ADM	Office of Administration
AEOD	Office for Analysis and Evaluation of Operational Data
APR	Agency Procurement Request
AUTOS	Agency Upgrade of Technology for Office Systems
BPR	business process reengineering
B&W	Babcock & Wilcox
CASE	computer-aided systems engineering
CE	Combustion Engineering
CNWRA	Center for Nuclear Waste Regulatory Analyses
DCFO/C	Deputy Chief Financial Officer and Controller
DHLWM	Division of High-Level Waste Management
DPA	delegation of procurement authority
DSO	designated senior official
e-mail	electronic mail
EPRI	Electric Power Research Institute
FAR	Federal Acquisition Regulation
FIP	Federal information processing
FIRMR	Federal Information Resources Management Regulation
FTP	File Transfer Protocol
FYP	five-year plan
GE	General Electric Company
GSA	General Services Administration
HLW	high-level waste
IPA	iterative performance assessment
IRM	Office of Information Resources Management
IT	information technology
LAN	local area network
LCM	life cycle management
NASA	National Aeronautics and Space Administration

NIH	National Institutes of Health
NMSS	Office of Nuclear Material Safety and Safeguards
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NUDOCS	Nuclear Document System
OMB	Office of Management and Budget
RES	Office of Nuclear Regulatory Research
RISC	Reduced Instruction Set Computation
SBWR	Simplified Boiling Water Reactor
SIRMO	Senior Information Resource Management Official
TAB	Technology Advancement Board
TCP/IP	Transmission Control Protocol/Internet Protocol
TTC	Technical Training Center
WAN	Wide Area Network

APPENDIX A - Agency IT Management

As a Federal agency, the NRC is required to manage its information technology resources according to OMB Circular A-130, which formally established the concept of information resources management. OMB Circular A-130 specifies that Federal agencies manage their information in an efficient, effective, and economical manner and comply with the information policies, principles, standards, and guidelines prescribed by the Director of OMB.

OMB A-130 also required that the head of each agency appoint a DSO for IRM. The DSO is responsible for performing the IRM functions assigned to the Agency by OMB A-130 including

- Reviewing the agency's IT activities
- Ensuring all FIP resource acquisitions are conducted as required by the Federal Acquisition Regulation and Federal Information Resources Management Regulation
- Ensuring that the agency's IT systems do not overlap or duplicate one another
- Implementing government-wide and Agency information policies, standards, and guidelines
- Reviewing and improving the accuracy and completeness of data and records
- Developing and annually revising a five-year plan for agency IT needs
- Maintaining an inventory of the agency's major information management systems

NRC Designated Senior Official

The Deputy Executive Director for Nuclear Materials Safety, Safeguards, and Operations Support is the NRC DSO for information resources management. The DSO has delegated authority for principal IRM functions to the Director, IRM, and the Director, ADM. The DSO has redelegated GSA's authority to acquire FIP resources for those IRM functions under the purview of each of the two office Directors and to sign all Agency Procurement Requests (APRs) to GSA for competitive procurements below a \$10 million threshold.

The DSO retained authority to sign APRs requesting a delegation of procurement authority from GSA for non-competitive procurements and for competitive procurements that exceed \$10 million. The DSO also retained authority for establishing and maintaining an overall IRM Review Program for major IRM activities.

Roles of the Office of Information Resources Management

IRM is responsible for providing information resource management services in the following areas:

"computer, telecommunications, and information services including database management, office automation, computer hardware and software, systems development, computer operations, timesharing, nation-wide telecommunications equipment and services, computer and systems security, the Information Technology Services Center, user training, document control and management, information collections, central files, records management and services, the library, graphics, and all necessary information support services to other NRC offices".
[NUREG-0325, Revision 16, March 15, 1993].

Roles of the Office of Administration

ADM is responsible for providing information resource management services in the following areas:

"Freedom of Information Act and Privacy Act requests, publication services, mail and distribution services, and access to NRC public documents through its Local Public Document Rooms"
[NUREG-0325, Revision 16, March 15, 1993].

Roles of Other Offices

NRC Headquarters and regional offices have their own mission-specific responsibilities that may require IRM activities. SIRMOS in major NRC offices have been appointed to assist the DSO in carrying out IRM responsibilities within their offices. The SIRMOS are responsible for ensuring that their organizations know and comply with Agency policies and basic Federal regulations for acquiring FIP resources and for developing and managing automated information systems. The SIRMOS also represent their organizations in reviewing aspects of NRC's IRM program and in preparing agencywide IRM plans, policies and budgets.

The NRC Deputy Chief Financial Officer and Controller (DCFO/C) is responsible for reviewing certain aspects of the design and operation of Agency financial systems to ensure that requirements of the Chief Financial Officers Act are met. The DCFO/C will review and concur in the design of information systems that provide, at least in part, financial and program performance data used in financial statements and reports.

General Services Administration Review of NRC's IRM Program

The GSA delegates certain authorities to the NRC for the acquisition of FIP resources and has an oversight role. As part of this oversight, GSA recently completed its first triennial review of NRC's Information Resources Management Program. GSA recommended that the Agency continue with activities to create and implement a strategic IRM plan connected to the Agency's Five-Year Plan.

In discussing and preparing this Strategic IT Plan, the staff considered the following recommendations from the GSA report:

- (1) Improve IRM oversight functions
- (2) Continue the strategic IRM planning process to ensure that plans are produced regularly, and that they address all aspects of planning and receive agencywide, executive-level approval
- (3) Develop a plan to modernize information systems based on agencywide planning
- (4) Establish a centrally managed IRM Review Program that focuses attention on major information systems
- (5) Continue the revision and improvement of its FIP acquisition processes
- (6) Develop an information system architecture that is linked with the strategic IRM plan

Additional Background Information

High Performance Computing

While agreeing with the program guidance proposed by the EDO in 1991 on the need for a long range computer strategy, the Commission requested in COMKR-91-002/COMFR-91-002 that the Agency accelerate the development and implementation of high performance computing and communication environments to support advanced reactor licensing and other programs. IRM and the affected offices are conducting these high performance computing efforts, discussed with Commissioners Rogers and Remick on February 10, 1993. The Agency's high performance computing requirements have now been incorporated into the broader information technology strategy and are addressed in Sections 3.2.4, "High-Performance Computing Infrastructure," and 3.3.4, "High-Performance Computing Applications," of the Strategic IT Plan.

General Services Administration Triennial Review of IRM

The General Services Administration (GSA) recently completed its first triennial review of NRC's information resources management program. The IRM Strategy Team considered the GSA findings and recommendations in preparing the recommended IT strategy. GSA made the following recommendation for the strategic planning process: "NRC should continue its strategic IRM planning process to ensure that plans are produced regularly, that they address all aspects of planning, and that receive agencywide, executive-level approval."

Membership

IRM REVIEW BOARD

Eric S. Beckjord, RES
Robert M. Bernero, NMSS
Gerald F. Cranford, IRM
James L. Milhoan, RIV
Frank J. Miraglia, NRR
Patricia G. Norry, ADM
Ronald M. Scroggins, OC
James H. Sniezek, DEDR
Hugh L. Thompson, Jr., DEDS

IRM STRATEGY TEAM

Donald L. Chery, NMSS
Dennis C. Dambly, OGC
Lloyd J. Donnelly, RES
(Alternate - Gerald K. Tomlin, RES)
Francine F. Goldberg, IRM
Edward L. Halman, ADM
John C. Hoyle, SECY
(Alternate - Sandy Joosten, SECY)
William F. Kane, Region I
Malcolm R. Knapp, NMSS
Charles E. Fitzgerald, IRM
James F. McDermott, OP
George H. Messenger, IRM
Peter J. Rabideau, OC
Lynn B. Scattolini, OEDO
Sheldon A. Schwartz, OSP
R. Lee Spessard, AEOD
James Turdici, OEDO
John C. Voglewede, OEDO
Frank P. Gillespie, NRR
(Alternate - Richard H. Wessman, NRR)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 21 1991

MEMORANDUM FOR: Chairman Carr

FROM: James M. Taylor
Executive Director
for Operations

SUBJECT: GUIDANCE FOR THE FY 1992-1996 FIVE-YEAR PLAN

As required by the September 23, 1987, charter, the Steering Committee for Strategic Planning has reassessed the strategic guidance for the NRC FY 1992-1996 Five-Year Plan (FYP) development. As part of the reassessment, the steering committee considered (1) input from the committee members, which included the views of their subordinate managers; (2) the Commission's Principles of Good Regulation; (3) the results of the Regulatory Impact Survey of reactor licensees; (4) reports of the Nuclear Safety Research Review Committee; and (5) various OIG and GAO reports. Based on this review, the steering committee recommends strategic changes in the following areas:

1. future reactor licensing;
2. reactor operating licensing;
3. reactor operations improvements;
4. Clean Air Act implementation;
5. remedial actions at uranium mills;
6. high-level waste repository and monitored retrievable storage;
7. consolidation;
8. NRC long-range computing;
9. training; and
10. financial management.

The proposed text changes, including a brief rationale, for each of the above areas are shown in Enclosure 1. The changes are shown as modifications to the existing FYP. In addition to the changes proposed in the enclosure, the committee notes two additional areas where modifications to the strategic guidance may be necessary. These are the Licensing Support Systems (LSS) and the Emergency Telecommunications System (ETS). With regard to LSS, the Commission has efforts underway to address the LSS program and budget responsibility. A commission paper addressing funding of the ETS (industry

versus NRC) is being developed. Because the Commission is expected to be addressing both of these programs in February or March, the committee did not address them. The FYP should be modified, as appropriate, based on Commission decisions on the LSS and ETS program.

The staff has also reviewed and updated the goals, assumptions, objectives, and guidance in the existing Five-Year Plan to reflect factual, clarifying, editorial, and fact-of-life (e.g., to implement Commission decisions) changes. These changes, including a restructuring of the Nuclear Safety Research (NSR) Mission Area to consolidate all advanced reactor research in a single program, are shown in Enclosure 2.

I recommend Commission approval of the changes in Enclosures 1 and 2.

Original Signed By:
James M. Taylor
James M. Taylor
Executive Director
for Operations

Enclosures:

1. Recommended Strategic Changes to FYP
2. Recommended Revisions To Goals, Assumptions, Objectives and Guidance in FYP

cc: Commissioner Rogers
 Commissioner Curtiss
 Commissioner Remick
 SECY
 OGC
 OIG
 (G:\DBA\GUIDFYP.GS)
 * see previous concurrence

OFFICE	:OC/BOPS	:OC/PABI	:OC/PABII	:OC/BDA	
NAME	:JSilber/vmk*	:DCorley*	:CSeelig*	:JEvans*	
DATE	:2/14/91	:2/14/91	:2/14/91	:2/14/91	
OFFICE	:OC/DBA	:OC	:OC	:EDO	:EDO
NAME	:PRabideau*	:JFunches*	:RScroggins*	JSniezek	:JTaylor
DATE	:2/19/91	:2/19/91	:2/19/91	:2/ /91	:2/21/91

INFORMATION RESOURCES MANAGEMENT

PROGRAM GOAL

- o Ensure that the NRC maintains efficient and effective information resource management services that support the agency's staff in meeting the NRC mission, goals, and objectives.

PROGRAM PLANNING ASSUMPTIONS

- o NRC headquarters staff will be consolidated in White Flint during 1993.
- o NRC will continue to maintain with the development of a rule to upgrade the Emergency Notification System, with a final rule issued in FY 1992. In the interim, NRC will rely on the public switch network and examine other possible alternatives as a backup, until the Emergency Telecommunications System is implemented.
- o Shared data base growth and utilization will continue to be the focal point for future safety, management, and administrative systems applications. Centralized shared data will be interfaced with distributed local area network (LAN)-based data and applications, as appropriate.

PROGRAM OBJECTIVES AND GUIDANCE

1. Allocate information management resources to support activities that contribute most effectively to the mission of protecting the public health and safety.
 - a. The NRC will develop a revised long range computer strategy by early FY 1992 to enable the agency to take full advantage of the evolving microcomputer, local area network, telecommunications, and distributed database technologies in a manner that balances individual customer office needs with the agency's need for access to centralized "corporate" information.
 - ab. The NRC will continue to assess, on an ongoing basis, if information technology is being used efficiently and effectively to accomplish its health and safety mission.
 - bc. The NRC will provide appropriate support for agency compliance with applicable statutes and regulations.



OFFICE OF THE
SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555
April 10, 1991

COMKR-91-002/COMFR-91-002

MEMORANDUM FOR: James M. Taylor
Executive Director for Operations

FROM: *U. J. Chilk*
Samuel J. Chilk, Secretary

SUBJECT: IMPLEMENTATION OF NRC LONG RANGE COMPUTER
STRATEGY

The Commission (with all Commissioners agreeing) requests that the agency consider accelerating the development and implementation of engineering/communication high performance computing environments to the extent feasible. In addition, the Commission believes the NRC must reacquire computational capability formerly available within the staff and now routinely provided by contractors. In completing its review of the NRC long range computer strategy, the staff should not only address the use of advanced equipment and technology, but also the necessary staff skills and training to realize the potential enhancements to productivity and quality that new technologies offer.

The staff is requested to review and comment on the attached memorandum by Commissioners Rogers and Remick in terms of staff's technical review and audit capability. The staff should identify what resources would be necessary to complete its review of the suggested short term pilot programs and the NRC long range strategy for using analytical codes as an aid to technical review and audits and to implement the strategy by September 30, 1991, or sooner if feasible.

(EDG) NRR

(SECY Suspense: 5/30/91)

The Commission recognizes that the proposal in COMKR-91-002/COMFR-91-002 to create an outside NRC ad-hoc advisory committee of leading technical experts to review the NRC plans, programs, and capabilities in the use of computers and computerized systems to carry out the agency's current and future activities in an efficient and timely manner may require up to two or three years. The staff should provide its input on the benefits of creating an ad-hoc advisory committee and comment on the most expeditious manner of creating such a committee.

(~~EDG~~) IRM

(SECY Suspense: 6/30/91)

Attachement:
As stated

Rec'd Off. EDO

Date 7-11-91

Time 7:45 A

cc: Chairman Carr
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
OGC
GPA



OFFICE OF THE
COMMISSIONER

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

REQUEST REPLY BY 3-29-91

March 19, 1991

COMKR-91-002
COMFR-91-002

MEMORANDUM FOR: Chairman Carr
Commissioner Curtiss

FROM: Kenneth C. Rogers
Forrest J. Remick

SUBJECT: IMPLEMENTATION OF NRC LONG RANGE COMPUTER
STRATEGY

The Executive Director for Operations in his memorandum of February 21, 1991 to Chairman Carr on "Guidance for the FY 1992-1995 Five-Year Plan" forwarded recommended changes in ten areas by the Steering Committee for Strategic Planning. One of these is NRC long-range computing requirements (Number 8). The Steering Committee proposes allocation of information management resources to "develop a revised long-range computer strategy by early 1992 to enable the agency to take full advantage of the evolving microcomputer, local area network, telecommunications, and distributed data base technologies, in a manner that balances individual customer office needs with the agency's need for access to centralized 'corporate' information."

We believe the agency should proceed more aggressively in this area by actually initiating this strategy in 1992 rather than simply developing a strategy for future implementation. We believe that one way of implementation of the strategy could be achieved by procurement, installation, and demonstration/utilization of UNIX-based RISC operating workstations, in addition to expanding the use of MS-DOS microcomputers, in FY 1992-1993 in the Offices of Nuclear Reactor Regulation, Nuclear Material Safety & Safeguards, Analysis and Evaluation of Operation Data, and Nuclear Regulatory Research with the full support of the Office of Information Resource Management. We believe that the initiatives in these offices outlined in our memorandum to Mr. Taylor of March 5, 1991, would implement the strategic change in NRC's long range computer strategy better than the manner in which the Steering Committee proposes.

We recognize that additional effort would have to be expended by the Office of Information Resources Management to establish agency-wide standards, equipment requirements, training, and procedures, and that these important activities should precede

actual deployment of the UNIX-based workstation environments, as an example, that are either proposed or in various stages of implementation. We believe that IRM should proceed expeditiously with this activity, while active planning, procurement, and implementation continues in parallel by each of the four Offices on their identified programs.

We believe early demonstration pilot projects in each of the offices may be one useful way to demonstrate the integration of training requirements, equipment capability, offsite and NRC interoffice communication capability, and productivity gains from operational results. We suggest that one of the more advanced programs cited in our March 5 memorandum be selected for this purpose and given priority attention by the senior staff.

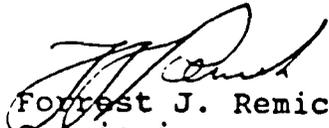
In general, we believe that the staff should be encouraged to accelerate the development and implementation of engineering/communication high performance computing environments within the agency for purposes of improving professional productivity through use of current technology, improving the quality of NRC technical assessment and review activities, providing a more challenging environment for our professional staff, permitting more efficient exchange and interpretation of technical design data for advanced reactor reviews with applicants, and offering a challenging environment for NRC Fellows and new hires with engineering and science degrees who seek "hands on" technical analysis facilities with which to work.

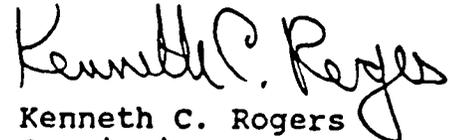
We therefore propose that the Commission request Mr. Taylor to incorporate appropriate modifications to Enclosures 1 and 2 of his February 21, 1991 memorandum to reflect the strategic changes we recommend. We would suggest for example that Enclosure 1 be reworded as shown in the attachment to this memorandum, and that the staff incorporate appropriate changes in Enclosure 2 of his February 21, 1991 memorandum as appropriate.

We also propose the immediate creation of an outside of NRC ad-hoc advisory committee of leading technical experts to review the NRC plans, programs, and capabilities in the use of

computers and computerized systems to carry out the agency's current and future activities in an efficient and timely manner.

SECY, please track.


Forrest J. Remick
Commissioner


Kenneth C. Rogers
Commissioner

cc: EDO
SECY
OGC
NMSS
NRR
AEOD
RES
IRM
OC

8. NRC Long-Range Computer Strategy

ISSUE: What should be the future directions for NRC's computing?

PROPOSED CHANGES:

1. Allocate information management resources to support activities that contribute most effectively to the mission of protecting the public health and safety.

begin implementation of a
~~a. The NRC will develop a revised long-range computer strategy by early 1992 to enable the agency to take full advantage of the evolving microcomputer, local area network, telecommunications, and distributed data base technologies, in a manner that balance individual customer office needs with the agency's need for access to centralized corporate information.~~

- c. b. The NRC will continue to assess, on an ongoing basis, if information technology is being used efficiently and effectively to accomplish its health and safety mission.
- d. c. The NRC will provide appropriate support for agency compliance with applicable statutes and regulations.

CROSS REFERENCE

Proposed changes appear on page VIII-17 of Enclosure 2.

RATIONALE FOR CHANGE:

3-5 sub
 In the next ~~2~~ years, the continuing evolution of microcomputers, telecommunications, and data base technologies is expected to have a major impact on the NRC computing environment. The agency needs to develop and implement long-range computing resources strategy that will enable it to take full advantage of this evolving technology.

- OK.*
- b. The NRC will provide appropriate support for increased utilization of microcomputers in for such applications as: scalable processing architecture for seismic and structural analysis (NRR), analysis of plant thermohydraulic transients and operational event analysis with the Nuclear Plant Analyzer (RES), emergency planning strategies in the Operations Center (AEOD), and geoscience analysis activities associated with radioactive waste site facility reviews (NMSS).



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SEP 18 1991

MEMORANDUM FOR: The Chairman
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: STAFF COMMENTS ON PROPOSAL TO CREATE AN AD HOC ADVISORY
COMMITTEE TO REVIEW NRC PLANS, PROGRAMS AND CAPABILITIES FOR
THE USE OF COMPUTERS AND COMPUTERIZED SYSTEMS

In a memorandum dated March 19, 1991, which discussed various aspects of the NRC's implementation of a long range computer strategy, Commissioners Rogers and Remick proposed "... creation of an outside of NRC ad hoc advisory committee of leading technical experts to review the NRC plans, programs and capabilities in the use of computers and computerized systems to carry out the agency's current and future activities in an efficient and timely manner." On April 10, 1991, a Staff Requirements Memorandum (SRM) was issued asking the staff to provide its input on the benefits of creating an ad hoc advisory committee, and to comment on the most expeditious manner for creating such a committee.

Since the issuance of the March 19, 1991, memorandum and the subsequent SECY paper dated April 10, 1991, several developments have taken place that support substantially the points raised by Commissioners Rogers and Remick and underscore the NRC's commitment to an effective advanced computing strategy. Two Commission papers (SECY-91-247 and SECY-91-226) were developed, one dealing with the use of computers and computer graphic-aided reviews for advanced reactor designs and a second detailing the staff's expertise and capabilities to utilize analytical codes. The second paper described several pilot projects, scheduled for implementation during FY 1992, that will utilize advanced technology similar in scope to the approaches presented in Commissioners Remick and Rogers' memorandum.

The staff acknowledges the need to proceed aggressively and to accelerate the schedule for implementing a revised long range computer strategy. With respect to the areas discussed in the Commission papers, this commitment is reflected in the aforementioned pilot projects, the creation of an advanced technology work group cited in SECY-91-247, and the advanced technology workshop planned for early calendar year 1992. However, the agency's complete long range computer strategy should encompass a range of computing and telecommunications activities that is much broader than those discussed in the Commission papers, which dealt primarily with the staff's use of advanced technology in the regulatory process. The long range strategic plan should address the integration of technologies required to position the NRC to handle

the many and diverse issues that will confront the agency during the 1990's and beyond. Included among these technologies are: (1) large scale information capture, storage, and retrieval systems; (2) advanced computer networking topologies; (3) improved interactive mid-range and mainframe computing systems; and (4) state-of-the-art telecommunications equipment. The entire plan must be supported by a progressive software development program that supports the use of both computer aided software engineering tools and a robust standards implementation program.

Although we are beginning to make meaningful progress towards this broader goal, we are still in the beginning phase of this effort. Our first action will be to establish a permanent strategic planning function in IRM and involve the new IRM Strategic Steering Board, formed in April 1991, in the planning process. This Board, which is comprised of senior level managers from the major program offices, was established to provide a forum for building agencywide consensus regarding major IRM policies and programs. IRM also plans to evaluate the use of existing government and commercial organizations that provide independent advice and expertise on the application of information technologies. These groups could provide benefits similar to the advisory group proposed by the Commission.

The proposal to create an ad hoc external advisory committee to review NRC's information technology program has been considered by the IRM staff and the members of the Strategic Steering Board in light of the new planning initiative described above. The staff and Board believe that an advisory committee might be beneficial once key IRM planning components are in place and functioning and the framework for the ongoing planning process has been established. Without this framework and a clearer definition of the agency's goals, objectives, and requirements for information technology, the agency would not be in a position to fully benefit from the expert advice and review that such a committee might provide. In addition, the new IRM director would like an opportunity to review the agency's IRM programs and requirements, and the effectiveness of existing resources and advisory groups before considering the addition of an external group.

The staff recognizes the possible value of forming an external ad hoc advisory committee on computers and computerized systems once the agency has better defined its ongoing information planning process and has made progress towards the development of a strategic plan (approximately 15-18 months from now). At that time the director of IRM, with the advice of the Strategic Steering Board, will assess the effectiveness of the IRM planning process and make a specific recommendation concerning how an external advisory group might contribute to that process.

Original Signed By:
James M. Taylor
James M. Taylor
Executive Director
for Operations

Enclosure: IRM Strategic
Steering Board Charter

cc: SECY
OGC

CHARTER
INFORMATION RESOURCES MANAGEMENT
STRATEGIC STEERING BOARD

A. GENERAL.

With the increased role of information technology in the agency's missions and programs, the need for senior management to actively participate in Information Resources Management (IRM) planning processes is essential to an effective IRM program. To achieve that objective, the Information Resources Management Strategic Steering Board (SSB or Board) is established by the Executive Director for Operations (EDO) to advise and assist the Director, Office of Information Resources Management, the Deputy Executive Director for Nuclear Materials Safety, Safeguards & Operational Support (DEDS), and the EDO in the formulation of the agency's strategic IRM goals and objectives and the identification of agencywide IRM priorities.

B. RESPONSIBILITY.

The SSB is established to provide a forum for agencywide consideration of and development of consensus on the policies, priorities, plans and directions that will be developed and implemented by the Office of Information Resources Management. The Board's functions include:

1. Providing a forum for senior NRC management to discuss and reach consensus on IRM issues, to assess agency-wide impacts of IRM actions, and to build agencywide commitment to IRM policies and strategic plans.
2. Providing a forum to develop consensus guidance for IRM as to priorities among major new initiatives or requirements that are not included in the IRM Five-Year Plan and Budget, and for which the Office of Information Resources Management requires supplemental funding or an adjustment of priorities.
3. Providing a forum for IRM, Users Groups, and program offices to recommend major, new initiatives in IRM-related services, programs or policies, and recommending actions that could be taken to enhance IRM.
4. Providing strategic assessments of IRM to the DEDS, the EDO, and the agency's Strategic Planning Committee to ensure that IRM plans and major programs are consistent with agency goals, objectives and mission requirements.
5. Reviewing, commenting on, and endorsing through consensus the IRM Vision '96 plan, the IRM Five-Year Plan, strategic plans for the agency's computing environment, and other major IRM projects.

C. MEMBERSHIP.

The SSB will be chaired by the Director, Office of Information Resources Management, who will report to the Deputy Executive Director for Nuclear Materials Safety, Safeguards & Operational Support (DEDS), and its membership

will include representatives of the following offices: Office of Nuclear Reactor Regulation (NRR), Office of Nuclear Material Safety & Safeguards (NMSS), Office of Nuclear Regulatory Research (RES), Office of the Secretary (SECY), Office for Analysis and Evaluation of Operational Data (AEOD), Office of the Controller (OC), and the Office of Administration (ADM). All other offices will be represented on an annual rotational basis, beginning in 1991 with the Office of Consolidation (CONS). The Regions will be represented on an annual rotating basis by either a Regional Administrator or Deputy Administrator. In designating their members, Office Directors should ensure that their designee is in a Senior Executive Service (SES) position. Members of the Board should be individuals who have a knowledgeable appreciation of the importance of information technology and resource management to the agency's mission.

To ensure continuity, offices and Regions that participate on the Board on a rotational basis will be kept informed of all Board activities, and should communicate any concerns or comments they may have to the current small office or Regional member on the Board.

ADVISORS.

To perform its functions, the SSB will require assistance that involves technical knowledge and/or professional expertise that is represented in several NRC organizations. To assure that such support is readily available to the SAB, the Director, Division of Computer & Telecommunications Services (DCTS), the Director, Division of Information Support Services (DISS), the Director, Division of Contracts & Property Management (DCPM/ADM), the Deputy Director, Office of Personnel (OP), the Assistant General Counsel for Administration (OGC), the Licensing Support System Administrator, the Director, Office of Consolidation, and others, as the Chairman, SSB, designates, may serve as Advisors to the SSB.

TECHNICAL WORKING GROUPS.

The Board may establish Technical Working Groups to examine areas of particular concern to the Board. Such Working Groups will include a representative designated by the Director, Office of Information Resource Management, and any other members as the particular task may require. Participation will be with the approval of the Office Director to whom the named Working member reports.

SECRETARY.

The Executive Assistant, IRM, will serve as Secretary to the SSB.

D. MEETINGS.

The Board will meet at the call of the Chairman, SSB, but at least quarterly. The Secretary will prepare an agenda for approval by the Chairman, SSB, and circulate the agenda at least thirty days in advance of a scheduled meeting. The Secretary will prepare a summary of each meeting for distribution to members within ten days following each meeting. The Secretary will prepare draft and final Board reports and other communications for the concurrence of the members

and the approval of the Chairman, SSB.

E. REPORTS AND RECORDS.

The Secretary will maintain the records of the Board's activities and prepare reports and communications for the signature of the Chairman, SSB. The Secretary is responsible for all administrative matters, including dissemination of agenda, minutes, reports and correspondence. Specific reports required of the Board include:

1. Annual Recommendations on IRM Five-Year Plan (February or March)
2. Semiannual Report on Activities of the Board (April, September)
3. Annual Recommendations to the EDO's Strategic Planning Committee (February)
4. Annual Review of IRM Vision '96 Progress (November)
5. Ad Hoc Recommendations and/or Findings (as required)

Reports are distributed as follows: the EDO, the Chairman, SSB, and members of the Board and Technical Advisors, unless an action of the Board has been initiated at the request of the Chairman or Member of the Commission. In that event, copies will go to all members of the Commission.

F. WORK PRACTICES AND PROCEDURES.

1. Any NRC office or region may submit comments or proposals for consideration to the SSB, and the SSB may gather comments and information from NRC offices. Additionally, technical Users Groups are encouraged to submit comments and proposals to the SSB for consideration, and the SSB will actively seek advice from such groups. All submittals to SSB should be to the Chairman, SSB, who through the Secretary, will make distribution to all the Members and Technical Advisors.
2. The SSB will conduct regularly scheduled meetings during November, February, May, and July, and, as circumstances dictate, the Chairman, SSB, may call meetings on an ad hoc basis.
3. As a requirement for a Technical Working Group is identified, and its purpose is defined, the Board will provide a specific task description, schedule and identify any additional resources required, e.g., expert consultant support.
4. The Secretary will prepare and issue all meeting agenda, minutes and reports at the direction of the Chairman, SSB, and make all papers, vugraphs or other documentation presented to the SSB available to the Members and Technical Advisors at least thirty days before a SSB meeting is convened. The Secretary will retain all records of the SSB and make all arrangements for meetings.
5. SSB members or their alternates are expected to attend all meetings. Technical Advisors to the SSB may attend any meeting, but must attend those meetings for which the agenda requires their participation. Technical Working Group members will attend SSB meetings when the agenda requires

their participation. Offices, technical User Groups, and others will participate by making presentations at the request of the SSB.

INFORMATION RESOURCES MANAGEMENT
STRATEGIC STEERING BOARD
MEMBERSHIP

Full Member Offices

Office of Administration
Office for Analysis and Evaluation of Operational Data
Office of the Controller
Office of Information Resources Management
Office of Nuclear Reactor Regulation
Office of Nuclear Material Safety and Safeguards
Office of Nuclear Regulatory Research
Office of the Secretary

Regional Member Offices

Region I (1991)
Region II (1992)
Region III (1993)
Region IV (1994)
Region V (1995)

Rotational Member Offices

Advisory Committee on Reactor Safeguards
Atomic Safety and Licensing Board Panel
Office of Consolidation (1991)
Office of Enforcement
Office of Governmental and Public Affairs
Office of Inspector General
Office of Investigations
Office of the Licensing Support System Administrator
Office of Small and Disadvantaged Business Utilization/Civil Rights

Advisor Member Offices

Office of Administration
Office of Consolidation
Office of the General Counsel
Office of Information Resources Management
Office of the Licensing Support System Administrator
Office of Personnel

Distribution:

JTaylor
JSniezek
HThompson
JBlaha
EDO r/f
GCranford

Document Name: G:JOAN.CEJ

*See previous concurrence

IRM
GCranford*
9/13/91

DEDS
HThompson*
9/13/91


EDO
JTaylor
9/13/91