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POLICY ISSUE
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January 22, 1991

SECY-91-016

For: The Commissioners
From: James M. Taylor
Executive Director for Operations
Subject: TECHNICAL RECRUITMENT, DEVELOPMENT, AND RETENTION PLANNING
AND IMPLEMENTATION

Purpose: To inform the Commission about the staff's overall plans for the recruitment, development, and retention of employees and the planning and implementation status of seven current key technical programs and activities within the overall plan. Two of these programs have previously been described to the Commission (i.e., NRC Graduate Fellowship Program for Health Physicists and Engineers, SECY 90-281, and Distinguished Engineers and Distinguished Scientists, SECY 90-287).

Background: To prepare for anticipated shifts in population, skills mix, and other changes, the NRC needs to evaluate its career management programs to ensure that they will be responsive to current and new mission requirements as the workforce changes. During the next few years, the NRC can expect to lose many experienced employees as they reach retirement age or accept positions in private industry and other government agencies. At the same time, the employment market for experienced nuclear engineers, health physicists, and other selected engineering/scientific disciplines is both highly competitive and limited in size. The future balance of NRC's workforce will shift more toward a higher number of entry level employees.

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Recent recruitment activities and the employment history of recent hires demonstrate that the nuclear-related experience level of available new employees is lower than in the past. Though our salary scale is competitive, we are generally bringing new employees into high-cost geographic areas. The Federal Employees Pay Comparability Act of 1990 will somewhat ameliorate this situation by providing for such things as geographic adjustments and locality pay. However, we cannot depend primarily on hiring experienced personnel. Therefore, our career management activities must focus to a greater degree on new talent.

The NRC must plan, develop, and coordinate its personnel programs to identify skills requirements and address its short-term and long-range resource requirements. Personnel programs and activities fit into one or a combination of three major groupings: recruitment, development, and retention. Currently, there are a number of programs being developed or revised that are directed toward improving our recruitment, development, and retention capabilities for critical technical skills.

Discussion:

NRC Workforce Strategic Plan. The staff will be developing an NRC workforce strategic plan. Through the NRC workforce strategic plan, we will project where our skills shortfalls will be occurring over the next ten years. We plan to implement a comprehensive approach to recruiting, developing, and retaining the high-quality talent base necessary to accomplish our ongoing and evolving nuclear regulatory mission. We will model current and projected skills capabilities and requirements by factoring in key indicators including skill level mix, turnover/attrition rates, retirement projections, compensation and benefits projections, and so on. The prototype plan will be developed by the end of the fiscal year.

Program office skills surveys will be used to develop the strategic plan and determine the direction in which our recruitment, development, and retention programs will go. Program office directors, in coordination with regional administrators, are analyzing and identifying current and projected skills needs. As these staffing needs are factored into our projected staffing plans for the out years, they will be inputs to the model. Then attrition, turnover, retirement, and other similar data will be added to project future workforce needs.

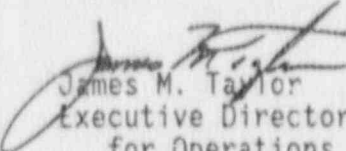
Program Initiatives. Current program initiatives are focused on recruitment and development activities which will provide the greatest return on investment. These programs are aimed at recruitment, retention, and development of both entry level and experienced staff.

1. The NRC Cooperative Education Program is a recruitment activity which provides study-related experience to potential entry level candidates before college graduation.
2. The NRC Intern Program is the basic new entry level professional employee development program designed to provide a comprehensive two-year mix of formal training, rotational assignments, reading and other development activities for recent college graduates.
3. The Graduate Fellowship Program combines recruitment, specialized development, and retention elements and is being designed to provide for potential experts and prevent erosion of expertise in health physics and specialized engineering disciplines.
4. The Visiting Fellows Program for select outside candidates is designed to recruit special experts in health physics, nuclear engineering, and other specialized engineering disciplines for one- to two-year term appointments.
5. The Senior Fellows Program is intended to develop seasoned NRC employees as senior technical experts whose qualifications will combine advanced education with advanced experience.
6. The Distinguished Engineer and Scientist Program, which will be available for a very limited number of personnel, is both a recruitment and retention program designed to attract highly recognized technical experts from outside the NRC and retain highly esteemed and professional recognized technical experts within the NRC.
7. Professional level development programs are those programs which address developmental needs of the more seasoned employees.

The staff will continue to develop these and other initiatives to recruit, retain, and develop our future workforce. Recently enacted employee pay and benefits legislation will provide more flexibility and incentives to assist in this area.

Summary:

We believe that staff is making good progress in anticipating and planning for future agency technical staffing needs. The Workforce Strategic Plan driven by program office skill surveys will ensure that individual recruitment, development, and retention programs support overall agency needs and goals.


James M. Taylor
Executive Director
for Operations

Enclosure:

Recruitment and Development Programs to Meet
Current and Future Technical Workforce Needs

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RECRUITMENT AND DEVELOPMENT PROGRAMS TO MEET CURRENT AND FUTURE TECHNICAL WORKFORCE NEEDS

- Purpose:** To describe the current key recruitment, training, and development efforts under way or in the planning stage to meet current and future technical workforce needs.
- Background:** The NRC's personnel planning involves a variety of recruitment, development, and retention programs applicable to various career levels (entry, mid-level, etc.). NRC will be developing a workforce strategic plan to update existing human resources programs, and new program possibilities will be studied for potential future application. Programs will be monitored to ensure that they will achieve the recruitment and retention objectives identified in the strategic plan and will contribute toward the goal of having one of the highest quality professional staffs in the Federal government.
- Based on preliminary skills needs analyses completed or under way in various offices, the staff is in the process of updating several existing programs and developing or implementing several new programs to address quality of workforce development and recruitment requirements. Three of these programs deal with entry level employees while four deal with the more seasoned employees.
- Recruitment:** While we must continue recruiting experienced people, we will need to expand our entry level programs such as cooperative education and our efforts to recruit recent college graduates as technical interns. We should use cooperative education as a feeder program leading into NRC intern and graduate fellowship programs. These three programs are being formulated to serve as major recruitment incentives to work at the NRC. They represent a comprehensive approach toward securing a quality future workforce with the skills that will be needed in five to ten years.
- Levels of Training:** Some programs, such as the graduate fellowship program, involve development/training through universities; others, such as the intern program, involve development/training primarily through in-house programs; while other programs, such as cooperative education and specialized new entry or professional level employee training programs, may combine both.

We recognize that new employees with Navy or commercial nuclear backgrounds will require less training than those without nuclear experience. Further, we must cross-train new non-nuclear trained professionals and current employees to increase the number of qualified technical employees in the areas where we have or anticipate shortages. Therefore, technical training needed to meet our objective must not only support the reactor regulatory and research program and the nuclear materials safety and safeguards program, but must also meet the needs of the various projected categories of new hires, i.e., interns, non-nuclear trained specialists, and technical professionals with prior nuclear experience. The approach for the in-house development of the primary staff expertise to carry out NRC regulatory responsibilities involves four basic types of programs within the overall NRC career management framework. They are: intern programs; developmental programs for non-nuclear trained specialists; developmental programs for technical professionals with prior nuclear experience; and developmental programs to retrain or expand skills of current technical employees. Each program fits a specific need in terms of career path and level.

Entry Level Recruitment and Development Programs and Activities

Cooperative Education:

The 1982 NRC directive annex describing the cooperative education program is being revised to reflect current program requirements and to provide more specific guidelines to supervisors and managers on how the program operates. This recruitment program combines college studies and study-related work experience. It encourages student interest in occupations and professions utilized by NRC and is an incentive in attracting students who are preparing for careers in many of the NRC shortage categories identified in the Strategic Plan. The revised program handbook also will contain the eligibility criteria for specified technical cooperative education students to receive scholarship assistance. Effective nurturing of these students can result in encouraging the best to go on to permanent careers in the NRC through application to the intern or the graduate scholarship programs or by applying for specific positions they have become interested in through their work experiences.

The Intern Program: The NRC intern program will encompass a revised directive and handbook describing the broad NRC policy and program procedures, the component offices' administrative documents describing how their specific training and development programs will operate, and the technical training support provided by the Technical Training Center (TTC).

While the intern program is primarily an entry level development program, in a broader sense it is also a recruitment program in that the coordinated training it provides serves as an attraction in recruiting new professionals to the agency workforce.

Recruitment for the intern program comes primarily from college recruitment activities conducted jointly by the Office of Personnel and representatives from the Office of Nuclear Regulatory Research (RES), Office of Nuclear Reactor Regulation (NRR), Office of Nuclear Material Safety and Safeguards (NMSS), Office for Analysis and Evaluation of Operational Data (AEOD), and the regions. Graduates from NRC-sponsored cooperative education programs are also prime candidates for the intern program.

Senior managers in AEOD and NRR have been prime players in identifying emerging in-house technical training requirements for interns. NRR is in the process of expanding its operating intern program, including having regional interns under the NRR umbrella, based on its preliminary long-range technical workforce skills assessment. The information and proposals developed through these efforts have coordinated the needs of NRR, AEOD, RES, and NMSS. In addition, NMSS is in the process of issuing its operational training program document. The proposed in-house training parameters for the reactor engineer, reactor health physics, and nuclear materials health physics intern programs are described below.

**Reactor Engineer
Intern Program:**

We project that there will be about 65 to 70 Headquarters and Regional interns in the Reactor Engineer Intern Program at any given time. These 65 to 70 include the 60 for NRR and the 5 to 10 for RES and AEOD. Each year about 30 new interns will be entering the program. This program is projected to fill 1/4 to 1/3 of the vacancies requiring reactor engineering expertise, assuming about 25 to 30 program graduates each year. This program will develop recent college graduates with limited experience.

Structured technical training and developmental assignments for these reactor engineer interns will begin with a practical engineering course, a new reactor technology course for interns, and a short site assignment to a reactor facility to reinforce reactor technology concepts. The interns will then be scheduled into a full series of reactor technology courses, including two weeks of reactor simulator training, as well as a new reactor safety course. At this point, the interns will have completed the same reactor technology training, including the same acceptance criteria, that more experienced personnel complete as part

of qualification programs. Integrated with the training will be work assignments at the home office during which time management can assess the performance of the new employee and the ability of the employee to handle technical tasks.

During the second year, the interns will have developmental or rotational assignments as determined by their Individual Development Plans (IDPs). They are as critical as the formal course training at the TTC in that these assignments provide an opportunity for the employee to gain a broad perspective and to apply knowledge gained from the courses. A flowchart that summarizes the typical activities of this program, other than specific assignments in the home office, is provided as Attachment (1).

As a result of the training, job work assignments, and other developmental activities, these interns should be able to assume technical review, inspection, and project management responsibility at the end of this two-year program. Each intern's rotational schedule, elements and standards, and IDP will be established within 30 days after the intern reports on board. This schedule will include the various training activities which will be based on long-range schedules provided by the TTC, as well as their rotational assignments.

The primary recruitment source for these applicants will be colleges and universities with program technical representatives actively participating with OP on recruiting trips. Students from the cooperative education program should be prime candidates for the intern program.

**Reactor Health
Physics Intern
Program and
Follow-up:**

Structured technical training and development activities for reactor health physics interns will include an applied health physics course, a follow-up course on intermediate health physics concepts, the new reactor technology course for interns, and a site assignment at a reactor facility. Following this intern program, these personnel will complete the remaining qualification requirements defined by NRC Inspection Manual Chapter 1245, "Inspector Qualifications." Following qualification as a health physicist, these personnel would have the option at a later time in their career of beginning the practical engineering course, a full series of reactor technology courses, including two weeks of reactor simulator training, and the new reactor safety course. At the end of this training, these reactor health physicists will have completed the same reactor technology training, including the same

acceptance criteria, that experienced reactor engineering personnel attend as part of qualification programs. About 15 existing and graduate health physics positions will require additional training of this nature to provide career advancement and broadening opportunities. A flowchart that summarizes these typical intern activities is provided as Attachment (2).

**Nuclear Materials
Health Physics
Intern Program:**

Structured technical training for nuclear materials health physics interns will depend on the amount of radiation training previously completed by the intern. Those interns with little or no prior radiation training will attend an introductory applied health physics course. These interns, along with interns hired with sufficient prior radiation training, will then receive practical training at selected Department of Energy nuclear materials sites. All interns will attend a new course in intermediate health physics concepts.

After completing the above modules comprising the intern program, the former interns will be brought into the mainstream of training and development available to other health physicists on the regional staff. This training and development is defined by NRC Inspection Manual Chapter 1245, "Inspector Qualifications," and the associated training and qualifications journal. Interns would be registered for these courses, with other members of the staff, when their supervisors feel they are ready for the material. These required courses cover such diverse areas as radiological accident assessment, inspection of licensees, diagnostic and therapeutic medical practices, and industrial applications such as radiography, well-logging, irradiators, and transportation.

Former nuclear materials health physics interns will accompany experienced NRC materials inspectors on a series of inspections of selected byproduct material licensees. These will be valuable learning experiences. The types and number of licensees inspected will be selected to provide customized experience based upon the needs of the office and the individual.

A flowchart that summarizes these typical activities is provided as Attachment (3).

**Additional Intern
Training:**

In addition to the training requirements discussed above, these individuals would also be required to take various in-house training courses such as "The Regulatory Process," "Fundamentals of Inspection," and so on. Training such as

this is typically required by documents such as NRC Inspection Manual Chapter 1245, "Inspector Qualifications."

Graduate Fellowship Program:

The graduate fellowship program is primarily a recruitment program, but combines with it elements of development and retention activities. It is being designed to build a highly qualified staff and prevent erosion of expertise in health physics and specialized engineering disciplines. This program has been approved by the Commission (SECY-90-281) and is now in the implementation phase. This program is targeted at the junior/intermediate professional level. It is proposed primarily for the Master's degree level, but with potential for extension to the Doctoral level for certain individuals. The cooperative education program could provide a base for recruitment into this program. Retention aspects include its position as a powerful motivator to employees to stay with an organization committed to enhancing the skills and knowledges of its professional workforce through formal development opportunities. This program requires a continued service obligation of two years for each academic year of study completed.

Professional Level Recruitment, Retention, and Development Programs

Visiting Fellows Program:

The visiting fellows program is being evaluated as a proposed recruiting program to attract specialized expertise from outside the NRC to work on activities and projects for approximately one to two years. This concept was discussed in SECY 90-275, Implementation of the Medical Visiting Fellows Program. Based on experience from the Medical Visiting Fellows Program, we will assess the benefit and applicability to other disciplines such as health physics, nuclear engineering, and other specialized engineering disciplines. This program has potential for providing role models for young NRC professionals and giving them a chance to expand their experiences and knowledges by working with a variety of outside experts.

Senior Fellows Program:

The senior fellows program is the in-house companion to the visiting fellows program and is a workforce quality development program for seasoned NRC professional employees at the advanced intermediate to senior professional levels. It would provide the opportunity for experienced NRC individuals to pursue a Master's or Doctoral Degree or other specific post-Doctoral work. It would be a retention program also, in that it offers the NRC technical employee the chance to maintain, enhance, or expand professional skills, an option that may not be readily available

elsewhere. This program also requires a continued service obligation.

**Distinguished
Engineer and
Scientist Program:**

The distinguished engineer and scientist program recruits from within and outside NRC when there is a need for nationally recognized expertise in a given area. The opportunity to work with this expert may be a retention incentive for prospective and current NRC employees. The Commission has approved the program concept (SECY-90-287). A directive/handbook describing the policy and specific program criteria has been reviewed by the major offices and will be forwarded to the Commission.

**Professional Level
Development
Programs:**

These are customized programs which address the developmental needs of the more seasoned employees. These programs would be identified by the offices and regions based on an identified training need and may be formal or informal, depending on the circumstances. Two such proposed programs designed by NRR in conjunction with the TTC are described below.

**Developmental
Program for
Non-Nuclear
Trained
Specialists:**

NRC recruits and hires highly qualified non-nuclear trained employees with potential for assuming professional nuclear assignments upon completion of reactor engineering training. Personnel in this category will constitute about 30 of the reactor program replacement FTE each year. The personnel recruited for these positions will have a specialty in some area such as power distribution, diesel generators, etc., but will typically have little or no nuclear training. These personnel will be immediately useful in their specialty area, but will require substantial development to broaden their backgrounds and make them more useful. Technical training for these non-nuclear trained specialists will, therefore, be the same as that provided for reactor engineer interns. However, the time to complete this training will be adjusted to allow earlier use of their expertise in the specialty area. These personnel will participate in rotational assignments at later points in their career. A flowchart that summarizes the typical activities of this program is provided as Attachment (4).

IDPs for these personnel should be established within 60 days of reporting. The recruitment source for this

category of personnel will be various professional society meetings, job fairs, employee contacts, and similar recruitment strategies planned with OP.

**Developmental
Program for
Technical
Professionals
With Prior
Nuclear
Experience:**

NRC recruits and hires highly qualified employees with experience in the nuclear field. Personnel in this category will constitute about 30 of the reactor program replacement FTE each year. These personnel require less training and development activities as a result of their U.S. Navy or commercial nuclear industry experience. These personnel are able to begin the reactor technology training required by the NRC Manual Chapter 1245, "Inspector Training Requirements," or other governing documents shortly after their entry on duty. A flowchart that summarizes these typical activities is provided as Attachment (5).

Personnel in this category will fill positions in program areas such as project management, technical review, inspection, and operator licensing. Applicants for this category will come from recruitment at various professional meetings, NRC advertising, professional contacts, and job fairs.

**Anticipated
Training
Results:**

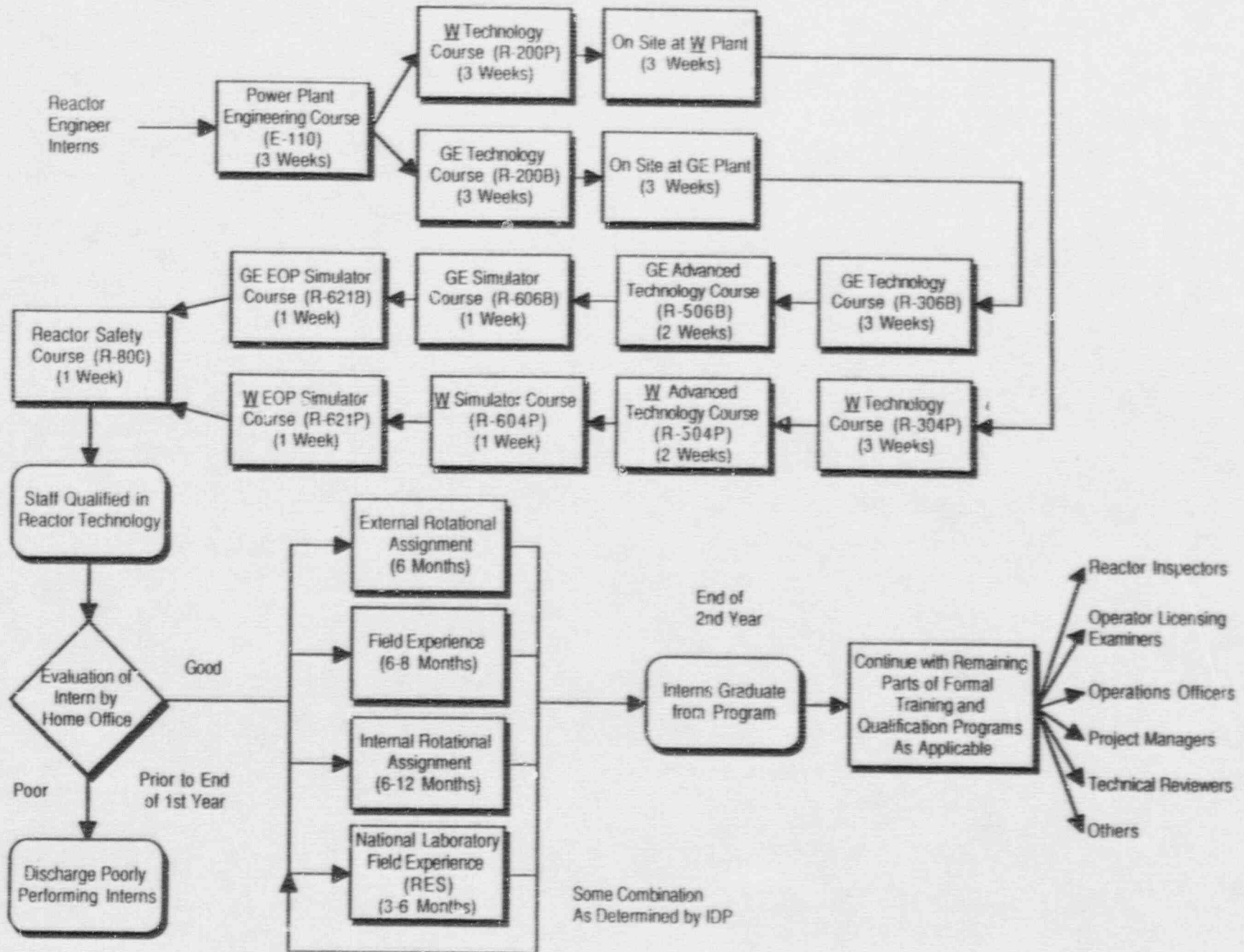
Utilization of the above programs will provide the NRC with a broad spectrum of new and highly trained quality employees. The combination of experienced and entry level hires will balance our workforce and provide long-term stability and continuity. The level of reactor technology training for each category of new employees for the reactor program and for subsequent training for reactor health physicists will provide for interchangeability between technical positions across program offices. The adoption of the full series of reactor technology courses as a common baseline requirement will gradually increase the technical expertise of the NRC staff as a whole.

**Realignment of
Resources:**

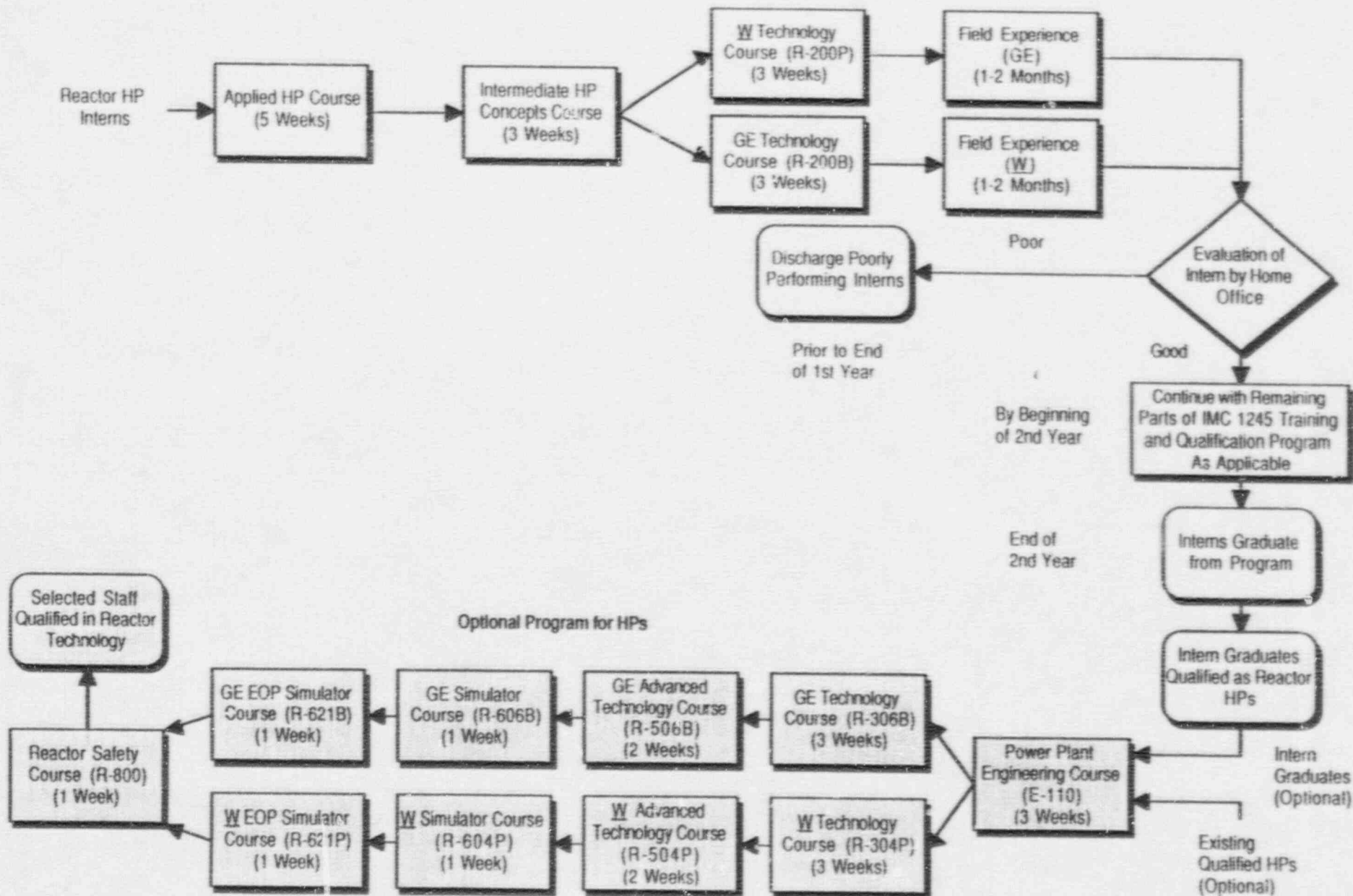
Increased use of the Intern Program by the regions, NRR, RES, AEOD, and NMSS, as well as increased need for in-house training for new professionals coming into the NRC above entry level will result in additional workload and resource requirements for the TTC.

The November 1990 FY 1991-1995 Five-Year Plan (FYP) provides an additional \$800K and 2 FTE to the TTC budget in FY 1992-1995 for technical training to support the intern programs. Initial development and implementation for portions of this training will begin in FY 1991. Refinements of resource needs will be presented in subsequent versions of the FYP.

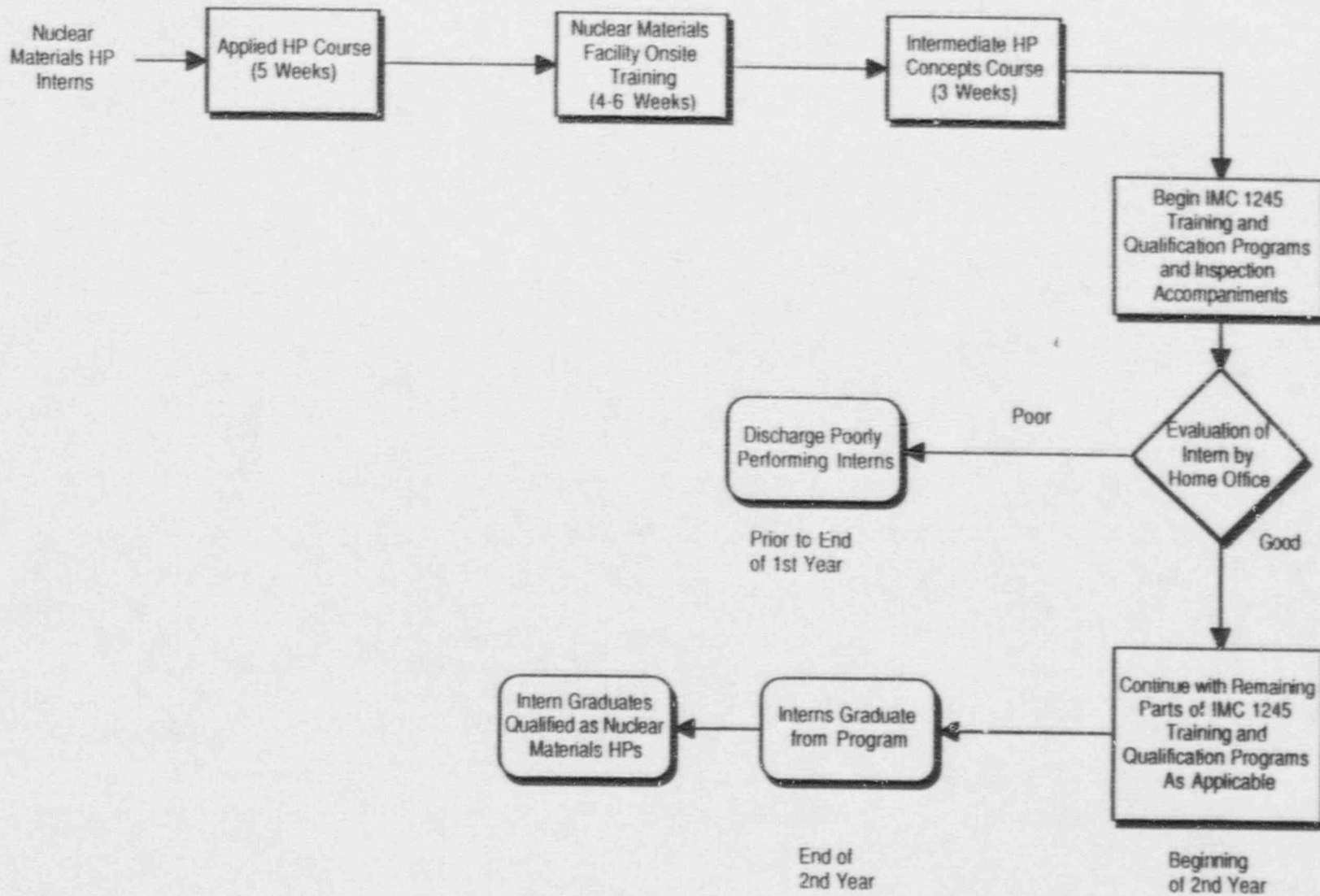
Attachment 1 -- Technical Training for Reactor Engineer intern Program



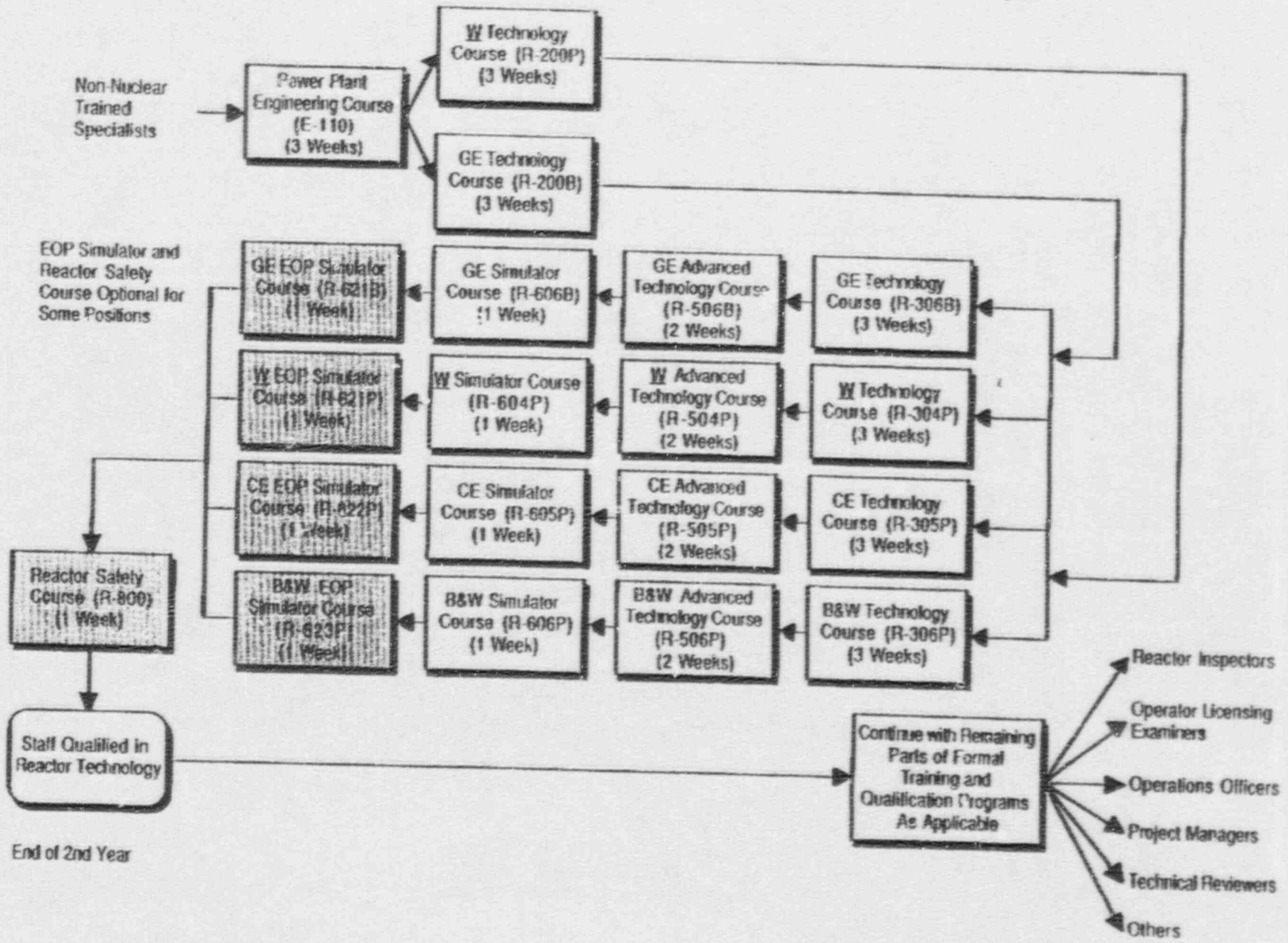
Attachment 2 -- Technical Training for Reactor Health Physics Intern Program and Followup



Attachment 3 -- Technical Training for Nuclear Materials HP Intern Program



Attachment 4 -- Technical Training for Non Nuclear Trained Specialists



Attachment 5 -- Technical Training for Personnel with Nuclear Experience

