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ABSTRACT

A study compared the tuition-aid programs of the Department of Energy (DOE) contractors with U.S. private industry education-assistance programs. In order to complete their comparative analysis, researchers mailed questionnaires to 51 DOE contractors. Particular emphasis was placed on requirements for tuition aid, allowable expenses, level of reimbursement, and other educational options. After some follow-up, 42 completed questionnaires were returned. Analysis of data obtained from the survey revealed that, on the whole, DOE contractor tuition-aid programs were quite similar to corresponding private industry programs. Both types of programs had similar requirements, allowed similar expenses, and operated comparable costs. However, the number of DOE contractor tuition-aid recipients (based on comparisons that take facility size and function into account) was slightly higher than that reported by private U.S. companies. (MN)

# TUITION-AID PROGRAMS OF DEPARTMENT OF ENERGY CONTRACTORS WITH COMPARISON TO U.S. PRIVATE INDUSTRY EDUCATION-ASSISTANCE PROGRAMS

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## INTRODUCTION

This report presents a descriptive analysis of tuition-aid programs administered by the U.S. Department of Energy (DOE) contractors. The DOE contractor system represents over 100,000 employees and includes over 60 laboratory, production, maintenance, and support facilities, each of which are operated by independent contractor organizations under the direction of DOE field and project offices. Located throughout the United States, DOE contractors represent individual labor forces that range from as few as 100 employees to as many as 8,000 employees. DOE contractors include single companies, private corporations with branch operations, universities, and university-affiliated entities. They each provide a specific service or perform a stated function for the U.S. Department of Energy. So essential is their role that one former DOE director stated that "much of the vital energy-technology expertise required to accomplish the department's missions exists in the university and industrial sectors as well as in DOE facilities" (USDOE, 1979[a]).

As do most private companies in the United States, DOE-contracting companies finance education and training for their employees. They provide in-house programs, such as short courses, seminars, and conferences, to support their business and production needs. They design tuition-aid programs to finance employee educational advancement and self-development. Some companies offer supplemental support for intern-program participants and for employee educational sabbaticals. The mixture of these educational alternatives offered by any specific DOE-contracting company depends upon several variables, i.e., the company's objectives, its training needs, its administrative capabilities, its budget levels, employee educational objectives, local educational institutions' offerings, and the caliber of the local labor force.

Most large companies throughout the United States offer tuition-assistance programs to allow their employees to enroll in courses and/or degree programs at local educational institutions. They realize that the increasing complexity of jobs, the growing interdisciplinary nature of jobs, and the speed at which jobs change and become obsolescent dictate continual training and educational upgrading to remain current. They reimburse employees for all or part of their costs for specific job-related and/or degree-oriented courses. They design their tuition-aid programs to meet some or all of the following company objectives:

1. To encourage employees to complete courses that will improve their on-the-job productivity.

2. To increase employee knowledge for wider responsibilities and higher-level positions.

3. To ensure a continual reserve of proficient personnel in specific job categories, especially in rapidly changing technological areas.

4. To provide employees with educational and training opportunities that companies cannot possibly encompass within their own internal educational structures.

5. To enable employees more freedom in pursuing their individual career interests.

The purpose of this report is to analyze DOE contractors' employee tuition-aid programs on a system-wide basis. When considered germane, two independent variables are used to aggregate survey responses for comparison purposes. These are the function of the facility and the size of facility workforce. Whenever feasible, results are compared to documented studies of tuition-aid programs in private industry in the U.S. (O'Meara, 1970; Lusterman, 1977; Miner, 1978; National Manpower Institute, 1978; Gorlin, 1981).

The prime beneficiaries of this research effort are DOE contractors. This report will provide the aggregated data on tuition-aid programs both within and outside of the DOE contractor system. Thus, contractors can compare their tuition-aid programs to those DOE tuition-aid programs of other DOE contractors. They also can compare the DOE tuition-aid programs to tuition-aid programs operated by U.S. private industry.

## METHODOLOGY

This tuition-aid study was initiated under the auspices of Training Resources and Data Exchange (TRADE), a network of DOE contractor personnel designed to increase communication and the exchange of ideas, information, and resources in the field of human resource development. (For more extensive

information on TRADE, see Appendix A.) Oak Ridge Associated Universities (ORAU), an active TRADE participant, designed and conducted this survey of DOE contractor tuition-aid programs and produced the final report.

To assure clarity and uniformity in conducting this study, a working definition of company-sponsored tuition-aid programs was adopted and printed on the survey instrument:

> An employee tuition-aid plan is any formal program through which an organization offers financial assistance to some or all of its employees to encourage them to complete courses of study on or off company premises. The assistance covers a substantial portion of the tuition charged by the educational institution or private company conducting the course; it may also allow for laboratory fees, books, transportation, or other related expenses. The courses (whether taken at company request or on the initiative of eligible employees) have to bear at least an indirect relationship to the employee's present or possible future job or be necessary for a job-related graduate or undergraduate degree (O'Meara, 1970).

Employee tuition-aid programs generally provide financial assistance and work-hour adjustments for off-site courses held during work hours and are taught by outside-of-plant personnel. They may encompass educational sabbaticals, internships, and retraining programs. Employee tuition-aid programs are not student-loan programs. They are not in-plant courses for training company employees on company premises during work hours.

A questionnaire was developed and mailed with a cover letter to 51 DOE contractor sites in July 1980 (see Appendix B). This questionnaire was patterned after one used in 1977 by the National Manpower Institute (NMI).[1] The NMI study was performed under contract with the National Institute of Education. The NMI study's objectives were to determine the extent of utilization of union-management negotiated tuition-aid programs and to identify barriers that tend to reduce worker participation in such programs (NMI, 1978). Even though the NMI study focused upon tuition-aid from the narrow perspective of tuition-aid programs negotiated as part of union-management bargaining positions, the NMI study's survey instrument provided a relevant and useful model for gathering information on tuition-aid plans within the DOE contractor network.

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[1] Currently the National Institute for Work and Learning.

Each questionnaire was addressed to a TRADE liaison committee member who was asked to assume responsibility for its completion. Requested information related to the objectives, administration, funding, employee participation, and perceived effects of that DOE contractor's company-sponsored tuition-aid program. In addition to completing the questionnaire, DOE contractors were asked to provide any available written information that would give further explanations about the operations of their company-sponsored tuition-aid programs. Of particular interest were the following four aspects of DOE contractor tuition-aid programs:

1. Requirements for Tuition Aid. What conditions and/or requirements must employees meet, such as grade point averages, employment status, company service time, and availability of other financial resources, to qualify for tuition aid?

2. Allowable Expenses. What courses, fees, course material, costs, and/or associated fees are reimbursed to employees?

3. Level of Reimbursement. What portion of employee tuition costs do DOE contractors pay?

4. Other Educational Options. In addition to tuition-aid programs, what other educational alternatives do DOE contractors offer to their employees?

After some follow-up, 42 completed questionnaires were returned, representing 82% of the 51 DOE contractors contacted. More than three-fourths of these respondents attached written information about their tuition-aid programs. A search of other resources provided relevant, but limited, information on five additional DOE contractor tuition-aid programs. Therefore, this report contains tuition-aid program information for 47 DOE contractor sites, 92% of the total contacted. (An alphabetical listing of these DOE facilities and contractors appears in Appendix C.) Thirty-nine (83%) of the participants submitted copies of their company-sponsored tuition-aid plans.

SURVEY PARTICIPANTS

For more meaningful interpretation of DOE contractor tuition-aid programs, survey participants are categorized by facility function and by workforce size. Geographic locations are designated within state boundaries. Facility functions include three groups: research and development (R&D), production (P), and maintenance and support (M&S). Facility workforce size is divided also into three groups: those DOE contractors reporting more than 3000 employees (>3000), those reporting between 1000-3000 employees (1000-3000), and those with fewer than 1000 employees (<1000).

Twenty-three (49%) of the DOE contractor survey participants represent R&D contractors. Thirteen (28%) are P facilities; while eleven (23%) represent M&S contractors. Each of these functional types is well represented in this survey, as all 51 DOE contractors who were contacted originally can be functionally categorized as 45% R&D, 31% P, and 24% M&S. Table 1 presents alphabetically the DOE facilities within each functional (R&D, P, M&S) category.

The numbers and configurations assigned to each DOE facility in Table 1 are used for the site locations in Figure 1. The survey participants are geographically located throughout the contiguous United States with concentrations in California, Nevada, New Mexico, Ohio, Tennessee, and Washington. Other states represented include Colorado, Florida, Idaho, Illinois, Iowa, Kansas, Kentucky, New Jersey, New York, and Texas.

TABLE 1. DOE CONTRACTOR TUITION-AID
SURVEY PARTICIPANT LISTING BY FACILITY FUNCTION

Research and Development (R&D)

| | Facilities | Contractor |
|---|---|---|
| 1 | Ames Laboratory | Iowa State University |
| 2 | Argonne National Laboratory | University of Chicago and Argonne Universities Association |
| 3 | Brookhaven National Laboratory | Associated Universities, Inc. |
| 4 | Comparative Animal Research Laboratory | University of Tennessee |
| 5 | EG&G Energy Measurements Group | EG&G, Inc., Las Vegas Area Operations |
| 6 | Exxon Nuclear Laboratory | Exxon Nuclear Idaho Co., Inc. |

TABLE 1. DOE CONTRACTOR TUITION-AID
SURVEY PARTICIPANT LISTING BY FACILITY FUNCTION (continued)

| | Facilities | Contractor |
|---|---|---|
| 7 | Fermi National Accelerator Laboratory | Universities Research Assoc., Inc. |
| 8 | General Atomic Company | General Atomic Company |
| 9 | General Electric Company | General Electric Company - Nuclear Division |
| 10 | Hanford Engineering Development Laboratory | Westinghouse Electric Corporation |
| 11 | Idaho National Engineering Laboratory | EG&G Idaho, Inc. |
| 12 | Lawrence Berkeley Laboratory | University of California |
| 13 | Lawrence Livermore Laboratory | University of California |
| 14 | Los Alamos National Laboratory | University of California |
| 15 | Lovelace Medical Foundation | Lovelace Medical Foundation |
| 16 | Oak Ridge Associated Universities | Oak Ridge Associated Universities |
| 17 | Oak Ridge National Laboratory | Union Carbide Corp., Nuclear Division |
| 18 | Pacific Northwest Laboratory | Battelle Memorial Institute |
| 19 | Princeton Plasma Physics Laboratory | Princeton University |
| 20 | Sandia National Laboratory (CA) | Western Electric Company |
| 21 | Sandia National Laboratory (NM) | Western Electric Company |
| 22 | Solar Energy Research Institute | Midwest Research Institute |
| 23 | Stanford Linear Accelerator Center | Stanford University |
| | **Production (P)** | |
| 24 | Energy Technology Engineering Center | Rockwell International, Energy Systems Group |
| 25 | Hanford Production Operations | Rockwell Hanford Operations |
| 26 | Kansas City Plant | Bendix Corporation |
| 27 | Mound Facility | Monsanto Research Corporation |
| 28 | National Lead Company of Ohio | National Lead Company of Ohio |
| 29 | Oak Ridge Gaseous Diffusion Plant Facilities | Union Carbide Corp., Nuclear Division Contractor |
| 30 | Paducah Gaseous Diffusion Plant | Union Carbide Corp., Nuclear Division |
| 31 | Pantex Plant | Mason and Hanger - Silas Mason Co., Inc. |
| 32 | Pinellas Plant | General Electric Company - Nuclear Division |
| 33 | Portsmouth Gaseous Diffusion Plant | Goodyear Atomic Corporation |
| 34 | RMI Company | RMI Company |
| 35 | Rocky Flats Plant | Rockwell International, Energy Systems Group |
| 36 | Y-12 Plant | Union Carbide Corp., Nuclear Division |

TABLE 1. DOE CONTRACTOR TUITION-AID
SURVEY PARTICIPANT LISTING BY FACILITY FUNCTION (continued)

Maintenance and Support (M&S)

| | Facilities | Contractor |
|---|---|---|
| 37 | Chicago Operations | Lummus (C. E.) Corporation |
| 38 | Las Vegas Area | Computer Science Cooperation |
| 39 | Las Vegas Area | Fenix and Scisson, Inc. |
| 40 | Las Vegas Area | Reynolds Electrical and Engineering |
| 41 | Las Vegas Area | Wackenhut Services, Inc. |
| 42 | Los Alamos Area | Zia Company |
| 43 | Oak Ridge Area | Rust Engineering Corporation |
| 44 | Richland Area | BCS Richland, Inc. |
| 45 | Richland Area | Hanford Environmental Health Foundation |
| 46 | Richland Area | Jones (J. A.) Construction Services |
| 47 | Richland Area | Vitro Engineering |

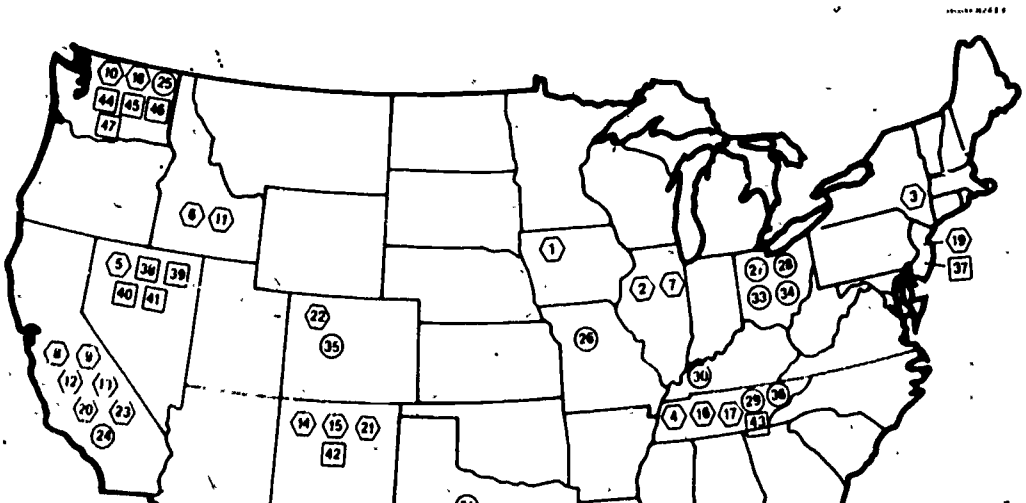



Figure 1. State Distribution of DOE Contractor 1980 Tuition-Aid Survey Participants by Facility Function.

The total employee population of the 47 participating DOE contractor sites at the time of this survey in July 1980 was 108,721. For comparison, the FY80 total population of all 62 DOE government-owned contractor-operated (GOCO) facilities was 113,779 (USDOE, 1980). Table 2 presents alphabetically the DOE facilities within each workforce size (>3000, 1000-3000, <1000) category.

TABLE 2. DOE CONTRACTOR TUITION-AID SURVEY PARTICIPANT LISTING BY WORKFORCE SIZE

>3000 Employees

| Facilities | Contractor |
|---|---|
| Argonne National Laboratory | University of Chicago and Argonne Universities Association |
| Brookhaven National Laboratory | Associated Universities, Inc. |
| General Electric Company | General Electric Company - Nuclear Division |
| Hanford Engineering Development Laboratory | Westinghouse Electric Corporation |
| Hanford Production Operations | Rockwell Hanford Operations |
| Idaho National Engineering Laboratory | EG&G Idaho, Inc. |
| Kansas City Plant | Bendix Corporation |
| Las Vegas Area | Reynolds Electrical & Engineering |
| Lawrence Berkeley Laboratory | University of California |
| Lawrence Livermore Laboratory | University of California |
| Los Alamos Scientific Laboratory | University of California |
| Oak Ridge Gaseous Diffusion Plant | Union Carbide Corp., Nuclear Division |
| Oak Ridge National Laboratory | Union Carbide Corp., Nuclear Division |
| Portsmouth Gaseous Diffusion Plant | Goodyear Atomic Corporation |
| Rocky Flats Plant | Rockwell International, Energy Systems Group |
| Sandia National Laboratories (NM) | Western Electric Company |
| Y-12 Plant | Union Carbide Corp., Nuclear Division |

1000-3000 Employees

| | |
|---|---|
| Chicago Operations | Lummus (C.E.) Corporation |
| EG&G Energy Measurements Group | EG&G, Inc., Las Vegas Area Operations |
| Energy Technology Engineering Center | Rockwell International, Energy Systems Group |
| Fermi National Accelerator Laboratory | Universities Research Assoc., Inc. |

TABLE 2. DOE CONTRACTOR TUITION-AID
SURVEY PARTICIPANT LISTING BY WORKFORCE SIZE (continued)

| Facilities | Contractor |
|---|---|
| General Atomic Company | General Atomic Company |
| Mound Facility | Monsanto Research Corporation |
| Pacific Northwest Laboratory | Battelle Memorial Institute |
| Paducah Gaseous Diffusion Plant | Union Carbide Corp., Nuclear Division |
| Pantex Plant | Mason and Hanger - Silas Mason Co., Inc. |
| Pinellas Plant | General Electric Company - Nuclear Division |
| Sandia National Laboratories (CA) | Western Electric Company |
| Stanford Linear Accelerator Center | Stanford University |

<1000 Employees

| | |
|---|---|
| Ames Laboratory | Iowa State University |
| Comparative Animal Research Laboratory | University of Tennessee |
| Exxon Nuclear Laboratory | Exxon Nuclear Idaho Co., Inc. |
| Las Vegas Area | Computer Sciences Corporation |
| Las Vegas Area | Fenix and Scisson, Inc. |
| Las Vegas Area | Wackenhut Services, Inc. |
| Los Alamos Area | Zia Company |
| Lovelace Medical Foundation | Lovelace Medical Foundation |
| National Lead Company of Ohio | National Lead Company of Ohio |
| Oak Ridge Area | Rust Engineering Corporation |
| Oak Ridge Associated Universities | Oak Ridge Associated Universities |
| Princeton Plasma Physics Laboratory | Princeton University |
| Richland Area | BCS Richland, Inc. |
| Richland Area | Hanford Environmental Health Found. |
| Richland Area | Jones (J. A.) Construction Services |
| Richland Area | Vitro Engineering Company |
| RMI Company | RMI Company |
| Solar Energy Research Institute | Midwest Research Institute |

The total number of participating DOE contractor facilities in each of the three workforce categories appears in Table 3. R&D facilities were largely represented in the >3000 employee group, although sizable representations appeared in the 1000-3000 and the <1000 groups. Most M&S contractors fell into the category of <1000 employees. Production facilities were well represented in both the 1000-3000 and the >3000 groups.

TABLE 3. DOE CONTRACTOR TUITION-AID
SURVEY PARTICIPANTS BY WORKFORCE SIZE AND FACILITY FUNCTION

| Workforce size (# employees) | Facility Function R&D | P | M&S | Totals |
|---|---|---|---|---|
| <1000 | 7 | 2 | 9 | 18 (38%) |
| 1000-3000 | 6 | 5 | 1 | 12 (26%) |
| >3000 | 10 | 6 | 1 | 17 (36%) |
| Totals | 23 (49%) | 13 (28%) | 11 (23%) | 47 (100%) |

FINDINGS AND COMPARISONS

Prevalence

DOE contractors provide education and training opportunities for their employees, even though the U.S. Department of Energy does not require it. Tuition-aid programs are one of the many educational activities financed and implemented by these contractors. All 47 survey participants report the existence of a tuition-aid program at their facilities.

Other tuition-aid surveys found widespread prevalence of tuition-aid programs within U.S. companies. A Conference Board study based upon 610 responses from companies selected as representative of all U.S. major industries and as representative of all U.S. firms of at least 500 employees found that tuition-aid programs were present in 89% of the respondent firms (Lusterman, 1977). A Bureau of National Affairs Personnel Policies Forum survey indicated that 90% of the 141 reporting companies operated tuition-aid programs for reimbursement of employee educational expenses. This represented a slight increase over their 1974 BNA-PPF survey, in which 88% of the responding companies reported tuition-aid benefits (Miner, 1978). A more recent survey of The Conference Board found that 90% of 1396 respondents provided tuition-aid programs for full-time white-collar workers, exempt and nonexempt, and almost 80% had such programs for full-time blue-collar workers (Gorlin, 1981).

Longevity

Tuition aid is by no means a new concept to the DOE contractor system. Of the 36 contractors who indicated the age of their company-sponsored tuition-aid programs, 13 (36%) had operated the program for more than 20 years; 17 (47%) for between 11 and 20 years; only 6 (17%) for 10 years or less.

The oldest reported tuition-aid program is 53 years old, even though the DOE contractor system was only 32 years old at the time of the survey in 1980. In this particular case, the parent company had had an operating tuition-aid program for 21 years before one of its divisions became a DOE contractor in 1948. The newest DOE contractor tuition-aid program has been operating for only two years. Large facilities, ones with more than 3000 employees, that perform R&D and production functions have the older tuition-aid programs. Table 4 presents detailed categorical information on how long tuition-aid programs have been provided.

TABLE 4. AGE OF DOE CONTRACTOR TUITION-AID PROGRAMS BY FACILITY FUNCTION AND WORKFORCE SIZE

| Years | Facility function | | | | Facilility size |
|---|---|---|---|---|---|
| | R&D | P | M&S | Totals | |
| 1-10 | 1 | - | 2 | 3 | <1000 employees |
| 11-20 | 1 | - | 4 | 5 | |
| 21+ | 2 | 1 | - | 3 | |
| 1-10 | - | - | - | - | 1000-3000 employees |
| 11-20 | 5 | 2 | - | 7 | |
| 21+ | 1 | 1 | - | 2 | |
| 1-10 | 2 | 1 | - | 3 | >3000 employees |
| 11-20 | 3 | 1 | 1 | 5 | |
| 21+ | 5 | 3 | - | 8 | |
| Totals: | 20 | 9 | 7 | 36 | |

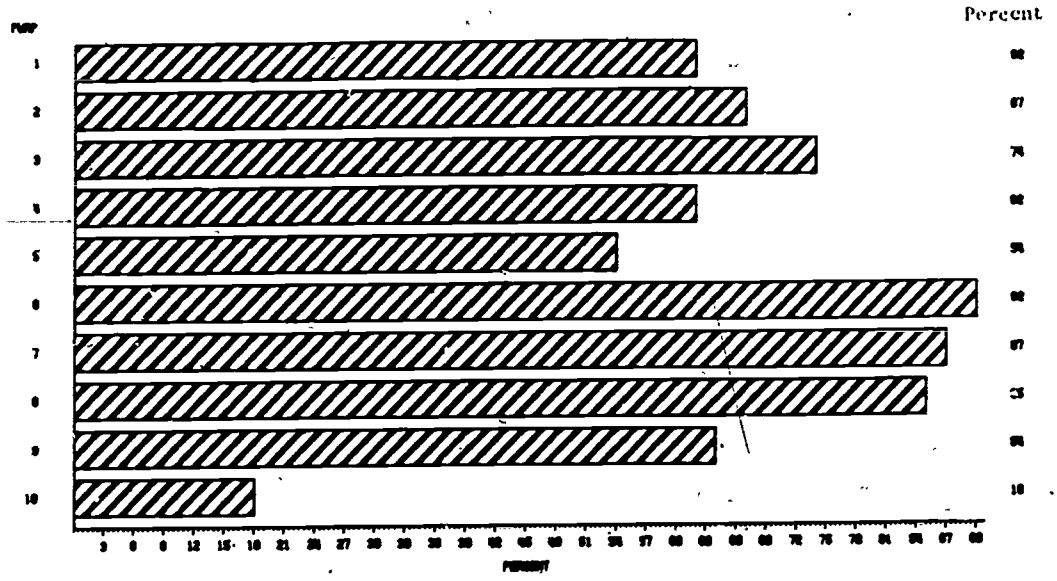
Private industry surveys indicate that employee tuition-aid programs did not gain notable acceptance in business and industry until after World War II. A National Industrial Conference Board survey of 178 tuition-aid programs

revealed only 12 in existence in 1941. Over 43% of the programs were begun during the 1950s, while 37% were established in the 1960s (O'Meara, 1970). The Bureau of National Affairs Personnel Policies Forum survey reported that of the 107 companies providing information on the age of their tuition-aid programs, the majority were less than 16 years old, having been instituted between 1961 and 1975. Of the four tuition-aid programs established before 1950, the oldest began in the mid-1930s (Miner, 1978).

Objectives

Tuition-aid programs are designed to promote the mutual welfare of both the participating employees and the sponsoring companies. DOE contractors were not asked to relate their objectives for sponsoring tuition-aid programs. However, they were requested to read and rate each of ten explicit organizational objectives. (See Appendix B, question 11.) Thirty-nine contractors completed this section of the questionnaire. The objectives of their tuition-aid programs rated of greatest importance, as shown in Figure 2, are to aid employees in personal development, to improve employee job performance, and to prepare employees for future company assignments. Tuition-aid programs are not widely used to conform to union-management negotiations.

Tuition-aid programs are important to DOE contractors for updating the skills and knowledge of specific groups of employees. Seventy-four percent report that an important objective of their tuition-aid programs is to update knowledge and skills of technicians. Over 60% of the DOE contractors report that among the highest priorities of their companies are the improvements of the knowledge and skills of scientists and engineers and of managerial personnel. Increasing the knowledge and skills of clerical personnel is rated of importance by 54% of the DOE contractors.



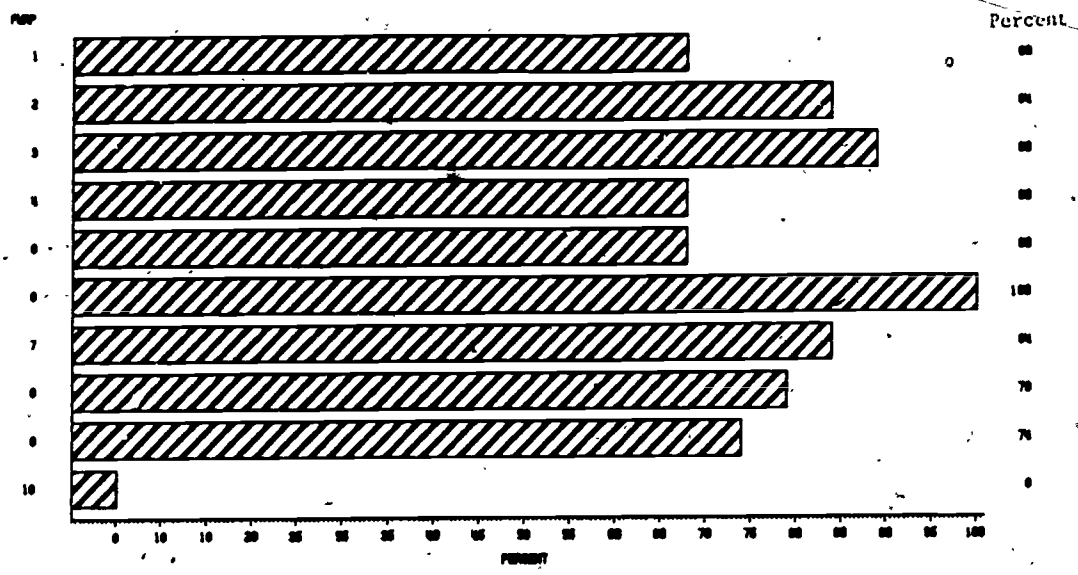

1. To recruit employees
2. To update knowledge and skills of scientists and engineers
3. To update knowledge and skills of technicians
4. To update knowledge and skills of managers
5. To update knowledge and skills of clerical personnel
6. To aid employees in personal development
7. To improve job performance
8. To prepare for future job assignments
9. To increase attractiveness of company benefit package
10. To conform to negotiated union-management agreements

Figure 2. Perceived Objectives of DOE Contractor Tuition-Aid Program.

Tuition-aid programs apparently help several DOE contractors to meet their recruitment objectives. Over 60% of the DOE contractor respondents indicate that their tuition-aid programs are important in helping to recruit employees and to increase the attractiveness of their company benefits package.

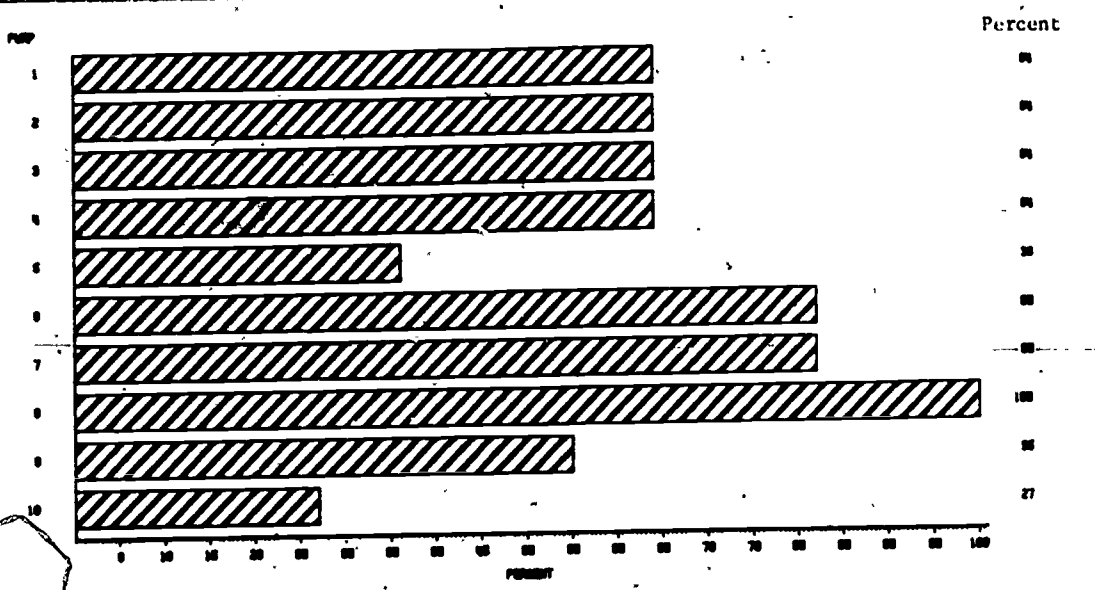
When tuition-aid program objectives are compared by facility function, the same general consensus occurs. Of particular interest, however, is the fact that each facility function group reports for at least one of the objectives a 100% response. One hundred percent of the maintenance and support facilities view the objective of improving job performance as "important" or "most important." Production facilities indicate that the major objective of all their tuition-aid programs is to prepare for future job assignments; whereas research and development facilities report that aiding employees in personal

development is most important. Tuition-aid programs to conform to union-management negotiations are given lowest ratings in production and in maintenance and support facilities as well as in research and development facilities.[2] Figures 3A, 3B, and 3C present more detailed information by facility functions.



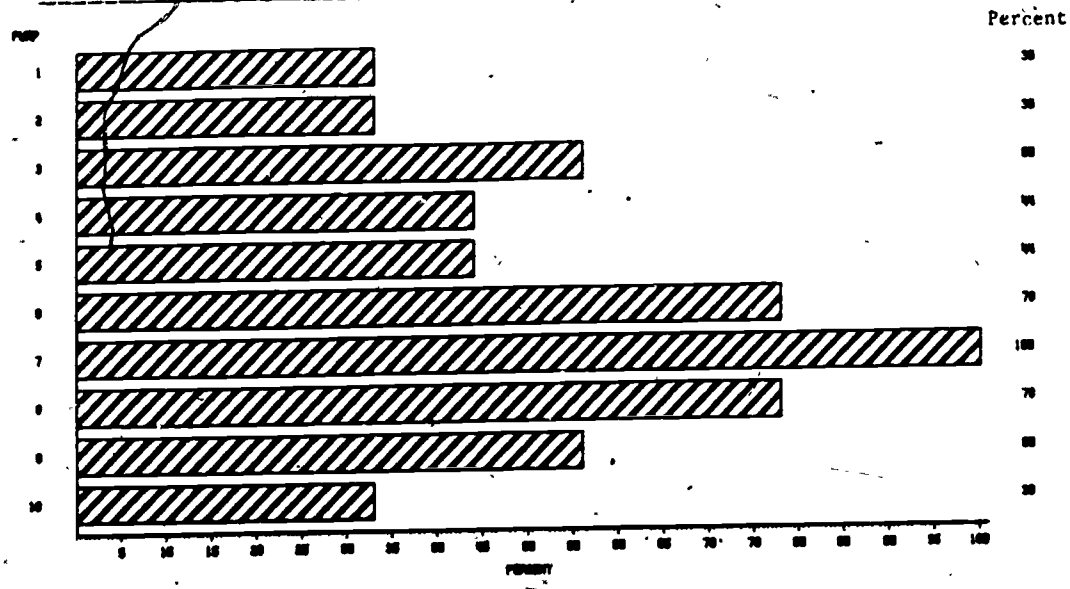

1. To recruit employees
2. To update knowledge and skills of scientists and engineers
3. To update knowledge and skills of technicians
4. To update knowledge and skills of managers
5. To update knowledge and skills of clerical personnel
6. To aid employees in personal development
7. To improve job performance
8. To prepare for future job assignments
9. To increase attractiveness of company benefit package
10. To conform to negotiated union-management agreements

Figure 3A. Perceived Objectives of DOE Contractor Tuition-Aid Programs for Research and Development Facilities. (N=19)




1. To recruit employees
2. To update knowledge and skills of scientists and engineers
3. To update knowledge and skills of technicians
4. To update knowledge and skills of managers
5. To update knowledge and skills of clerical personnel
6. To aid employees in personal development
7. To improve job performance
8. To prepare for future job assignments
9. To increase attractiveness of company benefit package
10. To conform to negotiated union-management agreemtns

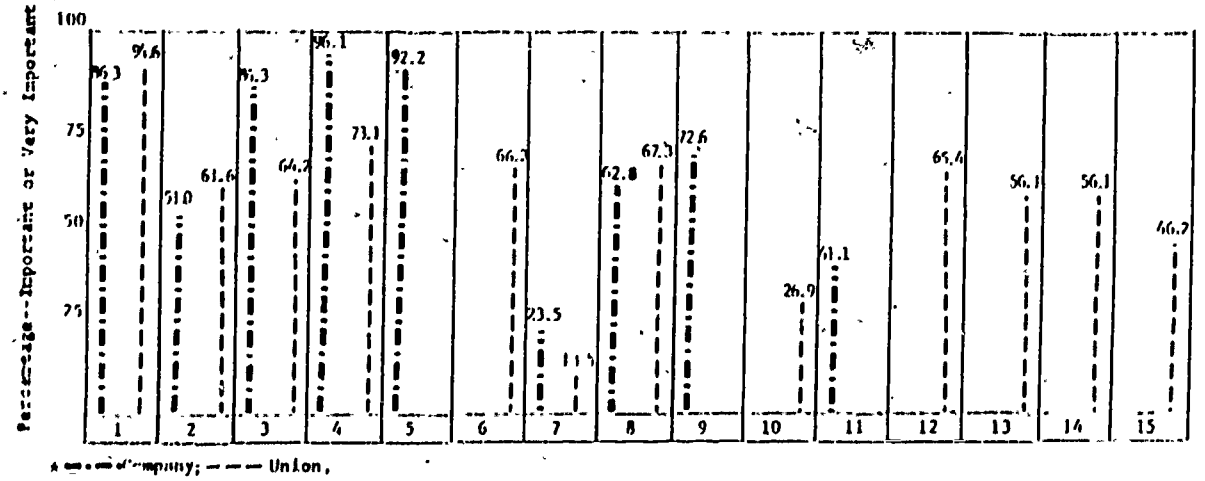
Figure 3B. Perceived Objectives of DOE Contractor Tuition-Aid Programs for Production Facilities.
(N=11)




1. To recruit employees
2. To update knowledge and skills of scientists and engineers
3. To update knowledge and skills of technicians
4. To update knowledge and skills of managers
5. To update knowledge and skills of clerical personnel
6. To aid employees in personal development
7. To improve job performance
8. To prepare for future job assignments
9. To increase attractiveness of company benefit package
10. To conform to negotiated union-management agreements

Figure 3C. Perceived Objectives of DOE Contractor Tuition-Aid Programs for Maintenance and Support Facilities.
(N-19)

Other studies have analyzed company tuition-aid program objectives. The National Industrial Conference Board found that the two major objectives of 198 surveyed companies were to enable employees to get ahead in the company and to make all employees more productive (O'Meara, 1970). In the late 1970s the National Manpower Institute felt that an understanding of both company and union perceptions of negotiated tuition-aid programs were significant for gaining a general perspective on tuition-aid in the private sector. Figure 4 shows that there was basic agreement between companies and unions in the NMI study about the objectives of tuition-aid programs. Both felt that updating knowledge and skills, improving worker performance, and aiding workers in their personal development and growth were important objectives. For companies, six other objectives were of importance, especially preparing employees for future assignments with the company. For unions, nine other objectives rated highly, with the objectives of conforming to a negotiated agreement and of responding to local membership concerns valued considerably (NMI, 1978).




— Company; — — — Union.

1. To update worker knowledge and skills to changing technology
2. To improve workers' basic literacy, mathematics, and language skills
3. To aid workers in their personal development and growth
4. To improve workers' job performance
5. To prepare employees for future assignments with the company
6. To prepare union members for job mobility
7. To improve workers' awareness of civil and community activities
8. To increase benefits to workers
9. To conform to a negotiated agreement
10. To implement national union policies
11. To recruit employees
12. To respond to local membership concerns
13. To increase union members' educational attainments
14. To reduce costs of education to union members
15. To increase effectiveness of union members

Figure 4. Importance of Tuition-Aid Program for Company and Union Officials

Source: National Manpower Institute, An Untapped Resource: Negotiated Tuition-Aid in the Private Sector, 1978, p. 46.

The objectives that DOE contractors rated of importance (aiding employees in personal development, improving employee job performance, and preparing employees for future job assignments) are also highly rated objectives of the tuition-aid programs of the larger universe of private industry. Both company management and union officials view tuition-aid as valuable assistance in improving employee skills.

## Content of Tuition-Aid Programs

Thirty-nine DOE contractors submitted copies of their company-sponsored tuition-aid plans. Many of these DOE contractors represented decentralized branch operations of large corporations or university-affiliated entities. Their tuition-aid programs were adopted or modified tuition-aid plans developed by parent companies or universities. In the survey sample over 50% of the respondents were branches or divisions of larger corporations and 21% were university-affiliated entities. Their tuition-aid programs, in many cases, were initiated by parent companies and universities many years ago and since have been adopted at DOE contractor facilities.

Explanatory statements and procedural policies on tuition-aid often appear in DOE contractor employee handbooks or on handout sheets. For example, one division of a large corporation provided this concise general policy statement on tuition-aid educational assistance:

> The Company has a general policy to encourage its qualified employees, especially those trained in engineering and science, to continue their education in fields that are of interest to the Company. To provide an incentive to further education and training, the Company sponsors different educational programs at technical school, college and post-graduate levels, which provide for attendance in whole or in part during nonworking hours with certain expenses of tuition and fees reimbursed by the Company to eligible employees. The programs, the costs of which are to be reimbursed, are: (a) Graduate Degree Programs, (b) Undergraduate Degree Programs, (c) Certificate Programs, (d) Single Course Support Programs, (e) Correspondence Courses and (f) College Level Examination Programs.

The tuition-aid plans reveal various course and degree program contents. These plans present the policies and categorizations that differentiated tuition-aid from other DOE contractor education and training efforts. As noted by DOE contractors, education and training consist of on-the-job activities,

on-site short courses, craft apprenticeships, and seminars, all of which are company-controlled and company-conducted. These training activities cover specific topics for targeted employee groups. They are usually short term, job-related or job-required, and offered during normal working hours. In contrast, tuition-aid programs generally require long-term career development commitments of individual employees. Courses are taken at the request of the employee. Degree programs are chosen by the employee. Courses are provided by outside-of-company sources and are scheduled after work hours.

The following excerpts from the questionnaires of four DOE contractors summarize the content of their tuition-aid programs and clarify the contractor's perception of the relationship of tuition-aid programs to the overall training and education activities provided for DOE contractor employees:

> Tuition-aid plans are courses taken at accredited colleges, either job-related or working toward a degree. We have training courses for employees in plant--not college credit; job related, however.

> Tuition aid is employee initiated with management approval. In-house training and other training is management initiated. Tuition aid is provided for courses taken relevant to employee's current or potential work assignments or for degree programs (courses) relevant to current or potential work assignments. It is not otherwise integrated into overall training programs.

> The Tuition Refund Program is not a part of our regular, on-site training activities; it is a separate program.

DOE contractors are relatively flexible in providing tuition-aid for various types of courses requested by employees. Six DOE contractor tuition-aid plans include audit courses, while 16 allow financial assistance for correspondence courses if approved by the company before the correspondence courses are taken. Four tuition-aid plans indicate that financial assistance is available for job-related courses only, whereas 25 plans state specifically that financial assistance will be granted for courses that are either job-related or degree-oriented. Designations of job-related courses vary from company to company, depending upon who is authorized to make the decisions.

Job-relatedness as a stated standard for acceptable tuition-aid courses, however, appears to be decreasing in the private sector. The 1970 Conference Board report which analyzed the tuition-aid program of 200 large companies

found that job-relatedness was a requirement in 99% of the firms (O'Meara, 1970). In the 1978 Bureau of National Affairs Personnel Policies Forum Survey on Tuition-Aid, representing responses from 141 personnel executives of both large and small companies, 88% had tuition-aid requirements that courses must be related to the employee's present or future job.. Thirteen percent required employee enrollment in a specific certificate or degree program. In addition, the determination of whether or not courses were job-related or degree-oriented was made by the personnel department alone in one-sixth of the companies, by the immediate supervisor in one-tenth, by the department manager in another one-tenth, by the training department in over one-fifth of the companies, and by joint determinations in more than one-third of the companies (Miner, 1978). The 1981 Conference Board survey found that 75% of the 1227 companies with tuition-aid programs insisted that courses eligible for tuition aid be related to the employee's current job (Gorlin, 1981).

Few DOE contractors allow courses to be taken on company time. Among the R&D facilities, nine companies allow employees to attend courses held during normal work hours in special circumstances. Among production facilities, two allow courses to be taken during normal work hours if the courses cannot be scheduled for any other time, if the employee absence does not create a hardship for the company, and/or if working hours can be rescheduled. Nine production facility tuition-aid plans, however, specifically require that courses be taken outside of normal work hours. Most M&S facilities also require that courses be taken outside of normal work hours.

In the private sector of U.S. industry, the privilege of released time for taking tuition-aid program courses has often been qualified. The Bureau of National Affairs Survey found that courses might be taken on company time in over 40% of the companies with tuition-aid benefits, but only under special circumstances such as when the course is required by the company, when the course is offered only at one time, or where work flow is not disrupted. Some companies had a policy of permitting up to six hours per week of released time to attend classes; others allowed employees to take courses half on company time and half on employee time (Miner, 1978). The Conference Board survey determined that 85% of the responding companies required class attendance only during nonworking hours. Less than 4% of the companies allowed time off for class attendance, with or without pay. Twelve percent of the companies with tuition-aid programs, however, did allow employees to adjust work schedules for class attendance (Gorlin, 1981).

Administration and Financing of Tuition-Aid Programs

Eighty-five percent of the DOE contractor tuition-aid programs are administered by specific company organizational entities, i.e., offices, departments, divisions. Administration of the remaining programs rests with university-affiliated personnel and/or special education committees. Companies entitle organizational units with similar functions differently. For this reason, the responses reported may indicate a wider variation in organizational placement of tuition-aid programs than is actually the case. Participant responses indicate that the major management responsibility for DOE contractor-sponsored tuition-aid programs is placed with education and training departments (28%) and with personnel services offices (26%). In addition, employee/human/industrial relations units (13%) and employee/human resource development groups (15%) manage significant portions of these tuition-aid programs.

TABLE 5. ADMINISTRATIVE UNITS OF TUITION-AID PROGRAMS BY FACILITY FUNCTION

| Administrative unit | Facility function R&D | P | M&S | Totals |
|---|---|---|---|---|
| Company office/department/division | | | | |
| Education and training | 5 | 7 | 1 | 13 |
| Personnel services | 5 | 2 | 5 | 12 |
| Employee/human resources development | 5 | 1 | 1 | 7 |
| Employee/human/industrial relations | 2 | 2 | 2 | 6 |
| Employment services | 1 | 0 | 0 | 1 |
| Information services | 1 | 0 | 0 | 1 |
| Subtotal | 19 | 12 | 9 | 40 (85%) |
| University administered | 3 | 0 | 0 | 3 ( 6%) |
| Not indicated | 1 | 1 | 2 | 4 ( 9%) |
| Totals | 23 | 13 | 11 | 47 (100%) |

Table 5 shows the same general pattern of administrative responsibilities when DOE facilities are categorized by function, except that neither production

nor maintenance and support contractors report tuition-aid programs administered by employment services, information services, or universities, as do a few research and development facilities.

This pattern changes when DOE facilities are categorized by size of workforce. Table 6 reveals that DOE contractors with fewer than 1000 employees are represented in all but one of the administrative units; whereas medium-sized (1000-3000 employees) companies and those facilities with more than 3000 employees concentrate their tuition-aid program administration within one of four company offices/departments/divisions, i.e., education and training, personnel services, employee/human resource development, and employee/human/industrial relations.

TABLE 6. ADMINISTRATIVE UNITS OF TUITION-AID PROGRAMS BY WORKFORCE SIZE

| Administrative unit | Workforce size | | | Totals | |
|---|---|---|---|---|---|
| | ≤1000 | 1000-3000 | ≥3000 | | |
| Company office/department/division | | | | | |
| Education and training | 1 | 3 | 9 | 13 | |
| Personnel services | 5 | 3 | 4 | 12 | |
| Employee/human resources development | 0 | 4 | 3 | 7 | |
| Employee/human/industrial relations | 3 | 2 | 1 | 6 | |
| Employment services | 1 | 0 | 0 | 1 | |
| Information services | 1 | 0 | 0 | 1 | |
| Subtotal | 11 | 12 | 17 | 40 | (85%) |
| University administered | 3 | 0 | 0 | 3 | (6%) |
| Not indicated | 4 | 0 | 0 | 4 | (9%) |
| Totals | 18 | 12 | 17 | 47 | (100%) |

Approximately one-third of the DOE contractors finance their tuition-aid programs with monies budgeted directly for education and training function. In these cases, each department or division is financially responsible for the allowable tuition-aid expenses accumulated by its assigned employees. Other contractors pay tuition-aid expenses indirectly through staff line budgets managed either by personnel services, education and training departments, or

employee/human resources and industrial relations departments. In some cases, contractors channel monies through central company budgets and/or through overhead indirect funds.

Information about the administration and financing of private industry tuition-aid programs has been addressed in two surveys. The 1970 National Industrial Conference Board survey revealed that most companies assigned tuition-aid program administration to one or a group of executives at the corporate level. When the responsibility was handed to a single executive, it was given to the head of either the education and training department or the personnel services department. On the other hand, when this responsibility was delegated to a group of executives, they were usually a specially constituted committee composed of employees at both the corporate and local levels (O'Meara, 1970).

The 1978 Bureau of National Affairs survey addressed the financing of tuition-aid programs in private industry. Of the 141 companies surveyed, over one-half, 52% of those with tuition-aid programs, allocated expenditures for tuition aid to the departmental budgets of employees participating in the plan. Eighteen percent of the companies assigned tuition-aid costs to the personnel and industrial relations budgets; whereas only 5% apportioned these costs to the company training and education department. In 18% of the companies with tuition-aid programs, costs were allocated to a general account (general expenses, overhead, administrative budget), to the employee benefits fund, or to a completely separate line-item account. Seven percent of the participants in this BNA survey did not indicate how their tuition-aid costs were budgeted (Miner, 1978).

## Operations of Tuition-Aid Programs

Although tuition-aid programs are generally administered by centralized company departments, their implementation and operations are highly dispersed throughout the company. In the DOE contractor companies, as well as in private industry, all supervisory personnel accept some responsibilities for effective tuition-aid program operation. However, the first-line supervisor of the employee participating in the company tuition-aid program assumes the key role. This supervisor frequently provides the initial impetus for employee tuition-aid participation, as well as the support and encouragement necessary for course and/or degree completion.

Formal approval for tuition-aid participation in DOE contractor facilities, according to this TRADE survey, is required of several entities within the contracting companies. These include supervisors, department heads, general personnel, education and training specialists, and special education committees. The primary source of approval, however, is the first-line supervisor. Figure 5 indicates that more than one half of the survey participants report active first-line supervisor involvement. These supervisors inform their employees about their company tuition-aid program. Moreover, they screen, approve, encourage, counsel, and monitor their tuition-aid participants. About two-fifths of the survey participants report that first-line supervisors have only minimal involvement in the implementation of their company tuition-aid programs. These supervisors are merely reactive to employee initiative and inquiry. Less than one-tenth of the DOE contractor participants indicate that the first-line supervisor has no involvement in their tuition-aid program operations.

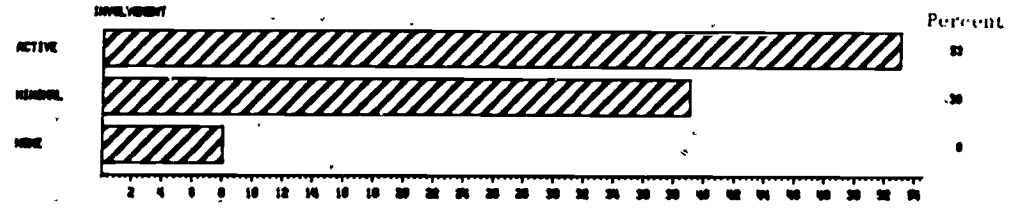



Figure 5. Supervisor Involvement in Tuition-Aid Programs

Most DOE contractor tuition-aid programs are operated on a reimbursement basis. A few have provisions for advance payments. A few provide short-term loans for educational assistance. Among the research and development facilities, ten contractors provide reimbursements of up to 100% of tuition costs. Most of these also reimburse for books and for associated fees, i.e., registration, laboratory, thesis, etc. Among production facilities, eight tuition-aid plans indicate financial assistance of up to 100%; one provides up to 75%; and one provides up to 50%. Five maintenance and support facilities reimburse up to 100% of tuition costs; two of these also pay for books and associated fees.

In many cases, specific stipulations exist for eligibility for reimbursement. Thirty-seven DOE contractor tuition-aid plans contain information on eligibility requirements. Fifteen (41%) place limitations on employees who have access to other sources of financial assistance, such as veteran's benefits, college grants, scholarships, and loans. Tuition-aid from the DOE contractor is either reduced or withheld to prevent duplication of payment. Twenty-five (68%) of the DOE contractor tuition-aid plans reimburse employees only if they complete courses with a grade of C or better. The remaining plans do not specify grade requirements. Twenty-one DOE contractors reimburse 100% of the approved educational costs (i.e., tuition, laboratory fees, books, required course materials) incurred by tuition-aid participants. These include ten research and development facilities, six production facilities, and five maintenance and support facilities. The majority of these pay 50% to 75% of the educational costs at the time the participant either enrolls or completes approved courses and pay the remainder after the attainment of a certificate, diploma, or degree.

Although most DOE contractors provide tuition-aid information to all employees, not all employees are eligible for participation. Twenty-four of the 37 tuition-aid plans addressing this issue (65%) state that employees eligible for tuition aid must be full-time permanent workers. Nine contractors (24%) indicate that part-time employees, those who work 20 or more hours per week, may participate.

Company service records are sometimes required for tuition-aid eligibility. Eight DOE contractors (22%) stipulate various amounts of employment history with the company. Of the R&D contractors, three require at least six months of employment for tuition-aid eligibility. One plan states that at least six months of prior company work history is required so that employee potential and future contributions to the company may be projected. Two DOE production-facility contractors require prior company work experience of six months; one requires a 24-month period of company work history. Three maintenance and support facilities exact six months of company service time of tuition-aid recipients.

A few DOE contractors impose post-tuition-aid requirements. Six R&D contractor tuition-aid plans (16%) stipulate that recipient employees either remain with the company for a specific period of time after tuition aid is used or reimburse the company for all or some specified portion of financial aid

granted. These stipulations apply primarily to professional employees (i.e., scientists, engineers, managers) who request extended educational leaves. This requirement exists only in large research and development facilities. Neither the production nor the maintenance and support facilities mention specific post-tuition-aid employment requirements.

In three recent surveys of private industry, over 80% of the companies with tuition-aid programs offered financial assistance to all their employees. Many programs, however, stated specific pre-tuition-aid and post-tuition-aid employment stipulations. Of the 200 tuition-aid programs analyzed by The Conference Board in 1970, 83% of the companies offered tuition aid to all employees. Others restricted tuition aid to salaried personnel, while a few offered tuition-aid only to supervisory or managerial employees (O'Meara, 1970). The Bureau of National Affairs (BNA) survey found that 52% of the surveyed companies with tuition-aid programs had no length-of-service requirement for eligibility. In companies where a length-of-service requirement existed, it was most likely six months or one year, although a few companies did require two years. This same BNA survey found that 87% of the companies with tuition-aid programs provided benefits to all employees. Generally, only small companies and manufacturing firms limited tuition aid to supervisors, managers, and professional employees (Miner, 1978).

A Conference Board 1979 survey of 1396 company respondents revealed that tuition aid is provided to full-time white collar workers, exempt and nonexempt, by 90% of the respondents and to full-time nonexempt blue collar workers by almost 80% of the respondents. Part-time workers were considered eligible for tuition aid in only 11% of the responding companies. The median length of company service required for tuition-aid eligibility was six months, with length-of-service requirements ranging from one month to five years. The median length of service required after receiving tuition-aid was twelve months, with responses ranging from one month to three years (Gorlin, 1981).

## Expenditures for Tuition-Aid

Thirty-four survey participants provided data on their tuition-aid expenditures incurred for FY78, FY79, and FY80. (See Appendix B, question 5.) These DOE contractors expended approximately $1.2 million on tuition aid in FY78.

These tuition-aid expenditures included costs of tuition, registration, books, and other fees. These same contractors spent $1.2 million in FY78, $1.7 million in FY79, and expected to spend $2.1 million in FY80. As shown in Table 7, research and development facilities incurred the major portion of the tuition-aid expenses in each of these years.

TABLE 7. TUITION-AID EXPENDITURES BY FACILITY FUNCTION

| Facilities | FY78 | FY79 | FY80 |
|---|---|---|---|
| Research and development (18) | $ 916,421 | $1,231,159 | $1,486,925 |
| Production (10) | 267,191 | 411,844 | 448,883 |
| Maintenance and support (6) | 15,264 | 108,791 | 166,070 |
| Total (34) | $1,198,876 | $1,751,794 | $2,101,878 |

The increase of tuition-aid expenditures from FY78 to FY80 resulted from several interrelating factors. Some DOE contractors during this time increased their tuition-aid benefits and coverage. Most facilities experienced additional participation in the tuition-aid programs, especially as their workforce increased. However, of most significance is that college and university tuition rates soared during this time period, as did the rate of inflation.

DOE contractor tuition-aid expenditures are dependent upon local educational costs and upon the educational alternatives offered in that particular geographic area. Local educational costs at DOE contractor sites vary significantly. In addition, the number of educational institutions in the site area varies. For example, employees at a large (>3000 employees) research and development facility in the midwest can attend any one of more than thirty educational institutions in the greater Chicago area. Tuition costs at these institutions range from a low of $12 per credit hour to a high of $123 per credit hour. In addition, costs for textbooks and required fees, also reimbursed by the DOE contractor, differ greatly. At another large research and development facility in the southwest, only one large university and a few

small colleges are located near the DOE contractor site. Tuition costs revolve around the $333 per semester fee of the university plus the costs of textbooks and any other required associated fees.

The average expenditures per tuition-aid participant for responding DOE contractors were $197 in FY78, $243 in FY79, and expected to be $260 in FY80. This included reimbursement for tuition costs of completed courses, for textbooks, and for required fees. In FY79, four DOE contractors spent under $100 per tuition-aid recipient; whereas two spent over $1,000 per participant.

These average expenditures per tuition-aid participant compare favorably to U.S. private company expenditures reported in a 1978 study. The Bureau of National Affairs (BNA) found that the average amount spent per tuition-aid participant ranged from $45 to $2,000, with a median of $214. The 82 companies providing data on 1977 company expenditures for tuition-aid were equally divided between small (<1000 employees) and large (>1000 employees) concerns. The large company averages ranged from $55 to $1,200 per tuition-aid recipient; whereas the small company expenditures averaged between $45 and $2,000 per participant (Miner, 1978).

Looking beyond expenditures per DOE contractor tuition-aid participant to tuition-aid expenditures per DOE contractor employee, the TRADE survey reveals that the anticipated average tuition-aid expenditure per DOE contractor employee in FY80 was $18. A comparison of this figure to private industry norms discloses that DOE contractors may expend less on tuition-aid per employee than U.S. private-industry companies. The one study reporting tuition-aid expenditures per employee was a 1977 survey of 600 companies. The study estimated an average of $60 spent on tuition aid per eligible employee, with a $16 median expenditure per employee (Lusterman, 1977).

Employee Participation

The number of employees who participated in the responding DOE contractor tuition-aid programs increased from 6077 recipients in FY78 to 7220 recipients in 1979 to an estimated 8096 recipients in FY80. (See Appendix B, question 7.) In FY79, the latest year for actual figures, tuition-aid recipients represented 7% of the total workforce of DOE contractor survey respondents. Tuition-aid employee participation rates varied among contractors from less than 1% to 25%, with a median of 7%. Table 8 and Table 9 indicate that the percentage employee

TABLE 8. MEAN FY79 TUITION-AID EMPLOYEE PARTICIPATION LEVELS BY FACILITY SIZE

| <1000 Employees | 1000-3000 Employees | >3000 Employees |
|---|---|---|
| 10% | 7% | 7% |

participation ranged from 7% to 10%. DOE contractor facilities with <1000 employees and maintenance and support facilities reported the highest employee participation levels. More than half of these tuition-aid recipients participated in sequential, degree-oriented programs requiring the use of tuition aid on more than one occasion.

TABLE 9. MEAN FY79 TUITION-AID EMPLOYEE PARTICIPATION LEVEL BY FACILITY FUNCTION.

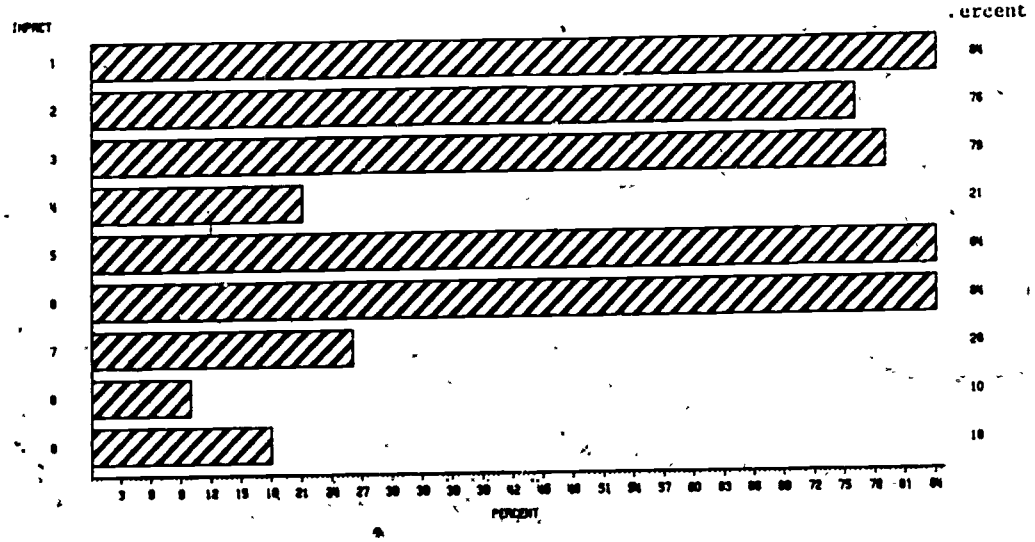
| R&D | Production | M&S |
|---|---|---|
| 8% | 7% | 10% |

Recent surveys revealed widely ranging tuition-aid employee participation rates within U.S. companies. However, the tuition-aid employee participation rate at DOE contractor facilities appeared to be slightly higher than the participation rate in private U.S. companies. In 1977, a Conference Board survey among 155 companies reported tuition-aid employee participation rates ranging about a median of 4% of eligible employees. This survey also found evidence that participation skews heavily toward younger employees (Lusterman, 1977). The Bureau of National Affairs survey of 141 personnel executives found that in the average company with a tuition-aid plan, approximately 5% of the eligible workforce participated in 1977. Although the highest reported tuition-aid participation rate in this study was 40%, more than half of the companies reported rates between 3% and 10% of the workforce. The survey also showed that professional employees made more use of tuition-aid benefits than did other occupational groups (Miner, 1978). The Conference Board conducted a more recent study of 1227 companies with tuition-aid programs. The average

participation rate in tuition-aid programs was 5% for white collar groups and 3 percent for blue collar groups. Reported participation rates ranged from 0 to 28% with a median of 3% for production or operations workers, from 0 to 75% with a median of 3% for office and clerical staff, and from 0 to 100% with a median of 5% for lower-level exempt personnel (Gorlin, 1981).

## Effects of Tuition-Aid Programs

DOE contractors rate highly five positive effects of their tuition-aid programs. These include improved career development within the company, increased employee satisfaction, improved effectiveness of managerial personnel, improved effectiveness of scientists, engineers, and technicians, and improved effectiveness of clerical employees.




1. Improved effectiveness of clerical employees
2. Improved effectiveness of managerial personnel
3. Improved effectiveness of scientists, engineers, technicians
4. Lowered rate of labor turnover
5. Increased employee satisfaction
6. Improved career development within company
7. Improved union/management relations
8. Lowered absenteeism
9. Improved employee awareness of civic and community activities

Figure 6. Perceived Positive Impacts of Tuition-Aid Programs

Thirty-nine DOE contractor respondents indicated their perceived effects of their respective tuition-aid programs. (See Appendix B, question 12.) They rated nine program effects along a negative-positive continuum, i.e., very negative impact, some negative impact, no significant impact, some positive impact, and very positive impact. Figure 6 indicates the percentage of positive and very positive responses for each of the nine program effects. Only 10% of the respondents feel that their tuition-aid programs had the positive effect of lowering their company absenteeism rate. Approximately one-fourth of the respondents indicate that their tuition-aid programs have had some positive effects in lowering labor turnover and in improving union/management relations.

The DOE contractor opinions are quite similar to the opinions of union and management representatives in the 1978 National Manpower Institute study. Figure 7 which reports data from the NMI study reveals that a large percentage of both union and management felt that tuition-aid programs improved

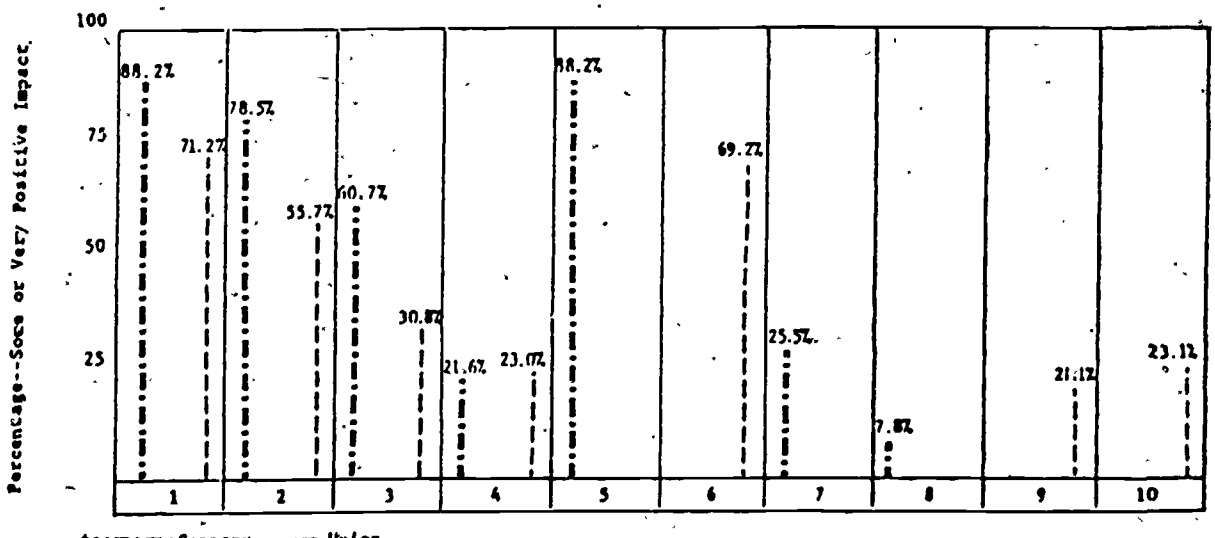



Figure 7. Opinions Concerning the Impact of Negotiated Tuition-Aid Plans

Source: National Manpower Institute, An Untapped Resource: Negotiated Tuition-Aid in the Private Sector, 1978, p. 48.

effectiveness of workers on the job and increased worker satisfaction. A large percentage of management felt that tuition-aid programs had a positive impact on career development. While union personnel were not queried about this and some other effects, it is evident that company management personnel generally were more positive in their evaluations of tuition-aid plans than were union personnel.

Few DOE contractors perceive any difficulties or liabilities associated with their tuition-aid programs. (See Appendix B, question 15.) Of the 31 respondents to the TRADE inquiry, 21 (68%) state that they perceive no problems. Of the 10 liabilities and difficulties listed, the majority require simple changes in company tuition-aid plan policies and procedures to alleviate administrative difficulties. For example, one small maintenance and support facility states that its company tuition-aid plan should allow employees to take more than two courses during a semester if they so desire. A few responses express concern for employee advancement possibilities after a degree program using tuition-aid has been completed. One large research and development facility, for example, states that difficulties occur in placement of a qualified employee into a more responsible position after a degree is obtained. Two responses express concern for future increased tuition-aid participation and limited budgeted funds. A small maintenance and support facility responds, "a problem not faced to this point is the selection of candidates when the number of requests for tuition assistance exceeds the budgeted funds." And a large research and development facility indicates, "Future difficulties might arise over limited budget and increased use of program. Criteria for reimbursement and percentage refunded might have to change."

In addition to the perceived effects of tuition-aid programs on company personnel and policies and to the perceived problems associated with their tuition-aid programs, DOE contractors indicated the level of support they receive from local educational institutions in nine aspects of training. (See Appendix B, question 13.) These responses are collapsed into three basic categories: no support, i.e., no support requested by DOE contractors or provided by educational institutions; some support, i.e., DOE contractor and local educational institutions working relationships of once a year or less; and considerable support, i.e., DOE contractor and local educational

institutions working relationships of two or more times a year. Table 10 lists the percentages in each category for the nine aspects of training. Thirty-three (70%) of the DOE contractor survey participants completed this section of the questionnaire.

TABLE 10. LEVEL OF SUPPORT TO DOE CONTRACTORS FROM LOCAL EDUCATIONAL INSTITUTIONS

| Aspects of training | DOE Contractors Reporting | | |
|---|---|---|---|
| | No support | Some support | Considerable support |
| Participate in community industry/ labor/education groups to assist in meeting worker education needs | 30 | 24 | 46 |
| Develop training materials and conduct sessions to meet company training requirements | 48 | 9 | 43 |
| Participate in planning related to the tuition-aid program | 70 | 15 | 15 |
| Publicize courses and programs to recruit potential participants | 26 | 13 | 61 |
| Conduct courses on company premises | 43 | 18 | 39 |
| Conduct courses with enrollment open only to company employees | 61 | 15 | 24 |
| Offer specialized technical courses on a one time basis or before courses appear in college catalog | 52 | 24 | 24 |
| Allow qualified company employees to instruct the company courses on a part-time basis | 43 | 14 | 43 |
| Provide noncredit short courses in specialized technical fields | 43 | 21 | 36 |

Where no support is provided to DOE contractors, generally no requests have been made. When requested, however, local educational institutions tend to provide assistance in several aspects of training. Over 60% of the DOE contractors receive considerable support from nearby educational institutions

in publicizing courses and programs to recruit potential participants while over 40% indicate that they receive considerable support in planning workers' educational needs and in developing training materials for conducting company training sessions. On the other hand, 61% of the DOE contractors receive no support from local educational institutions in conducting courses with enrollment open only to company employees, and 70% receive no support in planning their tuition-aid programs. Few requests for aid or support from surrounding educational institutions are made for these two aspects of training, probably because they are considered in-house activities by DOE contractors.

DOE contractor tuition-aid programs affect nearby educational institutions. In a few cases, it appears that DOE contractors do not perceive these local educational institutions as the most appropriate sources for providing the specialized training required for their particular workforce. Many DOE contractors, however, do indicate close working relationships with nearby colleges and universities, although one survey respondent replied that "universities often are not at the forefront of scientific and managerial state-of-the-art in their curricula." Through training department coordinators, 11 contractors offer employees audio-visual courses developed at nearby educational institutions. In these cases, the employee-student receives both tuition aid from the employer and college credit from the educational institution. In addition, 21 DOE facilities use materials developed at nearby educational institutions for their own in-house training courses. Two instances exist where DOE contractors have helped to develop graduate programs that address specific labor skills required within their workforces. Prior to their development, few nearby opportunities existed for obtaining graduate degrees in these technical skills areas. The involved DOE contractors meshed their financial backing and their interested employees to meet their critical workforce needs.

## SUMMARY AND CONCLUSIONS

All 47 DOE contractor survey participants report the existence of tuition-aid programs at their facilities. These programs have been in operation from two years to more than 32 years, the age of the DOE contractor system at the time of the survey.

The objectives that DOE contractors rate of greatest importance for tuition-aid programs are to aid employees in personal development, to improve employee job performance, and to prepare employees for future company assignments. The major identified objectives of DOE contractor tuition-aid programs are identical to those reported in private industry.

Thirty-nine DOE contractor tuition-aid plans were received and analyzed. Although the content varies from plan to plan, similarities exist. DOE contractors encourage qualified employees to further their education and training. They provide varying amounts of cost reimbursement. The majority provide financial assistance only for courses that are either job-related or degree-oriented. Course enrollment is usually employee initiated, but management approved. Few DOE contractors allow courses to be taken on company time, as is also the case in the private sector of the U.S. economy.

Eighty-five percent of the DOE contractor tuition-aid programs are administered by specific company organizational entities, i.e., offices, departments, divisions. Education and training departments and personnel services offices generally perform the major management responsibilities. A few DOE contractor tuition-aid programs (6%) are university administered.

The most prevalent method of financing tuition-aid programs is for each company department or division to be financially responsible for tuition expenses accumulated by its assigned employees. Tuition-aid expenses are also paid through staff line budgets, central company budgets, and overhead indirect funds.

The implementation and operations of DOE contractor tuition-aid programs are widely dispersed throughout the company. All supervisory personnel show some degree of responsibility for effective tuition-aid program operation, with the first-line supervisor of the tuition-aid participant assuming the key role. The supervisor involvement includes initially introducing employees to the tuition-aid concept, advising employees on appropriate career patterns, and ensuring that new knowledge is used directly on the job.

Eligibility for tuition-aid among the DOE contractor survey respondents varies. Sixty-five percent require full-time employment status; whereas 24% indicate eligibility for certain part-time employees. Forty-one percent place reimbursement limitations on employees with other sources of financial assistance. Sixty-eight percent reimburse employees only if they complete courses with a grade of C or better. Sixteen percent stipulate time or money paybacks from tuition-aid recipients. Twenty-two percent require for tuition-aid eligibility from six months to two years of company service time. Sixteen percent impose post-tuition-aid requirements of time or money. Many of these same stipulations for tuition-aid eligibility are prevalent in U.S. industry surveys.

Tuition-aid expenses increased from $1.2 million in FY78 to $2.1 million in FY80. The average expenditure per participant was $243 in FY79. The anticipated average expenditure per DOE contractor employee was $18 in FY80. Both averages compared favorably with similar results reported in U.S. private industry surveys.

The number of DOE contractor tuition-aid recipients increased from 6077 in FY78 to an expected 8096 in FY80. By facility size and by facility function, employee participation ranged from 7% to 10%, slightly higher than the reported participation rates in private U.S. companies.

DOE contractors rate highly five positive effects of their tuition-aid programs. These include improved career development within the company, increased employee satisfaction, improved effectiveness of managerial personnel, improved effectiveness of scientists, engineers, and technicians, and improved effectiveness of clerical employees. Few perceive any difficulties or liabilities associated with their tuition-aid programs.

Many DOE contractors maintain close relationships with local educational institutions when their interests and efforts are mutually beneficial. Publicizing courses and programs to recruit potential participants is one aspect of education and training where considerable support is offered to DOE contractors from local educational institutions. In a few cases, graduate degree programs have been developed to meet DOE contractor workforce needs.

DOE contractor tuition-aid programs fulfill many of the expectations of employees, employers, unions, and educational institutions. Although financed, administered, and operated in various ways, these programs of educational assistance appear to have benefited both employer and employee. A future study

of DOE contractor tuition-aid participants and their subsequent job performances, however, would yield more definitive results on the benefits of DOE contractor tuition-aid.

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# TRADE

## TRAINING RESOURCES AND DATA EXCHANGE

*Please reply to:*



*What is TRADE?*

Training Resources and Data Exchange (TRADE) refers to a series of activities designed to increase communication and exchange of ideas, information, and resources among Department of Energy contractor facilities in the field of human resource development. TRADE activities are planned and implemented by the DOE Contractor TRADE Committee. Representatives from ten DOE facilities comprise the Committee. The Committee Charter, adopted in November 1978, specifies that:

> "The purpose of the DOE Contractor Training Resources Exchange Committee (to be known as the Project TRADE Committee) is to encourage and facilitate the exchange of ideas, techniques, and resources for improving human resource development within the DOE contractor community. This may be accomplished through the following:
>
> - Training Resources Inventories
> - Conferences/Workshops
> - Publications
> - Task Groups"

*Who is involved in TRADE activities?*

The Department of Energy contractor system is comprised of over 60 laboratories and production facilities owned by DOE and operated by independent organizations under the provisions of a prime contract. At the present time, the DOE contractor network includes over 100,000 workers with cumulative capital investments greater than $12 billion. Two-thirds of these facilities have participated in one or more TRADE activities within the last three years.

*How is the Department of Energy involved?*

The strength of TRADE rests with its emphasis on peer-to-peer exchange. TRADE activities are undertaken by DOE contractors for DOE contractors. Some TRADE activities have also proven to be beneficial to organizations outside of the DOE system, including other federal agencies and educational institutions. Representatives from the Office of Industrial Relations (OIR), DOE, serve as advisors to the TRADE Committee. From the very beginning, OIR has supported TRADE as a mechanism for maintaining the effectiveness and quality of the contractor work force.

Appendix B

PLEASE RESPOND BY JULY 28, 1980

# TRADE

## SURVEY OF EMPLOYEE TUITION-AID PLANS

Name of Person Completing this Questionnaire: _____

Title: _____

Organization: _____

Office Phone: _____

For the purposes of this study, "employee tuition-aid plan" is defined as any formal program through which an organization offers financial assistance to some or all of its employees to encourage them to complete courses of study on or off company premises. The assistance covers a substantial portion of the tuition charged by the educational institution or private company conducting the course; it may also allow for laboratory fees, books, transportation, or other related expenses. The courses (whether taken at company request or on the initiative of eligible employees) have to bear at least an indirect relationship to the employee's present or possible future job or be necessary for a job-related graduate or undergraduate degree.

1. How long has your organization administered an employee tuition-aid program?
_____ years

2. What office administers the tuition-aid program?

_____

3. How is the administration of your tuition-aid program budgeted?

_____ _____

_____

4. Briefly explain the tuition-aid plans in relationship to your total training activities:

_____

_____

_____

_____

_____

5. For each of the following items, what was the total number of dollars your organization paid under the tuition-aid plan for benefits to covered employees for the following years?

| | FY 1978 | FY 1979 | FY 1980 EST. | FY 1981 EST. |
|---|---|---|---|---|
| A. Total tuition payments for employees | | | | |
| B. Total payments for student expenses other than tuition (such as books, test fees, and registration fees) | | | | |
| C. Administration of the program | | | | |
| D. What were your organization's total expenditures for employee eduction and training | | | | |

6. How many employees (union and non-union) were on your payroll as of 5/31/80? _____

7. How many of your eligible employees have used the tuition-aid program?

| | Used program at least once | Used program on a regular basis |
|---|---|---|
| In 1975 | | |
| 1976 | | |
| 1977 | | |
| 1978 | | |
| 1979 | | |
| 1980 (est.) | | |

8 Approximately what percentage of the following categories of eligible personnel used the employee tuition-aid program in FY 1979? (Please check if not eligible)

| Category | % | Not Eligible |
|---|---|---|
| A. Scientists | ____ | ____ |
| B. Engineers | ____ | ____ |
| C. Technicians | ____ | ____ |
| D. Craftsmen | ____ | ____ |
| E. Managerial Personnel | ____ | ____ |
| F. Other | ____ | ____ |

9. Who must give formal approval to each employee's application for tuition-aid?

| Formal Approval Required | No | Yes |
|---|---|---|
| A. Employee's immediate supervisor | ☐ | ☐ |
| B. Supervisor of education and training | ☐ | ☐ |
| C. Personnel department | ☐ | ☐ |
| D. Joint or union education committee | ☐ | ☐ |
| E. The educational institution offering the course | ☐ | ☐ |
| F. Other company or union representatives (Please specify by title) | ☐ | ☐ |

_____

_____

_____

10. What is the role of the employee's immediate supervisor in terms of publicizing, initiating, screening, approving, or monitoring participation in the tuition-aid program?

_____

_____



11. How important are the following objectives to your organization's tuition-aid plan?

| | Not a factor at all | A consideration, but not important | Important | Very important | Most important, a key issue |
|---|---|---|---|---|---|
| A. To recruit employees | ☐ | ☐ | ☐ | ☐ | ☐ |
| B. To update scientists' and engineers' knowledge and skills to changing technology | ☐ | ☐ | ☐ | ☐ | ☐ |
| C. To update technicians' knowledge and skills to changing technology | ☐ | ☐ | ☐ | ☐ | ☐ |
| D. To update managerial personnel's knowledge and skills to changing technology | ☐ | ☐ | ☐ | ☐ | ☐ |
| E. To update clerical personnel's knowledge and skills to changing technology | ☐ | ☐ | ☐ | ☐ | ☐ |
| F. To aid employees in their personal development and growth | ☐ | ☐ | ☐ | ☐ | ☐ |
| G. To improve the performance of employees on the job | ☐ | ☐ | ☐ | ☐ | ☐ |
| H. To prepare employees for future assignments in the company | ☐ | ☐ | ☐ | ☐ | ☐ |
| I. To increase attractiveness of company benefit package | ☐ | ☐ | ☐ | ☐ | ☐ |
| J. To conform to a negotiated agreement | ☐ | ☐ | ☐ | ☐ | ☐ |
| K. Other(s) | ☐ | ☐ | ☐ | ☐ | ☐ |

12. Based on the following items, what impact has the tuition-aid program had on your organization?

| Impact | Very negative impact | Some negative impact | No significant impact | Some positive impact | Very positive impact |
|---|---|---|---|---|---|
| A. Improved effectiveness of clerical employees on the job..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| B. Improved effectiveness of managerial personnel on the job..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| C. Improved effectiveness of scientists, engineers, and technicians on the job..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| D. Lower rate of labor turnover.. | ☐ | ☐ | ☐ | ☐ | ☐ |
| E. Higher level of employee satisfaction..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| F. Improved career development within the company.... | ☐ | ☐ | ☐ | ☐ | ☐ |
| G. Better union/management relations..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| H. Lower rate of absenteeism.... | ☐ | ☐ | ☐ | ☐ | ☐ |
| I. Improved awareness of civic and community activities ..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| J. Other(s) (Please specify).. | ☐ | ☐ | ☐ | ☐ | ☐ |

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13. Please indicate the level of support provided to your organization by local education institutions. (Please check one box for EACH item)

| | Not requested by company | Education institution unwilling to provide | One a year or less | 2 or 3 times a year | 4 times a year or more |
|---|---|---|---|---|---|
| A. Participate in community industry/labor/education groups to assist in meeting worker education needs..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| B. Develop training materials and conduct sessions to meet company training requirements ... | ☐ | ☐ | ☐ | ☐ | ☐ |
| C. Participate in planning related to the tuition-aid program..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| D. Publicize courses and programs to recruit potential participants..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| E. Conduct courses on company premises ..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| F. Conduct courses with enrollment open only to company employees..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| G. Offer specialized technical courses on a one time basis or before courses appear in college catalog.. | ☐ | ☐ | ☐ | ☐ | ☐ |
| H. Allow qualified company employees to instruct the company courses on a part-time basis..... | ☐ | ☐ | ☐ | ☐ | ☐ |
| I. Provide noncredit short courses in specialized technical fields..... ..... | ☐ | ☐ | ☐ | ☐ | ☐ |

Does your organization use in-plant audiovisual instruction of university or college courses?
yes _____ no _____

If YES, are persons who receive the instruction considered to be part of the tuition-aid plan. (Please explain your answer)

_____

_____

_____

5. Do you perceive any difficulties or liabilities associated with your tuition-aid program? If so, what are they?

_____

_____

_____

_____

_____





Please return the completed questionnaire to:

John R. Doggette
Oak Ridge Associated Universities
P.O. Box 117
Oak Ridge, Tennessee 37830
FTS 626-3414
(615) 576-3414

If available, please submit the following with the completed questionnaire

- A copy of the latest description of your tuition-aid plan including regulations, bylaws, and any other documents which govern the plan.
- A blank copy of the tuition-aid plan's employee application form.
- Any written description of application procedures for employee participation in the plan.
- Copies of any statistical or narrative reports on the operation of the tuition-aid plan.
- Copies of any bulletin board notices and other planned publicity for employees.

# APPENDIX C
## PARTICIPANTS IN TRADE SURVEY OF EMPLOYEE TUITION-AID PLANS

| Contractor | Facilities |
|---|---|
| Associated Universities, Inc. | Brookhaven National Laboratory |
| Battelle Memorial Institute | Pacific Northwest Laboratory |
| BCS Richland, Inc. | Richland Area |
| Bendix Corporation | Kansas City Plant |
| Computer Sciences Corporation | Las Vegas Area |
| EG&G Idaho, Inc. | Idaho National Engineering Laboratory |
| EG&G, Inc., Las Vegas Area Operations | EG&G Energy Measurements Group |
| Exxon Nuclear Idaho Co., Inc. | Exxon Nuclear Laboratory |
| Fenix and Scisson, Inc. | Las Vegas Area |
| General Atomic Company | General Atomic Company |
| General Electric Company - Nuclear Division | General Electric Company |
| General Electric Company - Nuclear Division | Pinellas Plant |
| Goodyear Atomic Corporation | Portsmouth Gaseous Diffusion Plant |
| Hanford Environmental Health Found. | Richland Area |
| Iowa State University | Ames Laboratory |
| Jones (J. A.) Construction Services | Richland Area |
| Lovelace Medical Foundation | Lovelace Medical Foundation |
| Lummus (C. E.) Corporation | Chicago Operations |
| Mason and Hanger - Silas Mason Co., Inc. | Pantex Plant |
| Midwest Research Institute | Solar Energy Research Institute |
| Monsanto Research Corporation | Mound Facility |
| National Lead Company of Ohio | National Lead Company of Ohio |
| Oak Ridge Associated Universities | Oak Ridge Associated Universities |
| Princeton University | Princeton Plasma Physics Laboratory |
| Reynolds Electrical & Engineering Corporation | Las Vegas Area |
| RMI Company | RMI Company |
| Rockwell Hanford Operations | Hanford Production Operations |
| Rockwell International, Energy Systems Group | Energy Technology Engineering Center |
| Rockwell International Energy Systems Group | Rocky Flats Plant |
| Rust Engineering Corporation | Oak Ridge Area |
| Stanford University | Stanford Linear Acelerator Center |
| Union Carbide Corp., Nuclear Division | Oak Ridge Gaseous Diffusion Plant |
| Union Carbide Corp., Nuclear Division | Oak Ridge National Laboratory |
| Union Carbide Corp., Nuclear Division | Paducah Gaseous Diffusion Plant |
| Union Carbide Corp., Nuclear Division | Y-12 Plant |
| Universities Research Assoc., Inc. | Fermi National Accelerator Laboratory |
| University of California | Lawrence Berkeley Laboratory |
| University of California | Lawrence Livermore Laboratory |
| University of California | Los Alamos National Laboratory |
| University of Chicago and Argonne Universities Association | Argonne National Laboratory |

# APPENDIX C
## PARTICIPANTS IN TRADE SURVEY OF EMPLOYEE TUITION-AID PLANS (continued)

| Contractor | Facilities |
|---|---|
| University of Tennessee | Comparative Animal Research Laboratory |
| Vitro Engineering Company | Richland Area |
| Wackenhut Services, Inc. | Las Vegas Area |
| Western Electric Company | Sandia National Laboratories (CA) |
| Western Electric Company | Sandia National Laboratories (NM) |
| Westinghouse Electric Corp. | Hanford Engineering Development Lab. |
| Zia Company | Los Alamos Area |