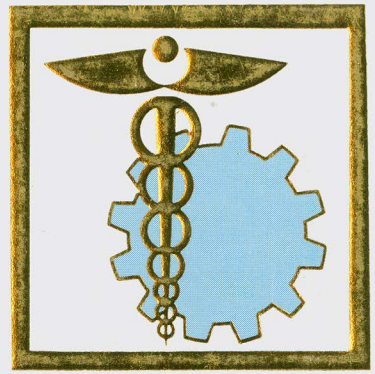

Projects of the National Institute for Occupational Safety and Health

NIOSH

1988

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • PUBLIC HEALTH SERVICE • CENTERS FOR DISEASE CONTROL • NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

National Institute for Occupational Safety and Health

Projects for FY 1988

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

May 1988

DHHS (NIOSH) Publication No. 88-113

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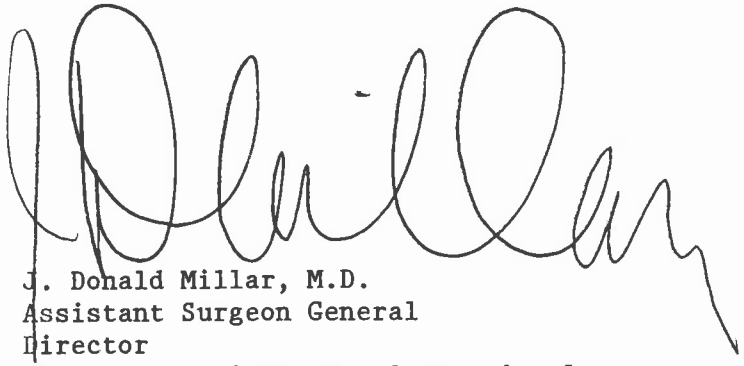
PREFACE

During the NIOSH Program Review in January of 1988, we had an opportunity to describe for the CDC Director our thoughts on the subjects of leadership, stewardship, and our sense of direction for future years. Because those issues impact directly on planning and the subsequent development of projects, I would like to introduce this year's set of project plans by quoting from my opening remarks from that meeting:

> "What I have chosen to do in this presentation is to focus on questions of stewardship. We have a number of resources given to us, money being the most visible and obvious to everyone, . . . but there are some others that are perhaps not quite so obvious. One is the choice of our own leadership within NIOSH. I am proud of what we have done in the past couple of years. Five of our seven Directors are new within the past 2 years. We are very pleased with our choice of leaders.
>
> Another element over which one needs to exercise stewardship is that of integrity. I think that in the case of NIOSH this is perhaps our most important resource. We have moved this year to strengthen that in certain symbolic ways. We named one of our facilities the Alice Hamilton Laboratory putting into its very title a name that represents courage, the search for truth, and scientific integrity. In terms of the capability of our people, we are exercising stewardship. We have initiated this year, for instance, the Alice Hamilton Award in Science for contributions to occupational safety and health.
>
> Another element is stewardship of our 'up-to-dateness.' We have this year managed our budget in such a way that we were able to permit initiatives, and our people have responded very well and have started new projects in several initiative areas. We think this has been a good stewardship, not only of our money, but also of our need to remain on the 'cutting edge.'
>
> Another resource over which we need to exercise good stewardship, of course, is the direction in which we go--our sense of direction. In that regard we have completed our Ten Strategies, and we are now, in fact, operating the NIOSH program against the recommendations made in those strategies. That is, each project has been compared with the recommendations in the strategies. We have used those recommendations to influence 'thumbs up/thumbs down' decisions on projects.
>
> Finally, and perhaps in my judgment a very, very important intangible, is our stewardship of our own heritage. We continue, as always, to do what we have been doing in NIOSH in the context of a serious commitment to the humanitarian aspects of our work, the principles that were built into the Occupational Safety and Health Act. We continue our focus on the prevention of work-related diseases

and injuries, and we view the best way of accomplishing that is the way spelled out in the Occupational Safety and Health Act, namely, to assure a safe and healthful workplace for every working American man and woman. We remain committed to that ideal, and what we do today, and, hopefully, what we will do this year and in the future is all done in that context."



J. Donald Millar, M.D.
Assistant Surgeon General
Director
National Institute for Occupational
Safety and Health

INTRODUCTION

NIOSH PROJECTS FOR FY 1988

The project plans for FY 1988 are reflective of several major changes in the planning system. The first and most important is that these projects were developed to be consistent with specific recommendations of the National Prevention Strategies for the Ten Leading Work-Related Diseases and Injuries.

When the projects were developed by the researchers and reviewed within the research divisions, each was directed at resolution of problems or filling knowledge gaps as highlighted in the strategy recommendations. They were then reviewed by the program analysis staff within the NIOSH Office of Planning and Evaluation for their specific consistency with recommendations in those strategies . Finally, and most important, each project was reviewed and discussed between the NIOSH Director/Deputy Director and the appropriate research staff. A singularly important criterion for the approval or disapproval of those projects was their adherence to the strategy recommendations. This process marks the first real evidence of the utility of the National Prevention Strategies for internal planning.

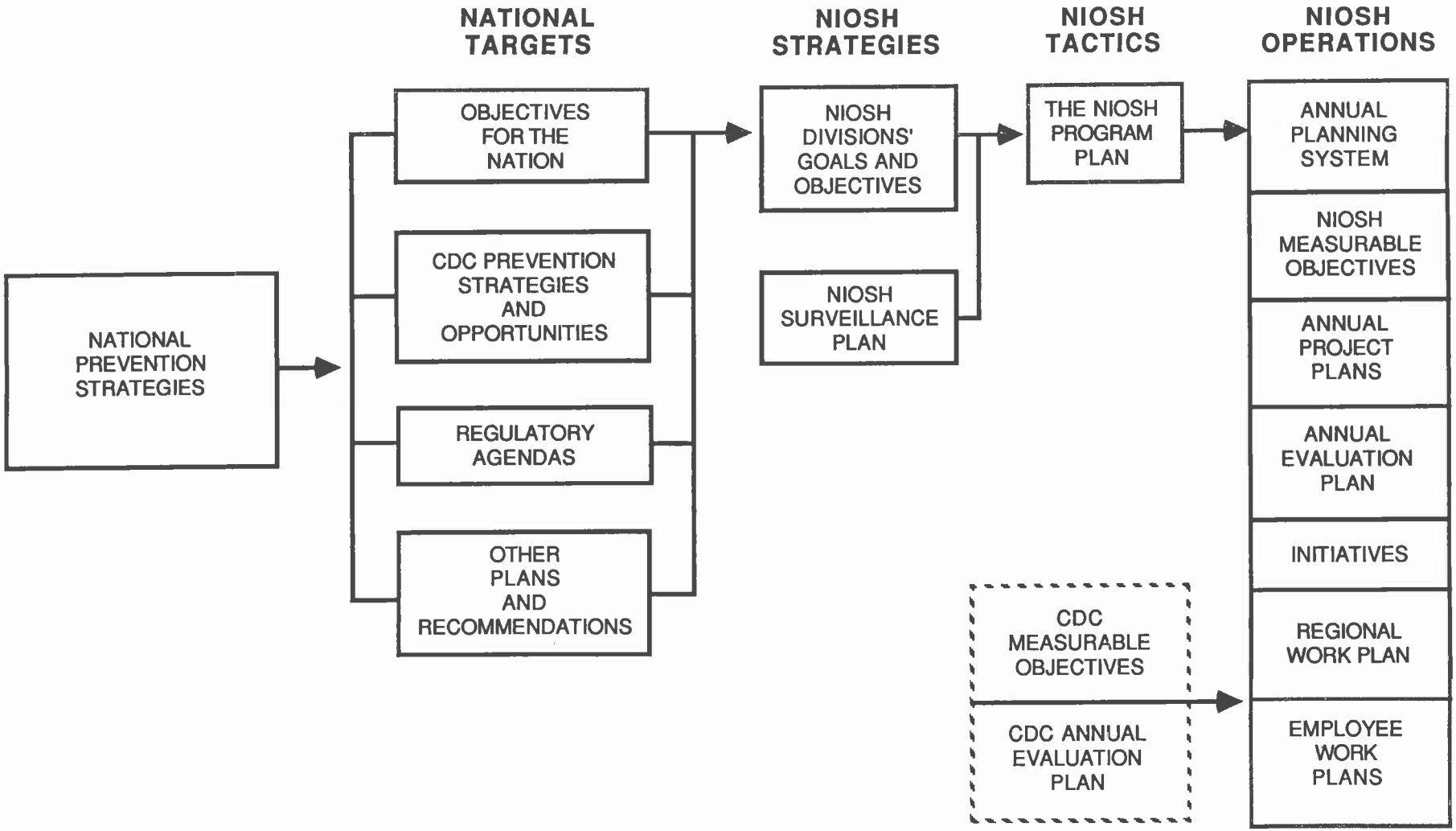
There are several important planning challenges that must be met during FY 1988. The first of these is to establish a link between the many strategy recommendations and the individual project plans. So many recommendations exist that a project plan in itself could have both high relevancy and high priority, and still not be part of an organized approach to accomplishment of the prevention strategies. What is clearly needed is a strategic plan, one in which the similar recommendations of the strategies are formed into programs for an organized focus rather than a scatter-gun approach.

The second challenge is to formulate these National Prevention Strategies into specific, time-framed objectives which can then become part of the Public Health Service Year 2000 planning process. In the creation of the strategies themselves, we have already accomplished the formulation of the priority for the objectives, drafted general objectives, and subjected them to nationwide outside review, collaboration, and criticism. The remaining task is their standardization and formulation.

The third and final challenge is to take these different levels and different networks and create from them a system which begins with long-range plans dealing with broad topics; reduce them to shorter-range plans with more finite results; and link them more acutely to individual research plans. All of this must be constructed in a fashion that will allow easy progress reporting and periodic adjustment.

The NIOSH Office of Program Planning and Evaluation has begun to manage that process. A "Planning Work Group" has been formed to consider: the appropriate structure and development of long-range objectives; the best format for the annual project plans; and the most efficient and effective computerized planning information system. The creation of this total system will be a planning landmark for NIOSH and for occupational safety and health.

NIOSH PLANNING FORMAT
FY 1988



THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

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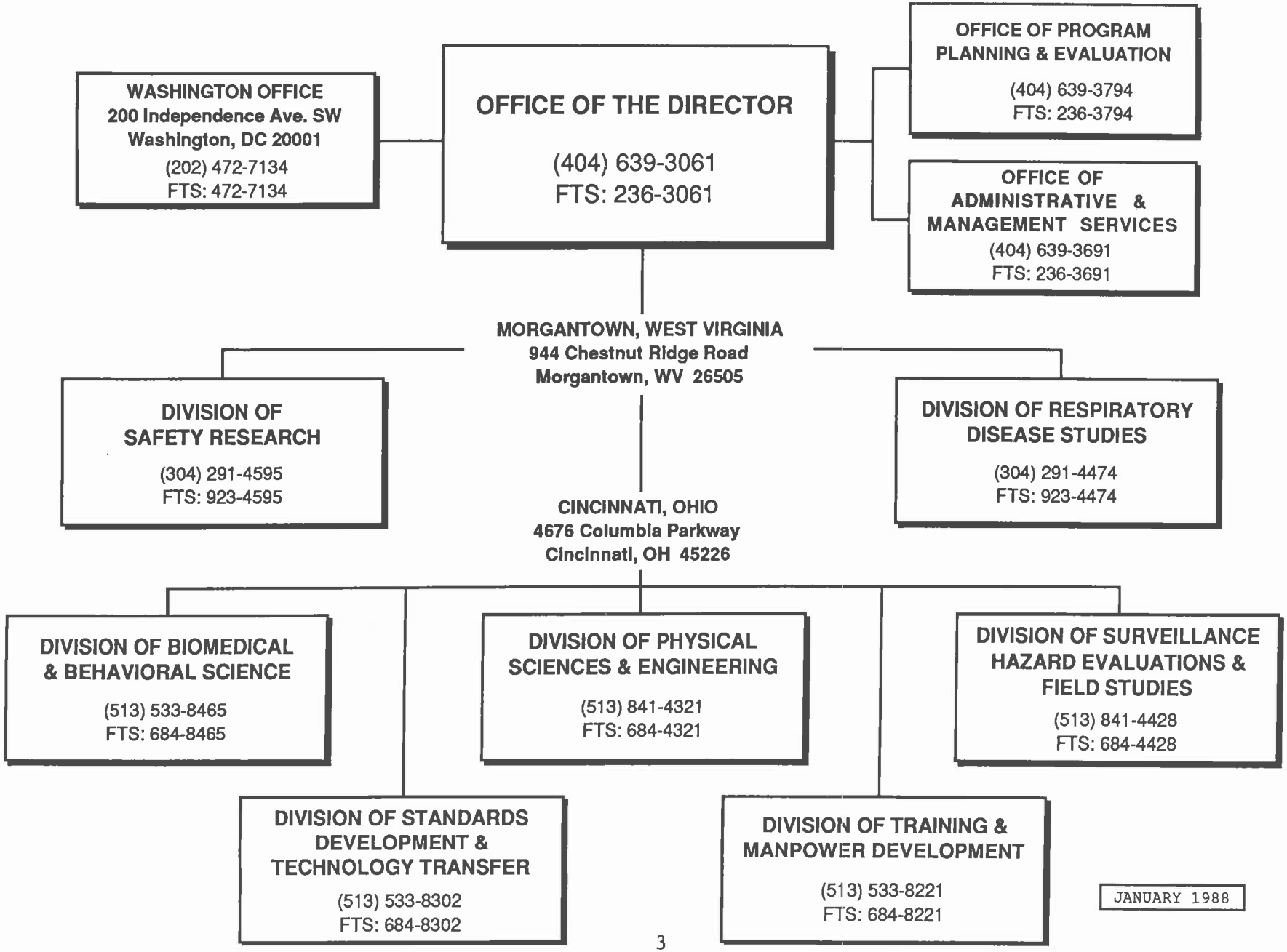

JANUARY 1988

NIOSH DIVISIONS' MISSION STATEMENTS

DIVISION OF BIOMEDICAL AND BEHAVIORAL SCIENCE

The Division of Biomedical and Behavioral Science (DBBS) conducts laboratory research for the development of criteria for standards in the areas of toxicology, behavioral science, physiology, ergonomics, and the effects of physical agents. DBBS investigates new problems created by technology requiring ameliorative action, and develops medical criteria to assure that the workplace is not responsible for diminished health, functional capacity, or life expectancy of workers.

DBBS plans and conducts laboratory and work site research on the psychological, behavioral, physiological, and motivational factors which reflect stress situations posed by job demands as well as those induced by chemical and/or physical agents. The division determines human tolerance limits to physical work and ability to adjust to environmental conditions as influenced by age, sex, body build, state of health, physical fitness, and psychosocial factors.

The division also conducts laboratory investigations designed to evaluate the dose effects of toxic agents, singly and in combination, on neurobehavioral functions in experimental animals, and performs work site experiments designed to define and characterize effects of toxic agents on the nervous system. Through in-depth and long-term investigations, DBBS develops information on cumulative dose-response effects. The division also develops and applies research methodology to quantify short-term and long-term alterations in the cardiopulmonary function of animals exposed to industrial chemicals. Through laboratory diagnosis of biological samples from animals and humans exposed experimentally or occupationally to toxic industrial substances, DBBS provides clinical and biochemical laboratory consultation and develops procedures for laboratory diagnosis of occupational diseases, including biological monitoring methods.

DBBS conducts laboratory and work site research on hazards from such physical agents as noise, infrasound and ultrasound, vibration, and non-ionizing and ionizing energy sources in the workplace. The division develops improved procedures, instrumentation, and methodologies for the evaluation of potential occupational hazards resulting from workers' exposure to physical agents, and provides consultation for the development of health criteria and standards pertaining to physical agents found at the workplace.

DBBS is located at the Robert A. Taft Laboratory, 4676 Columbia Parkway, Cincinnati, Ohio 45226. The Division Director is Janet C. Haartz, Ph.D., telephone (513) 533-8465, FTS 684-8465.

DIVISION OF PHYSICAL SCIENCES AND ENGINEERING

The Division of Physical Sciences and Engineering (DPSE) conducts worksite and laboratory research to develop procedures and equipment for the control and measurement of occupational safety and health hazards. It also operates a quality control reference program for industrial hygiene laboratories.

DPSE conducts a control technology assessment and research program to prevent occupational disease and injury before they occur by assisting employers, especially smaller businesses, in better design and operation of the workplace. This work involves identification and evaluation of effective engineering controls used in a variety of processes and industries. The division promotes the transfer and widespread application of these preventive engineering control measures. It also provides engineering expertise in formulating effective workplace standards.

DPSE conducts research to establish performance requirements for direct reading, area, and personal instrumentation used in the evaluation and prevention of exposures to hazardous levels of chemical and physical agents. The division also provides consultation for the development of criteria and standards on monitoring strategies, instrumentation, and controls.

DPSE conducts research to develop and improve methods for analysis of toxic substances found in the workplace. Also, DPSE provides analytical chemistry support to the Institute's laboratory research and field investigation programs, including routine measurement of samples by established methods, special measurement of complex samples, and short-term development of methods. This analytical research and support involves the use of state-of-the-art analytical instrumentation such as high resolution gas chromatography, gas chromatography-mass spectrometry, high performance liquid and ion chromatography, and Fourier Transform Infrared Spectroscopy (FTIR). In addition, DPSE provides consultation in analytical chemistry to all elements of NIOSH, and to other government agencies, recommending appropriate sampling and analytical methods.

Quality of the nation's workplace environment analytical data is assessed through the NIOSH Proficiency Analytical Testing (PAT) Program. The division (working with the American Industrial Hygiene Association) determines the analytical competence of participating laboratories, and assists the laboratories in improving analytical performance. The division also encourages and supports development and promulgation of national guidelines for accreditation of industrial hygiene laboratory facilities; selects and develops standard reference materials for use in the measurement of industrial hygiene hazards, and provides for quality assurance in the analysis of the Institute's laboratory and field programs and contract laboratories.

The Division of Physical Sciences and Engineering is located at the Alice Hamilton Laboratory, 5555 Ridge Avenue, Cincinnati, Ohio, 45213. The Division Director is Philip J. Bierbaum, telephone (513)841-4321, FTS 684-4321.

DIVISION OF RESPIRATORY DISEASE STUDIES

The Division of Respiratory Disease Studies (DRDS) is the Institute focal point for clinical and epidemiological research on occupational respiratory diseases. The division provides legislatively mandated medical and autopsy services and conducts medical research to fulfill the Institute's responsibilities under the Federal Mine Safety and Health Act of 1977.

The division conducts field studies of occupational respiratory diseases, and designs and interprets cross-sectional and prospective morbidity and mortality studies of occupational respiratory disease. Field studies are conducted at mines, mills, and other industrial plants where occupational respiratory diseases occur among workers at those installations. The division uses epidemiological techniques, including studies of morbidity and mortality, to detect common characteristics related to occupational respiratory diseases.

To formulate and implement programs which will identify factors involved in the early detection and differential rates of susceptibility to occupational respiratory diseases, DRDS conducts cell biology research to determine the role of microorganisms and environmental exposure in occupational respiratory diseases. The division also provides autopsy evaluations and a pathology research program. Research is conducted on immunological mechanisms and cell physiology to elucidate the effects of environmental exposure associated with occupational respiratory diseases.

DRDS provides for planning, coordinating, and processing medical examinations mandated under the Federal Mine Safety and Health Amendments Act of 1977, and operates a certification program for medical facilities and physicians who participate in the examination program. DRDS also evaluates and approves employer programs for the examination of employees in accordance with published regulations, and arranges for the examination of employees who work at locations not having an approved examination program. The division also conducts the National Coal Workers' Autopsy Program and performs research into the post-mortem identification and quantification of occupational respiratory exposures.

DRDS is located at 944 Chestnut Ridge Road, Morgantown, West Virgina 26505. The Division Director is Mr. Robert E. Glenn, telephone (304) 291-4474, FTS 923-4474.

DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS, AND FIELD STUDIES

The Division of Surveillance, Hazard Evaluations, and Field Studies (DSHEFS) conducts surveillance of the nation's work force and its environs to make an early detection and continuous assessment of the magnitude and extent of job-related illnesses, exposures, and hazardous agents. DSHEFS conducts legislatively mandated health hazard evaluations and industrywide epidemiological research programs through longitudinal record studies and clinical/environmental field studies and surveys. DSHEFS also provides, upon request and on a self-initiated basis, technical assistance, demonstrations, and consultation on technical matters pertaining to occupational safety and health to other federal agencies, State and local agencies, and other technical groups, unions, employers, and employees.

Surveillance efforts are designed for the early detection and continuous assessment of the magnitude and extent of occupational illnesses and exposures to hazardous agents, using new and existing data sources from federal, State, and local agencies, labor, industry, tumor registries, physicians, and medical centers. DSHEFS also conducts evaluation and validation studies of occupational illness reporting systems with efforts devoted to developing methods for measuring the magnitude of the national occupational health problem.

Health hazard evaluations and industrywide studies programs (1) provide a technical service to the occupational safety and health community, (2) identify the occupational causes of disease in the working population and their offspring, and determine the incidence and prevalence of acute and chronic effects of work-related exposures to toxic and hazardous substances, and (3) provide information used in standards development for the control of occupational health hazards.

DSHEFS is located at the Alice Hamilton Laboratory, 5555 Ridge Avenue, Cincinnati, Ohio 45226. The Division Director is Lawrence J. Fine, M.D., telephone (513) 841-4428, FTS 684-4428.

DIVISION OF SAFETY RESEARCH

The Division of Safety Research (DSR) serves as the focal point for the Institute's occupational safety research program, and designs and conducts safety research efforts aimed at preventing or mitigating traumatic injury and death to workers in all industries except mining. The division evaluates, certifies, and maintains records of respirators and hazard measuring instruments, and develops new performance criteria, standards, and guidelines for certification of personal protective equipment and hazard measuring instruments. The division is responsible for the day-to-day operation of the respirator and coal mine dust personal sampling unit testing and certification regulations pursuant to 30 CFR 11 and 30 CFR 74, respectively.

DSR plans and conducts laboratory and worksite studies to establish effective methods for making work safe through the use of personal protective equipment and engineering controls for equipment, machines, tools, safety devices, and other factors in the workplace. The division conducts worksite research to identify, develop, and document effective work practices and managerial approaches for minimizing the risk of workers being injured as the result of exposure to workplace hazards. DSR also provides technical assistance in solving safety problems which require engineering or system safety expertise for solution, and develops technical criteria to support recommendations for safety standards.

DSR maintains a national surveillance data system for the early detection and monitoring of the occurrence and extent of accidents and injuries in occupational settings, and conducts field epidemiologic studies of occupational injuries and their etiologies. To identify and document effective methods for reducing musculoskeletal injuries, DSR conducts studies to characterize the effects of workplace environment factors on safety, and provides technical assistance on problems requiring expertise in ergonomics, industrial engineering, and related disciplines. Using systems safety techniques, the division analyzes operations to identify hazards and develop injury prevention strategies.

The division also conducts general occupational injury surveillance, including the collection, analysis, and interpretation of injury statistics, and maintains various surveillance data bases. DSR works with State agencies to upgrade injury surveillance and maintains a national injury surveillance system for risk assessment, research needs prioritization, and identification of problems for the occupational safety and health community.

To ensure that air purifying respirators and air supplied respirators continue to meet regulatory requirements, DSR conducts audits and reviews performance requirements, standards, and guidelines for certification. The division also develops new performance requirements and standards for respirators and evaluates the quality control plans for them.

DSR is located at 944 Chestnut Ridge Road, Morgantown, West Virgina 26505. The Division Director is Thomas R. Bender, M.D., telephone (304) 291-4595, FTS 923-4595.

DIVISION OF STANDARDS DEVELOPMENT AND TECHNOLOGY TRANSFER

The Division of Standards Development and Technology Transfer (DSDTT) develops, from existing scientific and technical information, documents containing (a) criteria for recommended occupational safety and health standards, and (b) technical and scientific information relevant to a variety of occupational safety and health issues. In cooperation with the U.S. Department of Labor, DSDTT coordinates NIOSH testimony at the Department of Labor hearings on proposed standards to support scientific and technical considerations, and prepares and annually revises the legislatively mandated toxic substances list. DSDTT manages a clearinghouse for receiving, storing, retrieving, and disseminating technical information on occupational safety and health, and provides a statistical methodology review for NIOSH research activities.

DSDTT compiles and analyzes the results of research and investigations pertaining to selected occupational safety and health hazards for the purpose of preparing recommended standards. These standards include environmental limits, requirements for medical examinations for workers, labeling, personal protective equipment and clothing, employee notification of hazards, safe work practices, sanitation, monitoring, and recordkeeping. The division prepares special occupational hazard reviews and risk assessments of potential workplace hazards where new evidence of a particular hazard is received, and prepares recommended emergency temporary standards as appropriate.

DSDTT identifies information on worker exposure, chemical hazard severity, and other data through profile development, and maintains a system for determining the status of projects in other federal agencies and the private sector for quick response in identification of potential workplace hazards. The division establishes liaison with government and non-government sources to obtain technical data, and develops and maintains the NIOSH computer-based technical information system and other computer-oriented information resources.

The division identifies, in priority order, those substances, industries, and occupations which pose an unacceptable safety and health hazard, and prepares priority lists of substances, processes, industries, etc., for which document development and Institute research should be developed or revised. DSDTT also analyzes information on the exposure of workers to safety and health hazards, and assesses the adequacy of studies, research, and data collection activities to provide the basic information needed for decisions on document development, priorities establishment, and other actions coming from essential information.

DSDTT is located at the Robert A. Taft Laboratories, 4676 Columbia Parkway, Cincinnati, Ohio 45226. The Division Director is Mr. Richard A. Lemen, telephone (513) 533-8302, FTS 684-8302.

DIVISION OF TRAINING AND MANPOWER DEVELOPMENT

The Division of Training and Manpower Development (DTMD) implements Section 21 of the Occupational Safety and Health (OSH) Act, which mandates the training and education functions. DTMD develops programs to increase the numbers and competence of the OSH professional and paraprofessional work force. This continuing education program provides short-term technical training courses, including seminars, independent study packages, and specialized workshops, to federal, State and local government, private industry, labor unions, and other organizations in the OSH field. The curriculum development program designs and produces course packages and other training materials for Institute-sponsored training programs, including those presented by in-house faculty as well as those conducted by universities and other outside training organizations.

The educational resource development program continually assesses manpower needs for OSH practitioners and researchers on a nationwide basis. To help meet the demand, DTMD administers a major training grant program to foster the development of academically-based training programs for occupational physicians, occupational health nurses, industrial hygienists, toxicologists, epidemiologists, and safety professionals including engineers and managers. DTMD also develops specific criteria and sets standards for the selection of qualified organizations to conduct and evaluate the effectiveness of Institute-initiated programs.

DTMD is located at the Robert A. Taft Laboratories, 4676 Columbia Parkway, Cincinnati, Ohio 45226. The Division Director is Thomas C. Purcell, Ph.D., telephone (513) 533-8221, FTS 684-8221.

SUMMARIES OF NIOSH STRATEGIES

Occupational Lung Diseases

Musculoskeletal Injuries

Occupational Cancers

Severe Occupational Traumatic Injuries

Occupational Cardiovascular Diseases

Disorders of Reproduction

Neurotoxic Disorders

Noise-Induced Hearing Loss

Dermatological Conditions

Psychological Disorders

SUMMARIES OF NATIONAL PREVENTION STRATEGIES

INTRODUCTION

In 1983, the National Institute for Occupational Safety and Health (NIOSH) published a suggested list of leading work-related diseases and injuries. Scientists at the Institute had developed this list as a guide for setting priorities and allocating resources within the Institute, and as a focal point for discussion among occupational health professionals throughout the country. NIOSH then undertook the preparation of proposed national strategies for the prevention of each condition on the list.

In May 1985, NIOSH and the Association of Schools of Public Health co-sponsored a national symposium for the in-depth evaluation of proposed strategies for the first five conditions: occupational lung diseases, musculoskeletal injuries, occupational cancers, severe occupational traumatic injuries, and occupational cardiovascular diseases. Under the direction of 51 expert panelists, the more than 450 symposium participants--representing academia, management, organized labor, professional associations, and voluntary organizations--discussed, revised, elaborated, and further developed the strategies. This article summarizes the results of that professional effort (ASPH/NIOSH, 1986).

At the symposium, a new national vision was introduced--a vision that unsafe working conditions are no longer tolerable and that clear and understandable steps can be taken to prevent the leading occupational diseases and injuries. (1) An important component in each proposed prevention strategy is surveillance. Surveillance is needed to accurately estimate the prevalence of the disorder, to identify the population at risk, to direct the most effective preventive measures where they are needed, and to measure the impact of intervention. (2) The strategies also focus on scientific research. Research is needed to develop the specific knowledge and understanding on which prevention depends. (3) Another integral component is training. Effective communication through education, technology transfer, the dissemination of information, and training is required to reach the full potential of prevention. Well-trained workers, knowledgeable managers, and fully informed occupational safety and health professionals are essential elements in any prevention program. (4) Finally, the strategies emphasize the importance of applying and adapting existing knowledge to prevent occupational diseases and injuries. Research results are only effective in preventing such conditions if they are applied in the workplace. Much useful information is already available, and ways must be found to target and apply it where it will do the most good.

Readers are encouraged to apply and adapt these proposals to their own situations as appropriate and, through study and use, to help evaluate and improve them. Because the development of such strategies requires ongoing review and revision, comments and suggestions to that end are always welcome.

OCCUPATIONAL LUNG DISEASES

The lung is both a target organ and a portal of entry for toxic substances. The likelihood of toxic exposure to the lung can be high, for example an estimated 1.2 million U.S. workers are potentially exposed each year to silica dust alone. Although occupational lung disease is caused by the inhalation of toxic substances in the work environment, the association between occupational exposure and lung disease is not always apparent or simple. The occurrence of multiple or mixed exposures, the non-specificity of symptoms, the relatively long latency for these diseases, and the independent or synergistic effects of cigarette smoking may all confound the recognition of occupational factors in lung disease.

Classifying lung disease by the type of occupational exposure that leads to it permits rapid identification of toxicants and the application of available control technology. Major types of exposure include inorganic dusts (silica, asbestos, coal dust), organic and metallic dusts (cotton, grain, metallic salts, antibiotics), gases and fumes (nitrogen, methane, ammonia, phosgene), viable aerosols (bacteria, viruses), and respiratory carcinogens (arsenic, chromium, coke oven emissions). Four occupational lung diseases that are deemed preventable are--asbestosis (caused by exposure to asbestos), byssinosis (cotton dust), silicosis (silica), and coal workers' pneumoconiosis (coal dust). These have been targeted in the 1990 objectives of the U.S. Public Health Service for elimination of new cases among workers newly exposed after 1985 (USDHHS, 1980). These diseases and their causative agents will be cited as examples in the following prevention strategy. Methods for their control may be adapted for most other occupational lung diseases.

Disease descriptions

The asbestos-related diseases include nonmalignant fibrogenic effects on the lung parenchyma and pleural plaques as well as malignant neoplasms of the lung and the serosal linings of the chest and abdomen (mesothelioma). The latency is $\geq$15 years for asbestosis and 20-40 years for malignancies. Synergistic effects of smoking increase the risk of lung cancer.

Byssinosis includes both acute (reversible) and chronic lung disease. The effects may be due to specific causal agents in the dust of certain varieties of cotton or other vegetable fibers.

Silicosis may be acute or chronic (nodular pulmonary fibrosis) and affects workers in foundries, stone quarries, sand and gravel operations, and mines. Latency is long, and disease progresses even after exposure ends.

Coal workers' pneumoconiosis (CWP) shows a clear dose-response relationship to coal-dust exposure. Enforcing lower dust standards in both Great Britain and the United States has reduced the incidence of this disease, and when workers with early, simple CWP are identified, serious disabling disease may be prevented by transferring the workers to lower-dust environments.

Implementing what we know

Surveillance: Environmental surveillance of hazardous agents is needed to identify occupations, industries, and worksites with potential for high incidence of occupational respiratory disease (e.g., asbestos-removal operations, industries using cottons with high levels of endotoxins, and ground silica). Current environmental surveillance should continue, and activities for prevention should be targeted to the locations identified. Disease surveillance of workers is also important and can help determine pre-existing conditions (reduced ventilatory function), early development of disease (simple CWP), or hypersusceptibility to given agents (acute reactions to cotton dusts). Interventions, such as reducing further exposure, should focus on the affected workers.

Substitution: Hazardous agents can often be replaced by less hazardous and noncarcinogenic substitutes. Cottons that cause less acute responses in humans (e.g., high-grades, blends, or washed cottons and synthetic substitutes) can be used; and silica can be banned as an abrasive blasting material, with nontoxic materials substituted.

Control: Technology is already available to control many hazardous exposures through engineering design and automation, ventilation, and isolation. Although silica exposures above legal limits are still occurring, control can nearly always be achieved through engineering or substitution once exposure is recognized. Personal protective devices (e.g., respirators), however, should not be considered primary protection mechanisms because they rely on human intervention and may not provide the level of protection determined in the laboratory.

Incentives and Regulation: Economic incentives, such as lower insurance premiums, will often stimulate the adoption of control measures. More often, regulatory enforcement is needed for effective control of exposure levels. The permissible exposure limit for asbestos should be reduced, as recommended by NIOSH, to the lowest measurable level--100,000 fibers/m^3, and OSHA should require a dust-control and monitoring plan before any work involving asbestos exposure begins. Present silica standards range from 33 ug/m^3 to 98 ug/m^3 and should be unified. The 1970 coal dust standard (2 mg/m^3 with medical monitoring) appears to reduce the incidence of CWP, and the authority of federal inspectors to shut down coal mines where hazards are severe may help to enforce compliance.

Education: Both the Mine Safety and Health Act and the Occupational Safety and Health Act place responsibility on employers to provide safe, healthful workplaces. Workers should be told about hazardous exposures and available control measures, and then workers and managers should cooperate to control exposures through technology transfer, changes in work practices, implementation goals, and periodic assessment. Technical information already available should be used to increase awareness of work-related lung problems and to produce clear, easily understood texts on control for small- as well as large-scale operations. Educational programs targeted to engineers, managers, occupational health professionals (including primary care physicians), and workers should cover the nature of the work environment and how to assess and control work exposures. State and local health departments can provide expertise and leadership for these programs. Although workers' compensation provides financial relief after exposures occur, awareness is needed before exposure through adequate warnings and product labeling.

Tobacco smoking may have additive and/or synergistic effects on the development of lung disease, both for smokers and for others exposed to tobacco smoke. Labor management policies are needed for smoking in the workplace, and appropriate state legislation on smoking in public places could also be used to limit workplace smoking.

What knowledge do we need

Research: Several research needs have been suggested. Substitute agents should be tested to determine their toxicity before they are used. Studies should determine whether serious effects result from episodic, low-level exposures to pulmonary irritants and whether long-term effects follow acute responses. Workers exposed to asbestos should be studied to determine dose-response relationships, the effects of intermittent and short-term high exposures, the pathogenicity of various asbestos fibers (e.g., "short" fibers) and asbestos substitutes, and the significance of pleural changes and pleural plaques. Studies should also identify the fiber-release potential of in-place asbestos materials, the relative risks and benefits of asbestos removal, and the effectiveness of removal practices. The relationship in cotton workers of acute responses and chronic respiratory disease can be clarified if normal annual decrements in lung function are determined. Research on exposure to silica should include dose-response relationships, particularly at low levels and for mixed dusts containing silica; and analysis of current MSHA and OSHA environmental data on exposure to silica will help identify hazardous industries, locations, and specific processes. The carcinogenic properties of quartz also need study. The problem of hypersensitivity pneumonitis and the relationship between smoking and diffuse lung fibrosis should be investigated. Host risk factors (e.g., smoking and atopy) must be examined.

Hazard Detection and Disease Diagnosis: Better methods are needed to measure airborne concentrations of hazardous substances and to enhance environmental surveillance, especially for mixed dusts in underground and surface coal mines. More sensitive techniques must be developed for screening workers to recognize early signs of disease (particularly at the cellular level) and to predict susceptibility to lung diseases. An operational definition of silicosis will help standardize diagnosis and reporting.

Incentives and Regulation: Incentives and educational materials should be available to encourage the efficient use of strategies for controlling exposures. The mandate for medical surveillance in the current Cotton Dust Standard should be reassessed to determine whether new recommendations from NIOSH are needed. Results of long-term studies on the adverse health effects of dust exposure (including nonpneumoconiotic lung diseases, such as bronchitis and emphysema) will help in setting total dust regulations for both coal mining and general industry. Data on the relative causality of exposures to carcinogens and on exposure-response measurements will help in setting effective exposure standards.

Control: When the exact etiologic agent(s) of byssinosis are identified, their removal by cultivating or processing cotton can be facilitated, and effective controls and exposure standards can be developed. Changes in mining techniques necessitate that mine planning and the design and installation of new equipment be based on forecasting and predictive techniques, such as predictive models. For example, the increasing use of longwall mining, the continuous use of mining equipment, and the increased rates at which coal is broken, all require new approaches to control. The characteristics of respirable dust will need to be correlated with coal seam and mining methods; and new technology will be needed to control for intermittent dust sources.

Summary

This prevention strategy cannot succeed on the basis of any one element alone; all must be addressed to prevent occupational lung diseases. Thus, although problem areas can be identified by environmental and medical surveillance, follow-up and elimination or reduction of exposure are also needed. Surveillance must be coupled with exposure control (e.g., work practices, automation, ventilation, incentive systems, strict enforcement of exposure standards) and other important elements described here. Health promotion and development of workplace smoking policies, while not always directly related to occupational exposures, are additional important elements.

MUSCULOSKELETAL INJURIES

Musculoskeletal injuries include both acute and chronic injury to the muscles, tendons, ligaments, nerves, joints, bones, and supporting vasculature. These injuries may be sprains, strains, inflammations, irritations, and dislocations. In the medical literature, this broad class of physical symptoms or complaints is collectively referred to as wear-and-tear disorders, overuse injuries, osteoarthrosis, degenerative joint diseases, chronic microtraumas, and cumulative trauma disorders.

To find preventive measures for these injuries, it is helpful to identify contributing elements and to look at these elements in the four main categories outlined by the Canadian Health Fields Model.

Environmental Hazards: A workplace hazard to the musculoskeletal system is called a traumatogen, or a source of biomechanical stress that results when job demands exceed the worker's strength or endurance.

Human Biologic Factors: Innate qualities, such as physical size, strength, range of motion, work endurance, and the integrity of the musculoskeletal system, influence a worker's ability to perform a job safely.

Behavioral or Lifestyle Factors: Such factors as insufficient sleep or recovery from exertion, job dissatisfaction, obesity or lack of adequate physical fitness, unhealthy diet, and substance abuse may increase a worker's risk of musculoskeletal strain or injury.

Inadequacies in Health Care Systems: A lack of medical knowledge or of appropriate training in the etiology, diagnosis, and treatment of musculoskeletal problems may result in inadequate health care.

Much remains to be learned about the causes of work-related musculoskeletal injuries. Because few of these injuries are accepted as coming only from work, the workplace hazard must often be identified to define an occupational injury. High physical stress can frequently be traced to ordinary work activities, including repetitive or sustained lifting, bending, twisting, climbing, reaching, gripping, pinching, rubbing, kneeling, and squatting, as well as vibration from equipment. Sometimes these activities are performed in awkward postures and involve high forces.

Scope of the National Problem

Although present surveillance systems are inadequate and estimates of the national problem may not be accurate, awareness is growing that these injuries result in significant human suffering, loss of productivity, and economic burden to the country. High risk industries include manufacturing, construction, and food processing. In the 1977 Health Interview Survey of the National Center for Health Statistics, musculoskeletal injuries ranked first in frequency among health problems that affect the quality of life. They are the leading cause of disability in the working years, affect 19 million persons annually, and involve nearly half the workforce at some time in their working life. The frequency and impact of these disorders are expected to increase in the future, and some increases are already evident with modern office technology. Although this equipment is designed to reduce physical labor, it often generates new, pervasive, and even more insidious sources of biomechanical stress.

Potential for Prevention and Control

An important first step in preventing musculoskeletal injuries is identifying their causes, but this is often difficult because of the many complex etiologic factors, long latency, effects of aging, and lack of standardized diagnostic criteria. Many biomechanical hazards, however, could be eliminated if knowledge already available were put to use (e.g., redesigning work processes or tools to impose less biomechanical stress). A management concept of "working smarter is better than working harder" will maintain better production levels than a demanding work schedule, since it reduces time lost due to work. injuries. And, finally, cooperation on common prevention problems can be fostered among key professionals from different backgrounds (e.g., engineers and health care personnel) by dispensing and applying accumulated knowledge.

Tactical Areas of a Prevention Strategy

The present, inadequate surveillance systems do not separate chronic from acute musculoskeletal injuries nor do they have standard terminology for defining such conditions. New systems of both health and hazard surveillance are needed to identify occupations with a high incidence of musculoskeletal injuries and to define types and ranges of work-related biomechanical stresses. Multilevel data bases for the country, the states, and local areas will increase awareness within the medical community of the benefits of prevention and thereby help implement a prevention strategy.

Health professionals, engineers, and scientists must cooperate in using surveillance and clinical data to identify causes and effects from the interacting variables that produce musculoskeletal injuries. For example, (1) low back pain results from interacting job factors (e.g., load weight, location, and frequency of materials handling) and personal factors (age, gender, strength, fatigue, postural stress, trauma, emotional stresses, degenerative changes, congenital defects, physical fitness, and body awareness); (2) biomechanical analyses of hand and arm motions, repetition rates, amounts of force, and postural factors have helped identify stresses leading to carpal tunnel syndrome and tenosynovitis; and (3) injuries to lower extremities, mainly the knee, result from repetitive loading, constant kneeling, squatting, and contact with specialized tools. New evaluation and laboratory techniques are now available but more are needed to clarify the stress patterns.

The three approaches for controlling risk factors are redesigning jobs or tools, training workers, and selecting workers for specific jobs. (1) The use of ergonomics to design new jobs and tools is better than personal protective equipment or safe work practices, but this is still an undeveloped science, and research is needed on anatomic, mechanical, physical, and human factors. While initial costs and complications of overlapping stresses have prevented widespread use of ergonomics, the high costs of workers' compensation and rising insurance premiums may make ergonomics attractive for reducing medical costs and lost time from injuries and for increasing worker productivity. (2) The preventive value of training programs that teach employees specific work practices for safety and hygiene has been difficult to evaluate. Current programs seek to increase worker awareness of hazards and to help them participate in hazard control through problem-solving techniques. (3) Screening employees for specific jobs is difficult because of the wide variety of job demands and the range of individual physical capacities. Radiologic screening for back problems, although largely discredited, is still widely used and may pose a radiation hazard. Thus, ergonomics is the preferred approach, with employee selection and training as secondary elements.

Because awareness is essential for implementing any prevention strategy, information should be disseminated to help change attitudes and behavior of both management and workers, especially in the many small businesses that employ 25 or fewer workers. To accomplish this, the Educational Resource Centers (ERC), medical schools, and schools of business can provide personnel trained in ergonomics for service at regional levels and can produce guides for users to prevent and control cumulative trauma. Modern technology for disseminating public service messages should also be explored.

Action plan

The knowledge and skills to implement many of the recommendations below are now available; others must await future advances. For now, the availability of trained health professionals and their degree of cooperation will determine progress in combating musculoskeletal problems in the workplace.

Committee: A multidisciplinary National Committee for Occupational Musculoskeletal Disorders should be established with representatives from industry, labor, academia, professional groups, and government. It could function as an advisory body to prevent musculoskeletal injuries by coordinating national efforts in research, training, and prevention and by promoting clinical and scientific consensus on definitions, diagnostic criteria, surveillance terms, and criteria for the outcomes of these injuries.

Training: More clinical personnel should be trained in the etiology of musculoskeletal disorders, and, with the help of the National Research Council's National Academy of Engineers and others, design engineers could be trained in biomechanics and ergonomics. Workers should be trained to participate in the redesign of jobs, tools, and workstations. Young investigators could be encouraged through post-doctoral grants and research assistantships to seek advanced training in preventing musculoskeletal injuries.

Surveillance and Research: Innovative surveillance systems must be developed with cooperating federal, state, and local officials to improve the understanding of the nature, extent, and magnitude of musculoskeletal problems. Longitudinal studies, evaluations of ergonomic hazards, and assessments of health effects of new emerging technologies (robots, electronic office operations) are needed. Grants from NIOSH and the National Science Foundation can promote research on etiology and prevention and on the relationship of certain job tasks to resultant injuries or disorders.

Coordinating Group Activities: State and local health agencies, universities, and community health groups could, through a grant mechanism, evaluate workplaces to identify traumatogens, determine the efficacy of proposed countermeasures and prevention strategies, and conduct demonstration studies in select, high-risk industries. The Institute of Industrial Engineers, industrial hygiene organizations, equipment manufacturers, and others could develop and test means for controlling cumulative trauma. The proposed National Committee could help coordinate activities of OSHA, MSHA, AIHA, and state and industry groups to formulate guidelines for ergonomic control and could encourage standard-setting groups, such as the American National Standards Institute, to develop consensus standards. The Committee could also evaluate the benefits of a national ordinance or generic standard for controlling biomechanical hazards, similar to the Swedish ordinance regulating work postures and working movements. (Danielson, et al, 1983)

Dissemination: The DHHS Office of Disease Prevention and Health Promotion along with local and regional health agencies could convey the true costs of musculoskeletal injury (in terms of economics and human suffering) to public and professional health societies through an awareness program. A model for dissemination should identify target groups, the types of messages needed, effective media, procedures for evaluating the effectiveness of information programs, and overall marketing plans for dissemination. The proposed National Committee could promote an interchange of information on basic research through symposia and workshops; a national clearinghouse of information could be established; and the results of

worksite studies should be published in trade and management magazines. Labor and management should explore new ways of informing workers--especially those in small businesses and industries--of the causes, risk factors, prevention, and treatment of occupational musculoskeletal disorders. The occupational health nurse must be recognized as a first-line link between worker and health professionals, and worker-participation programs, such as the Ergonomic Task Force, should be employed to help introduce ergonomic changes.

OCCUPATIONAL CANCERS

Cancers induced by occupational exposures usually occur decades after the exposures take place. Most observed associations between exposure and occupational cancer involve tumors of a common type, such as lung cancer. Specific cancers sometimes occur in such a high fraction of workers that the work-related association is inescapable. In 1775, Sir Percivall Pott first identified an excess risk of cancer in an occupational group--cancer of the scrotum in chimney sweeps. This led to the first demonstrated prevention of cancer development in workers by interrupting the interactions of agent, environment, and host that take place as a result of workplace exposures. Since then, several other occupations have been shown to pose an increased risk of cancer, and, in the 20th century, other specific carcinogens have been identified as well.

Three health actions for prevention, outlined in the 1979 Surgeon General's Report on Health Promotion and Disease Prevention (USDHEW, 1979), can be applied to work-related exposures to carcinogens: health protection (activities to reduce exposure, such as redesigning the job), health promotion (helping workers develop and improve behaviors for good health, such as stopping the use of tobacco with its additive or synergistic effects on workplace exposures), and health services (although less satisfactory than the above, early detection may permit treatment and even cure of some cancers).

Scope of the problem

Conservative estimates attribute 17,000 cancer deaths each year to workplace exposures. Although over 100,000 workers are potentially exposed to the 21 chemicals now regulated by OSHA as carcinogens (NIOSH, 1978), adding the agents OSHA is currently considering for regulation and those recommended by NIOSH for control as carcinogens increases the total of potentially exposed workers to 3-9 million. Since such exposures are neither ubiquitous nor homogeneous but affect distinct populations to varying degrees, the cancer rates in specific populations may be substantially higher than expected.

Preventive actions

This strategy presents a continuum of potentially effective techniques for preventing occupational cancer, including what can be done now and what additional knowledge is needed.

Identifying and evaluating carcinogens: Epidemiologists, toxicologists, industrial hygienists, and safety engineers should coordinate efforts in research on carcinogens. Increased support for such research will help improve methods in epidemiology, toxicology, industrial hygiene, and screening. A committee of government, industry, labor, and academic experts should prepare a list of agents that warrant toxicologic and epidemiologic study and set priorities for research.

Setting standards: The most familiar mechanism for setting standards is through NIOSH recommendations to OSHA, which then promulgates standards. NIOSH can also provide technical assistance to MSHA, state governments, companies, and insurance carriers for setting standards. Additional recommendations come from such voluntary groups as the American Conference of Governmental Industrial Hygienists and the American Industrial Hygiene Association. To avoid the time needed to regulate carcinogens on an agent-by-agent basis, OSHA has promulgated a carcinogen policy that will help clear the backlog of unregulated carcinogens. More effort is needed to identify carcinogens in the workplace and to disseminate information to all potentially exposed groups, such as by a broad hazard communication standard. Some gaps in information must still be filled before priorities for epidemiologic and toxicologic studies can be set.

Elimination and substitution: When the risks of using an agent in the workplace exceed the benefits, the most effective way to eliminate exposure is to eliminate the agent. More detailed information is needed on the carcinogenic properties of agents currently used in the workplace and their possible substitutes. Lists of potential carcinogens, substitutes, and replacements should be developed and broadly disseminated.

Control technology: Engineering controls that enclose a system or provide ventilation are preferable to personal protective devices or work practices because they are perceived as less likely to fail. Studies should evaluate the effectiveness of control technologies and should identify examples of effective controls for specific agents. Information from these studies could be disseminated by a national clearinghouse, especially to small businesses.

Personal protective devices: Personal protective devices are necessary when the use of a carcinogen is essential and engineering controls are neither available nor adequate. Devices must be matched to specific agents because exposure may take place through inhalation, ingestion, or skin absorption. Some devices may even introduce hazards by interfering with vision, dexterity, or worker comfort. NIOSH should continue to certify respirators and alert users to possible failures or defects. A clearinghouse could be established to disseminate state-of-the-art information on personal protective devices.

Environmental monitoring: Environmental monitoring measures the amount of a carcinogen in the workplace, assesses the adequacy of engineering controls, and determines the need for personal protective devices. Validated strategies for such monitoring are needed, and NIOSH, MSHA, OSHA, industry, and others should press for better and more precise analytic methods that are as accurate in the field as the laboratory. NIOSH should continue to assure the accuracy of laboratory testing, and a surveillance system should be developed to collect, evaluate, and disseminate the results of environmental monitoring.

Biologic monitoring: Both the inherent biologic characteristics of individuals and the absorption of specific carcinogens can be determined by biologic monitoring. The efficacy of current methods must be assessed under field conditions and new methods developed where necessary. The value of new and current methods for determining the individual enzymatic constitution of workers and predicting carcinogenic risk must be measured. The proficiency of commercial laboratories that perform biologic testing should be ascertained. Surveying the results of current biologic monitoring will help identify worksites where exposures to carcinogens occur.

Medical screening: Evaluating the efficacy of such medical screening techniques as urinary and sputum cytology will enhance early detection of occupational cancers and thus permit treatment and awareness of risk. State-of-the-art information should also be updated and disseminated in NIOSH recommendations and in OSHA and MSHA regulations. We need to know the effectiveness of medical screening techniques and subsequent therapy and more effective methods of identifying populations with past exposure to carcinogens.

Health promotion: As an adjunct to the overall prevention strategy, health promotion can help eliminate personal behaviors--such as smoking--that may act synergistically with workplace exposures. Professional organizations, like the American Occupational Medical Association, the American Association of Occupational Health Nurses, and the American Industrial Hygiene Association, can be enlisted to help sensitize the health care establishment to specialized needs of certain occupational populations. Interaction between occupational exposures and personal health behaviors must be more clearly delineated.

Therapeutic health care and rehabilitation: Although the field of clinical oncology has burgeoned, training of personnel has lagged. Efforts by NIOSH, professional organizations, and the National Cancer Institute are needed to increase educational materials, training programs, and certification for physicians and nurses in the field of occupational cancer. Placing experienced personnel in state and local agencies would increase awareness. Information from attempts at medical intervention is needed to assess the adequacy of early detection, therapy, and risk-reduction techniques. Identifying populations with increased risk of cancer or past exposures to carcinogens, particularly in small firms or those not covered by regulation, will help ensure timely application of diagnostic and therapeutic services.

Surveillance of disease: Because most cancers have such a long latency, surveillance of current disease may not identify current exposures. Nevertheless, some cancers may be sentinel health events that identify populations in need of medical intervention. Surveillance schemes should be evaluated for effectiveness. Acute illnesses, such as chrome dermatitis, may signal current exposures to carcinogens. Experienced personnel in local and state agencies can encourage interest in cancer detection, reporting, and prevention. Record systems, such as those collected by the Internal Revenue Service, the Social Security Administration, and Workers' Compensation, may aid epidemiologists.

Surveillance of exposure: The long latency also makes difficult the directing of society's resources to workplaces with the greatest potential for exposure to carcinogens. Although data collected in OSHA and MSHA compliance programs may help identify the extent and level of exposure to both regulated and unregulated carcinogens, better systems of surveillance are needed.

Compliance activities: OSHA conducts some inspections in response to requests and others targeted to "high-risk" industries, based on high infraction rates. OSHA's current policy should be evaluated to determine whether it adequately covers all potentially exposed workers. A national system should also target inspections to plants using regulated or suspected carcinogens, since the effects of exposure will not be manifest for 20-40 years.

Education of workers and managers: NIOSH, OSHA, MSHA, NCI, and others should strengthen their educational programs for workers and employers. A broad hazard communication standard could be effective in promoting worker awareness. The value of behavioral approaches and job-design factors in controlling cancer in the workplace should be established.

Free-market forces for prevention: Economic incentives, such as ensuring coverage by the insurance industry and compensation for victims of occupationally induced cancer, will help to encourage measures that prevent such cancers. The difficulty of establishing a causal relationship between exposure and disease must, of course, be overcome.

SEVERE OCCUPATIONAL TRAUMATIC INJURIES

Severe occupational traumatic injuries, including those sustained in work-related motor vehicle accidents, comprise such serious and disabling injuries as amputations, fractures, severe lacerations, eye losses, acute poisonings, and burns and may result in worker deaths. Accidents, in general, and the adverse effects that result from them are the leading cause of loss of potential productive years of life in this country. The National Institute for Occupational Safety and Health (NIOSH) estimates that at least 10 million persons suffer traumatic injuries on the job each year; about three million (30%) injuries are severe, and at least 10,000 are fatal (CDC, 1984). Occupational injuries in 1983 resulted in 80 million lost workdays and an estimated $33.4 billion in wage, insurance, medical, and administrative costs. These figures may even underestimate the total costs to industry and do not include the immeasurable toll in human suffering. Although rates of occupational fatalities and disabling injuries have fallen since the early 1970s, due partly to a growing workforce, the actual numbers have declined slowly, if at all, since 1945.

Intervention

Traditional approaches to preventing traumatic injuries or reducing their severity include removing hazards, placing barriers between hazards and workers, screening workers before employment, analyzing job hazards, improving job and tool design, complying with regulatory and consensus standards, and training workers to avoid hazards. The following strategy will take a dual approach, discussing the actions that can be taken immediately and then the long-term efforts for the future.

Epidemiology

In efforts to study the etiology of workplace injuries and fatalities, the discipline of epidemiology can serve as a common thread by helping to identify high-risk exposures and factors, evaluate both potential risk factors and appropriate control strategies, and assess progress in the control of traumatic injuries. As a key component in the epidemiologic process, surveillance must be applied both as an initial activity to establish baseline information and as a continuing activity to characterize how the national occupational safety experience is changing. Four basic aspects of occupational trauma must be considered: the task, the working environment, the machine, and the worker; modification of any one of these will affect the whole system. An overriding consideration must always be the needs of employers who manage these complex industrial systems.

What we can implement now

Evaluation of effective safety programs has established that the most important component is management's commitment from the top down. Management accepts responsibility for tying all elements of the workplace together so that the interactions of task, environment, machine, and worker, as well as the energy releases associated with these interactions, can occur with the least possible unforeseen interruption.

Task-oriented strategies: Although safe work practices for hazardous operations and control methods for energy sources are available, failure to use them is responsible for a large number of occupational injuries and deaths. Employers are either unaware of hazards and control strategies or unable or unwilling to implement them. Job-hazard analysis plus timely reassessment or monitoring can help employers anticipate rather than react to hazards and should have a major impact on reducing national injury and death rates.

Environment-oriented strategies: While the physical environment of the workplace is the most obvious and the most amenable to change, the psychosocial and political/economic environments warrant further study for their impact on injuries. Over the past 50 years, studies of illumination, temperature, noise, vibration, relative humidity, and the layout and condition of the facility have resulted in guidelines to control these potential physical stressors. Failure to apply the guidelines results from cost constraints, inadequate dissemination of information, and improper management of safety programs. Prevention programs in the private sector have demonstrated trauma reductions and should be encouraged in other companies.

Machine-oriented strategies: The various forms of energy associated with machines, if not adequately controlled, can result in traumatic injuries to workers. Regulatory and consensus standards now exist to protect workers from interaction with industrial machines. Many of these standards propose placing barriers between the worker and the energy sources, such as guards on moving parts of machinery or protective equipment worn by the workers. Manufacturers are now producing safer and more functional machines, and procurement procedures should require the purchase of machinery that meets current standards.

Human-oriented strategies: The worker is the most complex entity in the workplace system and--as the employer's most valuable resource--should be carefully nurtured and protected. Effective information dissemination, education, and training of workers can have an immediate positive impact on the incidence of work-related injuries and deaths. As soon as hazards are identified, known intervention methods should be applied and workers should be supplied with the tools and knowledge to avoid traumatic injuries.

Knowledgeable, well-trained workers can avoid injury even during hazardous work, while untrained, uninformed workers can be injured under almost risk-free conditions. Thus, training is an integral component of trauma prevention. Although safety training begins in childhood, most job safety is learned on the job. Some regulatory agencies require training, but the degree and level of training vary widely. Model training programs could ensure more uniform and basic training in hazard awareness and trauma control. Employees in high-risk occupations should be the primary targets for such training, and retraining in different occupations will be important for workers who suffer permanent disabling injuries at work.

What knowledge do we need?

For management to select and operate safety programs efficiently, they must have access to cost-effective, scientifically proven methods that reduce injuries.

Task-oriented strategies: Although established countermeasures for occupational injuries may represent the best judgment of the trauma control community, they have not, through rigorous scientific studies, been demonstrated to be effective. Such measures would be more readily accepted if their effectiveness and cost benefit were known.

Environment-oriented strategies: The influence of certain physical agents on the incidence of occupational traumatic injuries should be more carefully defined. The psychosocial environment, as it influences the perception of hazard and risk taking, is amenable to modification through advertising, information dissemination, and social interaction. Messages through the mass media should be specific, supportable, and persuasive enough to alter public perception so that occupational traumatic injuries and deaths are no longer considered either morally acceptable events or "chance" occurrences that are beyond human control.

Changes in the workforce and workplace--e.g., increasing numbers of women and of certain ethnic minorities and the increased use of computers and automated or programmable machines (robots)--present unique and dynamic challenges for the prevention of traumatic injuries. Past failures to anticipate potential hazards of "new" technologies must not be repeated. New techniques for recognizing, analyzing, and mitigating hazards and for managing risk are emerging and should be nurtured, perhaps by establishing a center for research into the non-mechanistic arena of safety.

Increasing attention is being paid to the complex economic forces that influence the incidence of occupational traumatic injury and fatality. This is evident from the creation of a Workers' Compensation Research Institute and from analyses of the economic incentives and disincentives associated with workers' compensation. Employers are beginning to recognize the negative economic impact of traumatic

injuries in lost workdays, high medical costs, loss of productivity, and increased insurance rates and liability claims. Data specific for industry and occupation would be helpful in these areas. Studies should be undertaken of the cost relationships of compensation, disability, and product-liability insurance from the perspective of occupational trauma.

Machine-oriented strategies: Although present safety concepts involve barriers around hazardous machine parts, workers continue to experience injuries. Further studies are needed on the efficacy of these barriers and on the motivational and behavioral factors involved in their use. Standards for machine safety should be re-evaluated, and the technical basis for each standard should be understood by users. As faster and more efficient machines are developed, care must be taken to design safe methods of feeding and removing stock and to limit the speed within human tolerances.

Human-oriented strategies: As the workforce ages, traumatic injuries may increase because older workers are slower to react, have reduced ranges of motion, and are less tolerant of environmental changes such as extreme heat or cold. Although older workers are more cautious, the decreasing supply of younger workers may force the older ones to remain longer in high-risk jobs, thus increasing exposure to the hazards of traumatic injury.

Technology can be viewed on four levels: 1) workers supply both power and control, 2) tools supply power, and workers control it, 3) both power and information are supplied, and workers direct, and 4) power, control, and information are supplied in self-monitoring systems, and workers only intervene if something goes wrong. As technology progresses toward levels 3 and 4, and as service jobs become more prominent, training will become increasingly important. The adequacy of training policies and practices will require constant evaluation.

Little research has been directed to the relationship of human behavior to safe work activity, e.g., why workers circumvent safety devices or ignore safety rules when rescuing others? Most studies have focused on economic factors, but more attention to motivational issues is needed. Management should find ways to enlist the interest and cooperation of workers to that workers, unions, and management can work together to better understand and overcome hazards inherent in the workplace. The impact of such cooperation (e.g., quality circles in the automobile industry) needs further evaluation.

The roles of alcohol and drug abuse are well known in highway trauma but less well understood in occupational settings. The work-related effect of these substances and their possible interaction with chemicals in the workplace require further study. NIOSH should cooperate with agencies that have responsibilities in areas of personal behavior and substance abuse and should increase their awareness of worker needs.

Risk-taking, a fundamental quality of the American spirit, is rewarded in society and the workplace, but must be tempered when it contributes to occupational trauma. Other aspects of human behavior, such as reactions to major life events (death, divorce, financial troubles), may also impact occupational safety. The increasing availability of employee counselors reflects the value employers are placing on the mental well-being of workers.

Rehabilitation of severely injured workers, while not preventive, can mitigate the severity of trauma by reducing prolonged disability, loss of income, and the impaired quality of life. Such evidence of management's commitment to employee well-being lends credibility to its prevention-oriented programs. Better techniques for diagnosis of injuries are needed, and sufficient time must be allowed to ensure the mental, psychological, and physical conditioning of workers for return to the workplace.

Recommendations

What can be done now: Model programs can be developed for successful prevention of occupational trauma and implemented through a workplace-specific, self-evaluation approach. Self evaluation involves the work force in anticipating and identifying hazards, developing and discriminating among existing controls, and tailoring the tools to a specific industry. Such evaluation should be voluntary and focused on high-risk industries and specific worker populations that may be high risk and/or neglected by regulations.

Research on the prevention of occupational trauma, especially interdisciplinary research, should be stimulated by such means as national grant programs. The results of these and similar studies must be easily accessible, perhaps through broadened information centers, and should be available in both hard copy and through electronic access. A knowledge of injury-control methods should be brought to the attention of educational institutions, professional societies, accreditation bodies, and state and local agencies so that educational institutions will be influenced to adopt trauma-control courses or modules into their curricula. Education and training models for specialists, managers, supervisors, and workers should include techniques for identifying, evaluating, and controlling hazards, and ranking the consequences of hazards; guidelines for selecting training materials and methods; and methods for evaluating training and post-training management.

Enforcement agencies should use their resources and authority to ensure that appropriate safeguards are installed and used, especially on mechanical power presses. All guards should be integral, non-removable parts of the machine design, and workers and managers alike should clearly understand the hazard posed by the machine and the value of the guard. Existing occupational consensus standards and codes should be re-evaluated and a technical basis established for each so that new information can be easily

incorporated as it emerges. The results of product liability litigation should be monitored for their influence on product designers and to identify potential increased risk to workers. Findings should be widely disseminated to responsible groups.

Longer term actions: Surveillance of occupational traumatic injury is currently limited by the inadequacies and the redundancies of existing documentation and reporting systems. A national surveillance system is needed that will include information on products, engineering controls, personal protective equipment, job title and tasks, worker characteristics (training, experience, and shift factors), compliance with standards, and location of accident--in short, the optimal elements to fulfill all current and anticipated uses of such data. All possible sources must be tapped, including reports from hospitals, medical examiners, and accident investigations. Until such a system is developed, existing systems can be expanded and the collection of industry-specific data can be explored. In addition, ways might be found to release--for trauma-control research--data that are currently protected by the Privacy Act, while still protecting the sensitive nature of the data.

Epidemiologic studies are needed to describe the magnitude and characteristics of specific traumatic injuries and to evaluate the efficacy of specific prevention measures. These studies can reduce current information gaps, such as incorrect statistics on traumatic injury, unsubstantiated conclusions about what influences the risk of injury (training, worker behavior, experience, supervision), and data on the feasibility and success of prevention measures.

The continuing toll of occupational injuries suggests that current programs are not working, perhaps because resources are not available or because the personnel involved are not familiar with specific problems in specific industries. A possible solution to be explored is the formation of private, nonprofit, industry-specific associations for research (not regulatory) purposes (e.g., the Construction Safety Association of Ontario). Existing national programs could help promulgate regulations, develop scientific methods, and generate research tools for the associations.

Chemicals, medications, and other substances, encountered through both personal use and workplace exposure, may increase the risk of traumatic injury. These hazards must be identified, workers should be screened for susceptibility to them, and effective employee-assistance programs should be made available nationwide.

OCCUPATIONAL CARDIOVASCULAR DISEASES

Cardiovascular diseases (e.g., ischemic heart disease and hypertensive, cerebrovascular, and peripheral vascular diseases) are the leading cause of disability and death in the United States, accounting for almost a million deaths (986,000) in 1984 (NCHS, 1986). Direct and indirect economic costs amounted to approximately $102.4 billion in 1983. The almost 34% decline in coronary heart disease since 1972 demonstrates the potential effectiveness of programs directed at risk factors for such diseases. Coronary heart disease, hypertension, and related entities are included in this prevention strategy because of their high incidence, whereas the less common arrhythmias, cardiomyopathies, and other forms are more directly related to specific occupational exposures. These latter conditions are given specific emphasis here because of their vulnerability to intervention in the workplace.

Risks and the workplace

Millions of workers are currently exposed to work-related factors--chemical, physical, and psychosocial--associated with increased risk of cardiovascular disease. Many personal risk factors are also known. Some personal factors are unalterable, e.g., age, gender, and family history; others are alterable, e.g., cigarette smoking, dietary intake, hypertension, excessive alcohol intake, obesity, diabetes, inadequate physical activity, and behavioral pattern. Preventive programs directed at the alterable risk factors are effective in reducing the occurrence of cardiovascular disease, and the workplace is an excellent site for disseminating messages and programs designed to change these personal risk factors. Where possible, this strategy will combine the two approaches: preventing work-related risk factors and enhancing the prevention of personal risk factors.

Cardiotoxic exposures in the workplace: Several chemical and physical agents--such as carbon disulfide, carbon monoxide, halogenated hydrocarbons, nitroglycerine, heat, and noise--are known to increase the risk of cardiovascular disease. In addition, nearly 1,500 chemicals have been identified with possible cardiovascular effects. The complexity of the disease process, the long latency, and the diversity of workplace exposures during a given lifetime make the study of relationships between occupational exposures and cardiovascular disease difficult.

Reducing exposures to known cardiotoxins requires identifying the exposures, communicating with exposed workers, complying with current exposure criteria, implementing control technology and environmental control programs, improving monitoring, developing protective equipment, and adopting new or improved exposure standards. Ideally, these environmental efforts should be combined at the worksite with efforts to reduce such personal risks as smoking, elevated blood cholesterol, elevated blood pressure, and sedentary lifestyle. Individual situations, however, must dictate the balance between these two approaches.

Better medical, epidemiologic, and toxicologic studies will be needed to determine the specific effects of chemical and physical agents on the cardiovascular system and the interaction of these agents with personal lifestyle factors. An epidemiologic group for cardiovascular disease could be formed within NIOSH to help focus that agency's studies and to coordinate a program with outside groups; coordination with the National Heart, Lung, and Blood Institute will be particularly important. New methods must be developed to screen chemical substances, delineate mechanisms of toxicity, monitor exposures, and assess the value of training, education, and information dissemination.

Psychosocial factors: Studies showing an association of work-related psychosocial factors with increased risk of cardiovascular disease have linked specific factors to specific manifestations of disease. Inconsistent results from some of these studies may be due to slightly different methodologies and to lack of control for other risk factors. Further research is sorely needed to determine the specific underlying factors that cause increased risk of cardiovascular disease, to assess workplace psychosocial factors, to determine the job-related stress of new technologies, and to evaluate the effectiveness of programs designed to correct the problems.

Health promotion: Even for occupational and industrial groups with increased risk primarily from personal factors, the prevention of cardiovascular disease related to these factors is a worthy goal. The workplace is a highly attractive site for delivering health promotion and employee-assistance programs. Success of such programs will require union and management cooperation, employee involvement, adequate allocation of resources, control at the local level, attention to ethical issues, confidentiality of medical information, and voluntary participation. These programs should be made increasingly available, especially to high risk groups. Structured follow-up and evaluations should be included to assess the overall effectiveness of the efforts.

Summary

Although our knowledge of the relationship between workplace exposures and cardiovascular disease is incomplete, the morbidity and mortality resulting from cardiovascular disease in this country is extensive. Important steps should be taken now to help reduce this toll.

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DISORDERS OF REPRODUCTION

Since antiquity, certain chemical and physical agents have been recognized as having detrimental effects on human reproduction. For example, the effect of industrial lead poisoning in inducing abortions was noted by the Romans and again in the first decade of this century (6). Evidence from more recent laboratory studies and clinical investigations indicates that a wide range of microbiologic, physical, and chemical agents, such as Brucella, rubella, ionizing and nonionizing radiation, heat and vibration, tobacco, alcohol, and certain drugs, can adversely affect reproductive outcomes. At least 50 chemicals--including heavy metals, such as lead and cadmium, glycol ethers, organohalide pesticides, organic solvents, and chemical intermediates, such as styrene and vinyl chloride--in widespread use in industry have been shown to produce impairment of reproductive functions in animals (7).

Until recently, the potential hazards to human reproduction posed by occupational exposures received little attention. However, adverse effects after thalidomide exposure in the 1960s and the occurrence in 1970 of methylmercury poisoning among residents of Minamata, Japan, dramatically demonstrated the teratogenic potential of chemical exposures. Those events and the increasing entry of women into the workforce focused greater attention on the potential hazards to female reproductive function of occupational exposures. In the late 1970s, the demonstration of sterility among male workers exposed to dibromochloropropane was described; this drew attention to the concomitant potential for hazards to male reproductive function (8).

Occupational exposures can produce a wide range of adverse effects on reproduction. The effects of parental exposure before conception to agents toxic to reproductive functions may be evident as reduced fertility, unsuccessful fertilization or implantation, or an abnormal fetus. Maternal exposure after conception may result in death of the fetus or structural and functional abnormalities in the newborn. Other possible adverse outcomes include spontaneous abortions (both early and late), major and minor birth defects, perinatal death, low birth weight, altered sex ratio, developmental or behavioral disabilities, and transplacental exposure to carcinogen (9-11).

Estimates of the prevalence of adverse reproductive outcomes indicate that these events occur with considerable frequency in the U.S. population. For example, an estimated 560,000 infant deaths, spontaneous abortions, and stillbirths occur each year. The March of Dimes estimates that 200,000 live infants with some type of birth defect--benign or disabling--are born in the United States each year (9).

The causes of most of these adverse outcomes are unknown. For example, 6%-30% of the infertile couples have no recognized anatomic or physiologic abnormalities to account for the infertility (10); neither the etiology of sperm abnormalities nor the cause of sister-chromatid exchange in spontaneous abortions has been established (11,12). The causes for as many as 65%-70% of the birth defects are not known (13).

Maternal Exposures. Studies of occupational reproductive hazards to date have consisted mainly of epidemiologic surveys of pregnancy outcomes following maternal exposures. Such studies have shown increased rates of spontaneous abortions among laboratory and chemical workers (14,15) and among workers exposed to lead (16), ethylene oxide (17), and anesthetic gases (18,19). Studies of adverse outcomes of pregnancy, however, are subject to several methodologic limitations. For example, the detection of rare outcomes, such as birth defects, requires the study of several thousand pregnancies, and retrospective studies are subject to problems of recall and misclassification, both of reproductive events and of exposures (20,21). The timing, duration, and frequency of exposure before and during pregnancy may critically affect reproductive outcomes (22). For example, exposure to ionizing radiation during the first trimester may result in microcephaly and mental retardation, and exposure during the third trimester may produce low birth weight and neonatal death (11). Other studies have been limited by the selection of inadequate comparison groups or the failure to examine the influence of other factors, such as alcohol and tobacco consumption or maternal age, that affect reproductive outcomes.

Paternal Exposures. Since azoospermia (absence of living spermatozoa in the semen) and oligospermia (subnormal concentration of spermatoza) were reported in 1977 among workers exposed to dibromochloropropane (8), at least 14 studies have examined the quality of semen in workers exposed to lead, carbon disulfide, anesthetic gases, ionizing radiation, toluenediamine, dinitrotoluene, carbaryl, and several other pesticides (10). Adverse effects on the quality of semen were reported in workers exposed to lead or ionizing radiation. In other studies (e.g., of exposures to ethylene dibromide) results were inconclusive because of problems in design of the study or inadequate numbers of participants (10). CDC recently used data collected by the Metropolitan Atlanta Congenital Defects Program to examine the risk of serious structural birth defects among the children of male Vietnam veterans; no statistically excessive risks were noted (23). In general, relatively few studies have been conducted of reproductive outcomes associated with paternal exposures (9).

Extent of potential exposures. Estimates have been made of the number of workers potentially exposed to selected agents known or suspected to be toxic to reproductive function. NIOSH estimates that approximately 200,000 workers are potentially exposed to various glycol ethers (24), several of which exhibit marked testicular toxicity in animals (25). An estimated 9 million workers are exposed to radiofrequency/microwave radiation (26), which has been shown to cause embryonic death and impaired

fertility in animals but which has yet to be studied adequately in humans. NIOSH has estimated that approximately 50,000 personnel in hospital operating rooms are potentially exposed to waste anesthetic gases, and 139,000 hospital and other industrial workers may be exposed to ethylene oxide (24); both agents have been linked to an increased risk of spontaneous abortions in humans.

The extent to which occupational exposures in American workers produce adverse reproductive outcomes is largely unknown. However, the information presented here suggests that the problem is both widespread and serious. Epidemiologic and toxicologic research into the reproductive effects of occupational exposures is in its infancy. There is a continuing effort to elucidate the etiology of adverse reproductive outcomes, such as fetal chromosomal abnormalities or abnormal spermatogenesis and to develop improved animal models for screening agents for possible mutagenic and toxic effects related to human reproduction. Registries for the surveillance of outcomes of reproduction, such as CDC's Birth Defects Monitoring Program (9), and improved methodologies developed to evaluate such parameters as quality of semen (12) and outcomes of pregnancy (20), will permit further identification of specific occupational hazards to reproduction. When such hazards are identified and controlled in the workplace, the prevention of reproductive disorders in the population as a whole will be substantially improved.

Reported by Industrywide Studies Br, Surveillance Br, Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, CDC.

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Diseases of the nervous system resulting from toxic exposures in the workplace were known as early as the first century A.D., when Pliny identified palsy as a manifestation of lead poisoning among workers exposed to lead dust (7). In 1557, Jean Fernel linked gingival pigmentation, tremor, and behavioral changes to occupational mercury poisoning (8); in the nineteenth century, Delpech recognized rubber processing as the cause of the bizarre psychoses occurring among French workers who manufactured condoms and balloons in small cottage industries. Later, carbon disulfide was implicated as the specific neurotoxic agent (9).

Industrial hygiene practices have improved in the twentieth century, and some animal models of neurotoxic disease have been developed. In addition, workers who become ill often draw attention to outbreaks of neurotoxic diseases. Despite the prior identification of acrylamide as neurotoxic in animals, its neurotoxicity in humans was first recognized in the 1950s, when several Japanese workers involved in a pilot production project developed peripheral neuropathy (10). During the 1960s and early 1970s, dozens of cases of neuropathy occurred among Japanese and Italian workers exposed to solutions containing n-hexane during the manufacture of shoes (11). Subsequently, high doses of n-hexane were found to be neurotoxic in exposed animals. In the past 15 years alone, outbreaks of serious human neurotoxicity occurred among workers exposed to three substances not previously known to be neurotoxic: the chlorinated hydrocarbon, chlordecone, which caused opsoclonus, tremor, disturbances of gait, and changes in personality (12); and two hexacarbons, methyl-n-butyl ketone and 2-t-butylazo-2-hydroxy-5-methylhexane, both of which caused a predominantly peripheral neuropathy (13,14).

Nature of Neurotoxic Disorders. Neurotoxic disorders are on the NIOSH list of Ten Leading Work-Related Diseases and Injuries (1) because of their potential severity--as exemplified by the neurotoxicity of chlordecone--and because of the large number of workers potentially at risk. A conservative estimate of the workers exposed full time to one or more neurotoxic agents is 7.7 million (15). The number of potentially neurotoxic chemicals found in the workplace exceeds 850.

Clinically, symptoms and signs of neurotoxicity can be diverse. Depending on the intensity of exposure, the molecular configuration of the agent, and the mechanism of toxicity, either central or peripheral neurologic effects may predominate. Most neurotoxic chemicals, however, affect both the central and peripheral nervous systems. Because the symptoms of peripheral neuropathy are more specific and the nerves themselves more directly accessible to precise diagnostic examinations, the effects of neurotoxic agents on the peripheral nervous system are usually more easily identified than effects on the central nervous system (CNS). Early symptoms of peripheral neuropathy may include numbness, tingling, or pain in the feet or hands. As the disease progresses, clumsiness or incoordination due to both sensory and motor

changes may develop. Production workers may find their ability to do usual work partially or fully impaired. Chemicals used extensively in industry, which cause peripheral neuropathy when present in sufficiently high and persistent concentrations, include: lead, n-hexane, acrylamide, carbon disulfide, mercury, and methyl bromide (17,18). Several chemicals are known to cause selective impairment of cranial-nerve function, including dysfunction of the fifth cranial nerve (trichloroethylene) (18).

The effects of neurotoxic agents on the CNS present a far wider range of disturbances (16,18,19). At times, the most striking effects are changes in mood and personality (20). High levels of exposure to manganese or carbon disulfide produce psychoses and suicidal tendencies. Delusions and hallucinations may result from exposure to high concentrations of solvents, such as methylene chloride. Manifestations of cognitive dysfunction, such as reduced attention span, lack of alertness, and memory loss, are prominent neurotoxic effects that may occur in addition to personality changes after exposure to many solvents and to asphyxiants, such as carbon monoxide. Other neurologic effects occur under certain restricted conditions of exposure to unique chemical substances.

Although research into the neurobehavioral effects of industrial chemicals is relatively new, early results suggest that occupational neurotoxicity may be a larger problem than previously suspected. Sensitive methods for evaluating subtle losses in cognitive function have only recently been applied to the evaluation of exposed workers. Because of the complexity of the nervous system and the variety of potentially neurotoxic exposures, the true scope of this health hazard in the workplace is unknown.

Studies of the neurotoxicity of workplace chemicals demonstrate the problems encountered in recognizing occupational disease in general. Despite occasional large and dramatic outbreaks of neurotoxic disorders, such as those mentioned above, more often small numbers of workers in many workplaces are chronically exposed to neurotoxic agents that subtly and slowly alter nervous-system functions. Several neurotoxic syndromes mimic diseases of nonoccupational and "idiopathic" etiology, e.g., the toxic axonopathy associated with exposure to various metals and solvents, the parkinsonian syndrome of chronic intoxication with manganese, and the organic brain syndrome of chronic solvent intoxication. Because of these similarities to other nonoccupational diseases, such cases are frequently not identified as occupational in origin. In addition, many physicians are not trained to take an adequate occupational medical history (21). For these reasons, the prevalence of occupational neurologic disease is unknown, and important causal relationships between chemicals and disease remain obscure.

The prevention of neurotoxicity among workers will require strategies such as those suggested in the 1990 objectives for improving the nation's health (22), developed by the U.S. Public Health Service: (1) analyses of structural analogues of known neurotoxic agents in an effort to predict the neurotoxicity of untested chemicals; (2) continuing search for animal models of disease; (3) ongoing research in establishing an acceptable human exposure level for identified neurotoxic agents; (4) epidemiologic

evaluations of suspected neurotoxicity;(5) development of simple screening tools for use on asymptomatic populations exposed to known neurotoxic agents; and (6) premanufacture and premarket testing of new chemicals as required by the Toxic Substances Control Act (23). As in the prevention of other work-related diseases, however, the most direct and effective method for preventing neurotoxic illness will continue to be the environmental control of exposures to neurotoxic chemicals. Such efforts as the substitution of less toxic substances where possible, engineering controls, teaching appropriate work practices, and educating workers about the potential neurotoxicity of chemicals will aid a comprehensive prevention effort.

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NOISE-INDUCED HEARING LOSS

Occupational deafness was first documented among metalworkers in the sixteenth century (8). Since then, workers have experienced excessive hearing loss in many occupations associated with noise. Noise-induced loss of hearing is an irreversible, sensorineural condition that progresses with exposure. Although hearing ability declines with age (presbycusis) in all populations, exposure to noise produces hearing loss higher than that resulting from the natural aging process; this is caused by damage to nerve cells of the inner ear (cochlea) and, unlike some conductive hearing disorders, cannot be treated medically.

While loss of hearing may result from a single exposure to a very brief impulse noise or explosion, such traumatic losses are rare. In most cases, noise-induced hearing loss is insidious. Typically, it begins to develop at 4,000 hertz (Hz, or cycles per second) in the hearing range of 20 Hz to 20,000 Hz and spreads to lower and higher frequencies. Often, material impairment has occurred before the condition is clearly recognized.

Such impairment is usually severe enough to permanently affect a person's ability to hear and understand speech under everyday conditions. Although the primary frequencies of human speech range from 200 Hz to 2,000 Hz, research has shown that the consonant sounds, which enable people to distinguish words such as "fish" from "fist," have still higher frequency components. As a result, an average hearing threshold (lowest audible sound level) at separate frequencies of 1,000 Hz, 2,000 Hz, and 3,000 Hz is used widely to define material impairment caused by noise (10,11).

Recent estimates by the Occupational Safety and Health Administration (OSHA) indicate that about 9,400,000 U.S. production workers (7,900,000 active and 1,500,000 retired) either now work or have worked in industrial locations where noise-exposure levels are 80 decibels (dBA) or higher. This estimate includes most noisy workplaces in the United States, except agricultural, mining, construction, transportation, and government (11). At exposure levels below 80 decibels (weighted to the approximate response of the human ear), an increased risk of hearing loss caused by occupational noise has not been found. Based on the average hearing threshold level at 1,000 Hz, 2,000 Hz, and 3,000 Hz, OSHA estimated that 1,624,000 (17%) production workers have at least mild hearing loss resulting from their occupational noise exposures; 1,060,000 (11%) have material hearing impairment; and 473,000 (5%) have moderate to severe impairment (11). These estimates generally agree with NIOSH survey findings, which indicate that one-fourth of persons 55 years of age or older who have been exposed over their working lifetime to an average of about 90 dBA have developed a material hearing impairment caused by occupational noise exposure (10,12). An estimated $835 million will be paid in workers' compensation claims for occupational hearing impairment for the 10-year period 1978-1987 (13).

Occupational noise-induced loss of hearing is preventable. In its 1990 objectives for the nation, the U.S. Public Health Service set an objective that "By 1990, the prevalence of occupational noise-induced hearing loss should be reduced to 415,000 cases" (14). This objective relates to the number of cases of hearing loss that result in moderate to severe impairment (Table 2). However, it is important to note that if the number of moderate to severe impairments is reduced, the number of mild hearing loss and of material impairments would be reduced proportionately. OSHA has estimated that within 10 years, the number of cases of noise-induced hearing impairment can be reduced by 20% if all workers exposed to noise levels higher than 85 dBA wear personal hearing protectors (earplugs or muffs) and receive on the average 15 dBA noise reduction (11). However, this estimate hinges on effective use of hearing protectors to an extent that has not yet been demonstrated for all workers. NIOSH field investigations of industrial workers who routinely use earplugs indicate average noise reduction ranging from 7 dBA to 20 dBA, depending on the type of plug used (15).

A noise-control/hearing-conservation program is the most important step in eliminating occupational hearing loss. Such a program must include:

1. Reduction of noise through engineering controls, and the purchase of new, noise-engineered equipment.
2. Proper fit of personal hearing-protection devices.
3. Education of workers and managers about certain characteristics of noise-induced loss of hearing (e.g., irreversible, subtle in onset, psychologically distressing).
4. Proper periodic audiometric testing and notification of workers who are developing hearing loss.
5. Visible commitment of management and workers to the program.

The joint efforts of management, labor, and health-care providers are needed to establish effective hearing-conservation programs in industry. All interested groups must work together to achieve the goal of protecting workers' hearing.

Reported by Physical Agents Effects Br, Div of Biomedical and Behavioral Science, National Institute for Occupational Safety and Health, CDC.

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DERMATOLOGICAL CONDITIONS

A worker's skin is directly exposed to the occupational environment and is susceptible to a large number of dermatological injuries and other conditions. Complete data on the extent and cost of dermatological injuries are not available; however, dermatological conditions other than injuries accounted for 37% of the 106,100 occupational illnesses recorded in 1983 in the Bureau of Labor Statistics (BLS) Annual Survey of Occupational Injuries and Illnesses (1). Results from the BLS Annual Survey for 1972-1976) indicated that 20%-25% of all occupational dermatological conditions resulted in lost time from work (average 10-12 lost work days) (2). Similar data based on workers' compensation claims have been reported from California and South Carolina (3,4). Assuming that only 2%-10% of cases are actually reported, the annual cost of occupational dermatological conditions resulting from lost worker productivity, medical care, and disability payments may range between $222 million and $1 billion (5,6).

Because 10%-15% of requests that NIOSH receives for health hazard evaluations involve skin complaints, and because the economic impact of work-related dermatological conditions is substantial, NIOSH has included dermatological conditions on its list of 10 leading work-related diseases and injuries in the United States (7).

Dermatological Injuries. Dermatological injuries are usually described as the immediate adverse effects on skin that result from instantaneous trauma or brief exposure to toxic agents involving a single incident in the work environment (1). Skin injuries may constitute 23%-35% of all injuries (8,9). Thus, based on 4,748,000 injuries of all types, and a full-time worker population of 74,750,000 for 1983 (1), an estimated 1,070,000-1,650,000 dermatological injuries may occur yearly, with an estimated annual rate of skin injury of 1.4-2.2 per 100 full-time workers. The highest percentage of skin injuries are due to lacerations/punctures (82%), followed by burns (chemical and other) (14%) (8).

Other Dermatological Conditions. Other dermatological conditions, "illnesses of the skin," may also result from exposure to environmental factors or toxic agents associated with employment. However, they usually result from more sustained or cumulative exposures and involve longer intervals between exposure and occurrence of disease. These conditions include contact dermatitis, infection, acne, and skin cancer. Workers' compensation claims data from California suggest that 95% of these occupational skin conditions are either contact dermatitis (90%) or infections (5%) (3). Field investigations in the 1950s showed that at least 80% of occupational contact dermatitis cases may be caused by the irritating direct cytotoxic effects of causal agents rather than immunologically mediated allergic reactions (10).
The highest number of other occupational skin conditions (23,017) in 1984 occurred in the manufacturing sector; the highest incidence rate (28.5/10,000 full-time workers) involved the combined agriculture/forestry/fishing division.

The clinical course for occupational contact dermatitis is relatively poor. In three studies, complete resolution occurred in 25% of workers affected; 50% improved but had periodic recurrences; and 25% developed persistent dermatitis as severe as or worse than the original condition (11-13). Contact dermatitis often necessitates job changes or modifications. Despite these, however, complete resolution may occur in only a limited proportion of cases.

Prevention of Work-Related Dermatological Disorders. The most effective prevention measures are engineering controls that eliminate exposures of the skin to chemical, physical, or mechanical agents through isolation, containment, or redesign of industrial processes. Substitution of less toxic substances through chemical engineering may also be effective (14). Protective clothing should be selected on the basis of resistance to both chemical and physical hazards, as well as on the relative permeabilities to specific chemical exposures. Effective cleaning of skin and clothing is important, but workers should not wash vigorously or excessively with harsh soaps and detergents (15). Barrier creams have been suggested as alternatives, although their effectiveness has not yet been established (16). Prevention strategies should always include education of workers and management.

Expanded activities concerning occupational dermatological conditions include improved methods for surveillance of occupational skin disease and vigorous research in dermatotoxicology to identify preventable risk factors and facilitate effective interventions at early stages.

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PSYCHOLOGICAL DISORDERS

There is increasing evidence that an unsatisfactory work environment may contribute to psychological disorders. Studies have shown that factors contributing to an unsatisfactory work environment may include work overload, lack of control over one's work, nonsupportive supervisors or co-workers, limited job opportunities, role ambiguity or conflict, rotating shiftwork, and machine-paced work (1-4). Psychological disorders that can result from such factors may be classified as a) affective disturbances (e.g., anxiety, irritability), b) behavioral problems (e.g., substance abuse, sleep difficulties), c) psychiatric disorders (e.g., neuroses), and d) somatic complaints (e.g., headache, gastrointestinal symptoms). In addition to psychological disorders, stressful working conditions may have a systemic influence, possibly affecting the etiology and/or prognosis of other disease states, as suggested by recent studies of stress-related immunologic suppression (5).

Although data bases currently available for determining the extent of work-related psychological disorders are limited, several indicators suggest that these problems impose substantial health and financial costs in the United States. A recent study in California showed that claims for the development of "work-related neuroses" more than doubled during 1980-1982; claims for all other disabling work-related injuries during the same period actually decreased by about one-tenth (6). A study of representative medical claims throughout the country showed that during 1980-1982 claims for "mental stress" that developed gradually (i.e., a chronic problem unrelated to a single traumatic incident or to any physical work-related disorder) accounted for about 11% of all occupational disease claims (7). Average medical costs and indemnity payments in 1981-1982 for these forms of mental stress actually surpassed the average amounts for other occupational diseases (7). The American Psychiatric Association now lists occupational stress in its Diagnostic and Statistical Manual as a subcategory of the major diagnostic axis of "psychosocial stress" (8).

There are increasing data on the relationship between specific working conditions and psychological disorders. For example, in a questionnaire survey of over 2,000 workers in 23 different occupations, strong occupational differences were found in psychosocial job stressors and in somatic and affective complaints (1). Ratings of boring, repetitive job tasks and role ambiguity were more prominent among several classes of blue-collar workers (e.g., assembly-line workers, fork-lift truck drivers, and machine operators) than among white-collar professionals (e.g., professors and family physicians). The most satisfied occupational groups were physicians, professors, and white-collar supervisors. Groups experiencing the highest levels of job stressors and their resultant ill effects were assemblers and relief workers on machine-paced assembly lines.

NIOSH investigators ranked 130 occupations by rate of admission to community mental health centers in Tennessee to determine the relative risk of psychological or stress-related disorders by occupation (9). Heading the list were jobs in health care, service occupations, and blue-collar factory work--which tend to be characterized by stress-producing conditions such as a lack of control over the job by the worker, repetitive work, shift work, and a responsibility for others. In other studies, workers on night and rotating shifts (including the health-care occupations) reported more disturbances of sleep; altered eating habits; and higher rates of visits to clinics, absences due to sickness, and on-the-job injuries than did those on fixed day shifts (10-12).

Work environments characterized by technological innovation have also been investigated; a major focus has been on office work influenced by the introduction of computers (13,14). "Adverse working conditions" (e.g., poorer physical environment, reduced job control and social support) tend to be reported more frequently by workers using new-technology office equipment such as video display terminals. Some of these conditions have been linked to chronic stress-related disorders (4,15).

Worksite studies by NIOSH have revealed that job stresses may contribute to acute disturbances among groups of workers, including those termed "mass psychogenic illness" (16). The sudden appearance of symptoms, usually in response to some "trigger factor" such as a strange odor, may result in spread of the apparent "illness" throughout the plant, with symptoms such as headaches, dizziness, and nausea. Investigations often fail to detect specific physical or chemical causative agents. However, factors such as heavy work load, strained labor/management relations, and physical discomfort at work may be present and related to the reporting of symptoms.

Emerging trends in technology, the economy, and demographic characteristics of the work force may lead to increased risk for psychological disorders. For example, a 26% increase is projected for employment in the health services, an area that may be associated with elevated risk (9, 17). Computers and robots are expected to affect seven million factory jobs and 39 million office jobs (18). According to some forecasters (18), possible consequences may include job displacement, reduced skill requirements, and lower-paying jobs. It has been projected that in the next decade, nine of every ten new jobs will be in the service sector (19). Routine service jobs may not provide the compensation and benefits associated with the more traditional industrial and manufacturing jobs (18). Six of ten new jobs in the next decade will be filled by women (19), and dual job/home role demands and constrained occupational opportunities for women may result in an adverse impact on their mental health.

A prevention strategy for psychological disorders should take into account both the causal mechanisms and the factors that perpetuate these disorders. Work-related psychological disturbances are known to be influenced by both the physical and psychosocial characteristics of given job situations. Moreover, these factors operate in concert with factors unrelated to the job--such as life events; familial demands

and support; and the traits, capacities, and needs of the workers themselves (e.g., personality, age, sex, experience/learning). The interaction of these variables is complex, and the relative influence of each is not thoroughly understood. Nevertheless, approaches to prevent work-related psychological disorders should still be taken using the information currently available.

Stress-reduction techniques (e.g., meditation, biofeedback, muscle relaxation, cognitive restructuring, and anxiety management) have been taught to both blue- and white-collar workers in worksite training sessions. Follow-up studies have shown decreases in psychophysiologic activity (e.g., muscle tension and blood pressure levels) and reductions in subjective reports of anxiety, sleep disturbances, and other health complaints with each technique (20). However, improvement in all these parameters persisted less than 3 months after training ended.

Stress management treats only the symptoms of the problem--not the cause. Therefore, efforts to control risk factors at the worksite are also important. Some previously described suggestions for controlling worksite risk factors for psychological disorders are listed below (21). These suggestions appear to have merit for reducing work-related psychological disorders, but further evaluation and study are needed for a complete understanding of their impact.

Work schedule. Design work schedules to avoid conflict with demands and responsibilities unrelated to the job. Schedules for rotating shifts should be stable and predictable, with rotation in a forward (day-to-night) direction.

Participation/control. Allow workers to provide input for decisions or actions affecting their jobs.

Workload. Ensure assignments are compatible with the capabilities and resources of the worker, and allow for recovery from especially demanding physical or mental tasks.

Content. Design tasks to provide meaning, stimulation, a sense of completeness, and an opportunity to use skills.

Roles. Define work roles and responsibilities clearly.

Social environment. Provide opportunities for social interaction, including emotional support and help directly related to one's job.

Future. Avoid ambiguity in matters of job security and career development.

In addition to evaluation of these suggested actions, efforts are needed to advance the understanding of work-related psychological disorders and of methods appropriate for their control, including:

1. Improving the systems for surveillance of psychological disorders in the work force as related to working conditions.
2. Improving research techniques for investigating stressful working conditions and their health consequences.
3. Improving training of occupational health professionals and workers in recognizing stressful workplace conditions and signs of worker stress and in effecting remedial measures.
4. Furthering the development of mental health components in occupational health and safety programs.

Reported by Div of Biomedical and Behavioral Science, National Institute for Occupational Safety and Health, CDC.

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NIOSH Projects By Program Areas

Occupational Lung Diseases

Musculoskeletal Injuries

Occupational Cancers

Severe Occupational Traumatic Injuries

Occupational Cardiovascular Diseases

Disorders of Reproduction

Neurotoxic Disorders

Noise-Induced Hearing Loss

Dermatological Conditions

Psychological Disorders

Assistance Requests

Administration

Other

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: PULMONARY HYPERSENSITIVITY TO INDUSTRIAL AGENTS

BEGIN DATE: 10/78 END DATE: 09/88 DIV: DBBS

CAN: 329 PROJECT OFFICER: KNECHT, EDWIN A

PURPOSE: THE PURPOSE OF THIS PROJECT IS TO IDENTIFY AND EVALUATE INDUSTRIAL AGENTS SUSPECTED OF CAUSING OCCUPATIONAL ASTHMA. EXPERIMENTAL RESEARCH IS BEING CONDUCTED TO INVESTIGATE THE RELATIVE IMPORTANCE OF A VARYING EXPOSURE REGIMEN (LOW BACKGROUND EXPOSURES WITH PERIODIC HIGH, PEAK EXPOSURES) ON THE SUSCEPTIBILITY TO A DELAYED-TYPE ASTHMATIC REACTION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DIFFERENTIAL CELL COUNTS AND IMMUNOLOGICAL ANALYSES OF BRONOCHOALVEOLAR LAVAGE FLUID AND SERUM SAMPLES. COMPLETE FINAL REPORT ON ABOVE DATA AND PULMONARY FUNCTION DATA COLLECTED IN FY87.

TITLE: EVALUATION OF MESOTHELIOMA PRODUCTION BY ASBESTOS SUBSTITUTES

BEGIN DATE: 10/84 END DATE: 09/91 DIV: DBBS

CAN: 376 PROJECT OFFICER: PLATEK, STANLEY F

PURPOSE: INDUSTRY IS SUGGESTING TWO MODIFIED CHRYSOTILE PRODUCTS AS SAFE SUBSTITUTES FOR ASBESTOS. THIS PROJECT WILL ASSESS THE SAFETY OF THESE MATERIALS THROUGH ANIMAL TESTING IN WHICH PLEURAL IMPLANTS ARE USED TO COMPARE REACTIONS TO BASE FIBERS VS. THE SUBSTITUTES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RATS WITH PLEURAL IMPLANTS OF BASE AND MODIFIED ASBESTOS FIBERS WILL BE MAINTAINED UNTIL MORBIDITY OR NATURAL DEATH NECESSITATE AUTOPSY; ALL TISSUES WILL THEN UNDERGO HISTOPATHOLOGICAL EVALUATION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DIAGNOSTIC AND RESEARCH PATHOLOGY

BEGIN DATE: 10/76 END DATE: C DIV: DBBS

CAN: 386 PROJECT OFFICER: CAROLAN, ROBERT J

PURPOSE: GROSS AND MICROSCOPIC EXAMINATION/DIAGNOSES FOR EXPERIMENTAL ANIMAL TISSUES AND CONSULTATIVE PATHOLOGY SERVICES FOR NIOSH RESEARCH PROGRAMS WILL BE PROVIDED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE A COMPREHENSIVE PATHOLOGY SERVICE THAT ACCURATELY REPORTS PATHOLOGY DATA FOR IN-HOUSE ANIMAL STUDIES IN A THOROUGH AND TIMELY MANNER.

TITLE: PARTICULATE AND TISSUE ANALYSIS RESEARCH AND SERVICE

BEGIN DATE: 10/76 END DATE: C DIV: DBBS

CAN: 387 PROJECT OFFICER: PLATEK, STANLEY F

PURPOSE: SCANNING AND TRANSMISSION ELECTRON MICROSCOPY AND PARTICLE ANALYSIS SUPPORT TO THE NIOSH PROGRAMS IN OCCUPATIONAL LUNG DISEASE, NOISE-INDUCED HEARING LOSS, AND REPRODUCTIVE DISORDERS WILL BE PROVIDED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ELECTRON MICROSCOPY AND PARTICLE ANALYSIS SUPPORT WILL BE PROVIDED TO DBBS AND OTHER DIVISIONS' PROGRAMS AS REQUESTED.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DUST CONTROL FOR FALLING SOLIDS

BEGIN DATE: 01/86 END DATE: 12/89 DIV: DPSE

CAN: 406 PROJECT OFFICER: HEITBRINK, WILLIAM A

PURPOSE: FREE-FALLING POWDERS GENERATE DUST. THE PHYSICAL PARAMETERS OF THE FREE-FALL (DROP HEIGHT, MASS FLOW RATE, BULK DENSITY OF THE POWDER) ARE AFFECTED BY EQUIPMENT DESIGN. THE PROJECT WILL INVESTIGATE HOW THESE PARAMETERS AFFECT DUST GENERATION. GUIDELINES WILL BE DEVELOPED FOR EQUIPMENT DESIGNERS TO PREDICT AND MINIMIZE THE GENERATION OF DUST.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE LABORATORY INVESTIGATION. ADDITIONAL FIELD STUDIES COMPARING WORKER DUST EXPOSURE TO MATERIAL DUSTINESS WILL BE CONDUCTED, AND A SECOND PAPER SUBMITTED FOR PUBLICATION.

TITLE: ASBESTOS REMOVAL CONTROL TECHNOLOGY ASSESSMENT

BEGIN DATE: 10/84 END DATE: 01/89 DIV: DPSE

CAN: 408 PROJECT OFFICER: HOLLETT, BRUCE A

PURPOSE: THIS WORK EVALUATES GLOVE BAGS, A CONTROL TO PREVENT ASBESTOS RELEASE INTO THE WORK ENVIRONMENT DURING REMOVAL OF PIPE LAGGING. LIMITATIONS OF THIS CONTROL AND WAYS TO OVERCOME THEM ARE IDENTIFIED AND WILL BE DISSEMINATED TO PERSONNEL DOING ASBESTOS ABATEMENT WORK.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SURVEYS TO EVALUATE EXHAUSTED GLOVE BAGS AND FINAL REPORT ON INITIAL GLOVE BAG EVALUATION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ASBESTOS ANALYSIS SURVEILLANCE PROGRAM

BEGIN DATE: 10/86 END DATE: C DIV: DPSE

CAN: 412 PROJECT OFFICER: ABELL, MARTIN T

PURPOSE: THIS PROJECT REPRESENTS A COOPERATIVE ARRANGEMENT WITH AIHA TO ESTABLISH AN ASBESTOS ANALYST REGISTRY (AAR). THE OBJECTIVE OF THE AAR IS TO IMPROVE THE QUALITY OF ANALYSES DONE ON-SITE DURING ASBESTOS CLEARANCE OPERATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DOCUMENT PROCEDURES AND COMPUTER PROGRAMS FOR REPORTING AND ANALYSIS OF ASBESTOS REGISTRY PROFICIENCY TEST DATA. PROCESS AND ARCHIVE DATA FOR 500 COUNTERS BY THE 4TH QUARTER.

TITLE: ANALYTICAL METHODS FOR INORGANIC SUBSTANCES

BEGIN DATE: 01/86 END DATE: C DIV: DPSE

CAN: 413 PROJECT OFFICER: CRABLE, JOHN V

PURPOSE: IN RESPONSE TO NEEDS ARISING FROM NIOSH PREVENTION STRATEGIES, ANALYTICAL METHODS FOR INORGANIC SUBSTANCES IN AIR OR OTHER MATRICES WILL BE DEVELOPED. ALSO, NEW ANALYTICAL CHEMISTRY TECHNIQUES WILL BE EVALUATED FOR APPLICATION TO INDUSTRIAL HYGIENE SAMPLING AND ANALYTICAL NEEDS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FEASIBILITY STUDY OF DETERMINATION OF QUARTZ BY FOURIER TRANSFORM INFRARED SPECTROSCOPY AND DEVELOP PLAN OF EXPERIMENTS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: HALOGEN GASES S/A METHODS

BEGIN DATE: 10/87 END DATE: 09/89 DIV: DPSE

CAN: 414 PROJECT OFFICER: CASSINELLI, MARY E

PURPOSE: DEVELOPMENT OF NEW MONITORING METHODS FOR TOXIC OXIDIZING GASES WILL AID IN PREVENTING OCCUPATIONAL LUNG DISEASES, NEUROTOXIC DISORDERS AND DERMATOLOGIC CONDITIONS. THE DEVELOPMENT OF A SAMPLER CAPABLE OF COLLECTING ALL THE FREE HALOGEN GASES AND AN ANALYTICAL TECHNIQUE CAPABLE OF SEPARATING AND MEASURING EACH HALOGEN ARE PROPOSED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE LABORATORY WORK ON SAMPLING AND ANALYSIS METHOD FOR HALOGEN GASES.

TITLE: TECHNOLOGY TRANSFER FOR DPSE PROJECTS

BEGIN DATE: 10/87 END DATE: C DIV: DPSE

CAN: 416 PROJECT OFFICER: SCHOENBORN, THEODORE F

PURPOSE: THIS PROJECT WILL TRANSFER THE TECHNOLOGY DEVELOPED IN DPSE SO THAT CONTROL AND MONITORING INNOVATIONS ARE WIDELY AVAILABLE FOR ADOPTION AND PATENTABLE DISCOVERIES ARE COMMERCIALIZED TO ENSURE THE WIDEST POSSIBLE USAGE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DISSEMINATION OF DPSE DEVELOPED CONTROL AND MONITORING INNOVATIONS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DEVELOPMENT OF IMPROVED WORKSTATIONS FOR HANDLING DRY CHEMICALS

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DPSE

CAN: 417 PROJECT OFFICER: GRESSEL, MICHAEL G

PURPOSE: WEIGHING AND BATCHING OF SMALL VOLUMES OF CHEMICAL POWDERS IS GENERALLY PERFORMED BY HAND. PREVIOUS STUDIES HAVE SHOWN HEAVY DUST EXPOSURES, EVEN WHEN VENTILATION IS UTILIZED. THIS STUDY WILL ANALYZE PAST RESEARCH DATA TO DEVELOP A DESIGN FOR AN IMPROVED WORKSTATION LAYOUT FOR THIS COMMON UNIT PROCESS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DATA FROM A FIELD SURVEY PERFORMED DURING FY87 (UNDER THE APPLIED CONTROL TECHNOLOGY PROJECT) WILL BE ANALYZED, A PLANT REPORT COMPLETED, AND A JOURNAL ARTICLE SUBMITTED.

TITLE: MINING AND RESPIRATORY DISEASE RESEARCH ANALYTICAL SUPPORT

BEGIN DATE: 10/84 END DATE: C DIV: DPSE

CAN: 426 PROJECT OFFICER: DOLLBERG, DONALD D

PURPOSE: THIS PROJECT WILL PROVIDE ANALYTICAL CHEMISTRY SUPPORT TO MINING INVESTIGATIONS, RESPIRATORY DISEASE STUDIES, AND SAFETY RESEARCH. ANALYTICAL CHEMISTRY SUPPORT WILL BE GIVEN TO NOHS MINING STUDIES AND TO STUDIES OF FIBROUS MINERALS COMBINED WITH OTHER MINERAL DUST.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE 3200 SAMPLES IN SUPPORT OF RESPIRATORY DISEASE STUDIES AND RESPIRATOR RESEARCH.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: EVALUATION OF BRAKE DRUM SERVICE CONTROLS

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DPSE

CAN: 428 PROJECT OFFICER: SHEEHY, JOHN W

PURPOSE: THIS PROJECT WILL IDENTIFY EFFECTIVE ASBESTOS CONTROL DEVICES, METHODS, AND TECHNIQUES USED IN THE VEHICLE BRAKE DRUM SERVICE INDUSTRY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EVALUATE SAMPLING EQUIPMENT, SUBMIT JOURNAL ARTICLE ON EFFECTIVE CONTROLS, AND COMPLETE FINAL REPORT.

TITLE: PILOT STUDY: EVALUATION OF PROCESS CONTAINMENT FOR BIOAEROSOLS

BEGIN DATE: 10/86 END DATE: 09/88 DIV: DPSE

CAN: 429 PROJECT OFFICER: MARTINEZ, KENNETH

PURPOSE: THIS PROJECT WILL IDENTIFY IMPROVED METHODS OF EVALUATING BIOPROCESS CONTAINMENT AND IDENTIFY SPECIFIC EQUIPMENT FOR EVALUATION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PREPARE REPORT RECOMMENDING EQUIPMENT TO BE EVALUATED, SAMPLING EQUIPMENT, AND PROCEDURES TO BE USED IN FUTURE WORK.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ANALYTICAL METHODS FOR ORGANIC COMPOUNDS

BEGIN DATE: 10/82 END DATE: C DIV: DPSE

CAN: 437 PROJECT OFFICER: TEASS, ALEXANDER W

PURPOSE: ANALYTICAL METHODS FOR ORGANIC COMPOUNDS IN WORKPLACE AIR AND OTHER MATRICES OF INDUSTRIAL HYGIENE INTEREST WILL BE DEVELOPED. NEW ANALYTICAL-CHEMISTRY TECHNIQUES WILL BE EVALUATED FOR APPLICATION TO INDUSTRIAL HYGIENE PROBLEMS. THIS WILL ADVANCE THE STATE OF THE ART OF IDENTIFYING AND QUANTIFYING WORKER EXPOSURE TO TOXIC CHEMICALS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESEARCH ON METHOD FOR 1,3-BUTADIENE IN AIR AND RESEARCH ON LINEAR TEMPERATURE-PROGRAMMED GAS CHROMATOGRAPHY WILL BE REPORTED. METHOD FOR THE DETERMINATION OF FORMALDEHYDE IN AIRBORNE DUST WILL BE INVESTIGATED.

TITLE: REVISION OF THE NIOSH MANUAL OF ANALYTICAL METHODS

BEGIN DATE: 10/82 END DATE: C DIV: DPSE

CAN: 445 PROJECT OFFICER: ELLER, PETER M

PURPOSE: THIS PROJECT PROVIDES A COLLECTION OF CURRENT NIOSH ANALYTICAL METHODS FOR USE IN HEALTH HAZARD EVALUATIONS, INDUSTRY-WIDE STUDIES, AND CONTROL TECHNOLOGY ASSESSMENTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PRINT ADDITIONAL SUPPLEMENTS AS REQUIRED.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ANALYTICAL METHODS FOR ASBESTOS FIBERS

BEGIN DATE: 10/84 END DATE: 09/89 DIV: DPSE

CAN: 448 PROJECT OFFICER: BARON, PAUL A

PURPOSE: THE PROJECT WILL INVESTIGATE THE PRECISION OF METHOD 7400 FOR FIBERS AND SUGGEST IMPROVEMENTS IF NEEDED. A TRANSMISSION ELECTRON MICROSCOPE METHOD WILL BE DEVELOPED FOR ASBESTOS. IMPROVED FIBER COUNTING STRATEGIES AND PROCEDURES WILL BE INVESTIGATED. IMAGE ANALYSIS TECHNIQUES TO AUTOMATE ASBESTOS COUNTING WILL BE IMPLEMENTED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
WRITE TEM RESEARCH METHOD FOR NIOSH MANUAL.

TITLE: QUALITY ASSURANCE (EXTERNAL)

BEGIN DATE: 10/82 END DATE: C DIV: DPSE

CAN: 458 PROJECT OFFICER: ABELL, MARTIN T

PURPOSE: NIOSH WILL CONTINUE TO RATE LABORATORIES IN THE PAT PROGRAM, A JOINT PROJECT OF NIOSH AND AIHA. PROFICIENCY RATINGS ARE BASED ON THE ANALYTICAL RESULTS REPORTED FOR QUALITY AUDIT SAMPLES THAT INCLUDE CARCINOGENS (E.G., ASBESTOS AND BENZENE). IN ADDITION, LABORATORY PERFORMANCE WILL BE DOCUMENTED IN PUBLICATIONS IN FY88 AND FY89.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE DATA FOR 800 LABORATORIES, COORDINATE PAT PROGRAM WITH AIHA AND THE SAMPLE PRODUCTION CONTRACTOR, SUBMIT AN ARTICLE FOR PUBLICATION THAT DOCUMENTS PAT LABORATORY PERFORMANCE.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: MAINTENANCE AND CALIBRATION

BEGIN DATE: 10/82 END DATE: C DIV: DPSE

CAN: 459 PROJECT OFFICER: GROFF, JENSEN H

PURPOSE: THIS PROJECT WILL: 1) PROVIDE REPAIR, CALIBRATION OF FIELD AND DIRECT- READING EQUIPMENT (DPSE ECTB, DSHEFS IWSB, DTMD, AND SOME STATE LABS); 2) PROVIDE ELECTRONIC REPAIR & FABRICATION SUPPORT FOR DIRECT-READING INSTRUMENT DEVELOPMENT; 3) DEVELOP A SYSTEM FOR WIRELESS TRANSMISSION OF ENVIRONMENTAL DATA IN THE WORKPLACE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
180 INSTRUMENTS REPAIRED, CALIBRATED, 15 MODIFIED; DEVELOP FCC-APPROVED TRANSMITTER FOR WIRELESS TRANSMISSION OF ENVIRONMENTAL DATA IN THE WORKPLACE; PUBLISH ARTICLE ON PUMP RELIABILITY TESTER.

TITLE: DEV. OF PREDICTIVE MODELS FOR DETERMINING CONTROL EFFECTIVENESS

BEGIN DATE: 10/85 END DATE: 09/90 DIV: DPSE

CAN: 494 PROJECT OFFICER: ANASTAS, MAZEN Y

PURPOSE: THIS PROJECT DEVELOPS PREDICTIVE MODELS FOR LOCAL EXHAUST VENTILATION SYSTEMS USED TO CONTROL SOURCES OF CONTAMINANTS. THE END PRODUCT WILL BE A SERIES OF MODELS WHICH HELP THE DESIGNER TO DESIGN EFFECTIVE CONTROL SYSTEMS APPLICABLE TO ALL DISEASE CATEGORIES ASSOCIATED WITH AIRBORNE CONTAMINANTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP THREE-DIMENSIONAL MODELS FOR UNOBSTRUCTED LOCAL EXHAUST OPENINGS. VALIDATE MODELS EMPIRICALLY AND SUBMIT JOURNAL ARTICLE.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: GAS AND VAPOR MEASUREMENT TECHNIQUES

BEGIN DATE: 10/84 END DATE: 09/89 DIV: DPSE

CAN: 496 PROJECT OFFICER: PILTINGSRUD, HARLEY V

PURPOSE: THE PHOTO-OPTICAL STUDY MAY LEAD TO A VERY VERSATILE SYSTEM FOR SURVEILLANCE OF AIRBORNE POLLUTANTS IN THE WORKPLACE, PRODUCING REAL-TIME MAPPING OF POLLUTANTS, IMPROVING ESTIMATES OF PERSONAL EXPOSURE, AND EVALUATING EFFECTIVENESS OF CONTROL METHODS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE MEASUREMENTS USING BENCHMARK TEST SYSTEM AND DESIGN PROTOTYPE LIDAR SYSTEM FOR WORKPLACE SURVEILLANCE.

TITLE: INTERNATIONAL PNEUMOCONIOSES CONFERENCE

BEGIN DATE: 07/87 END DATE: 09/88 DIV: DRDS

CAN: 104 PROJECT OFFICER: GLENN, ROBERT E

PURPOSE: PROVIDE DIRECTION AND GUIDANCE TO THE NIOSH CONTRACT IN SUPPORT OF THE VII INTERNATIONAL CONFERENCE ON THE PNEUMOCONIOSES, AND MANAGERIAL AND ADMINISTRATIVE SERVICES IN DIRECT SUPPORT OF THE CONFERENCE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ALL PRE-CONFERENCE PREPARATIONS AND PRESENT THE CONFERENCE IN AUGUST, 1988.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: COMPARATIVE RESEARCH IN ANALYTICAL PATHOLOGY

BEGIN DATE: 10/71 END DATE: C DIV: DRDS

CAN: 105 PROJECT OFFICER: TUCKER, JAMES H

PURPOSE: THE RESULTS OBTAINED FROM THE AUTOPSY PROGRAM AND RELATED DRDS RESEARCH PROJECT SUPPORT WILL AID IN EVALUATING THE EFFECTIVENESS OF THE COAL MINE DUST STANDARD.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ADMINISTER THE NCWAS AND DISASTER PLAN AND SUBMIT ANNUAL REPORT. PROVIDE PATHOLOGY SUPPORT.

TITLE: CHARACTERIZATION OF SILICA IN LUNGS OF AUTOPSIED COAL MINERS

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DRDS

CAN: 106 PROJECT OFFICER: TUCKER, JAMES H

PURPOSE: THIS PROJECT WILL DETERMINE THE SIZE OF SILICA PARTICLES THAT DEPOSIT IN COAL MINERS' LUNGS AND DETERMINE THE PREVALENCE OF SILICOSIS IN THE NATIONAL COALWORKERS' AUTOPSY STUDY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE AUTOMATED IMAGE AND CHEMICAL ANALYSIS OF SELECTED NCWAS CASES. SUBMIT REPORT/PUBLICATION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DEVELOPMENT OF A LUNG-CELL MODEL FOR STUDYING WORKPLACE GENOTOXICANTS

BEGIN DATE: 10/86 END DATE: 12/89 DIV: DRDS

CAN: 113 PROJECT OFFICER: WHONG, WEN-ZONG

PURPOSE: THIS PROJECT WILL DEVELOP AND CHARACTERIZE SHORT-TERMED ASSAY SYSTEMS WHICH WILL PROVIDE USEFUL METHODS FOR THE DETECTION AND MONITORING OF TOXIC CHEMICALS AND ORGANIC DUSTS IN THE WORKPLACE ENVIRONMENT, AND FOR THE DETECTION OF POTENTIAL HEALTH HAZARDS (OCCUPATIONAL CANCER) TO WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ESTABLISHMENT OF THE UNSCHEDULED DNA SYNTHESIS ASSAY SYSTEM IN LUNG CELLS.

TITLE: PULMONARY RESPONSE TO INHALED FIBROGENIC MINERALS

BEGIN DATE: 10/86 END DATE: 09/90 DIV: DRDS

CAN: 114 PROJECT OFFICER: VALLYATHAN, VAL

PURPOSE: SHORT TERM HIGH DOSE INHALATION EXPERIMENTS DESIGNED IN THESE STUDIES WILL PROVIDE VALUABLE INFORMATION ON THE TOXICITY AND PATHOGENESIS OF SELECTED FIBROGENIC MINERALS. THIS STUDY WILL CONTRIBUTE TO OUR KNOWLEDGE OF ANTICIPATED OCCUPATIONAL LUNG DISEASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ALL EXPERIMENTAL PROTOCOLS AND ONE INHALATION STUDY.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DEFENSE MECHANISMS OF ALVEOLAR PNEUMOCYTES AGAINST OCCUPATIONAL AGENTS

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DRDS

CAN: 116 PROJECT OFFICER: CASTRANOVA, VINCENT

PURPOSE: THIS PROJECT WILL DETERMINE THE EFFECTS OF VARIOUS OCCUPATIONALLY RELATED AGENTS (SUCH AS DIESEL PARTICULATES AND SILICATES) ON THE ABILITY OF ALVEOLAR TYPE II CELLS AND ALVEOLAR MACROPHAGES TO PRODUCE INTERFERON, A CELLULAR DEFENSE MECHANISM.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP METHODS TO MONITOR INTERFERON PRODUCTION BY LUNG PNEUMOCYTES.

TITLE: SILICOSIS: DISEASE MECHANISMS

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DRDS

CAN: 117 PROJECT OFFICER: MILES, PHILIP R

PURPOSE: THE DOSE-RESPONSE RELATIONSHIPS FOR SILICA WILL BE DETERMINED, PARTICULARLY FOR SURFACTANT METABOLISM, PULMONARY FUNCTION AND AIRWAY SMOOTH MUSCLE. THIS WILL PROVIDE INFORMATION AS TO THE TYPES AND LEVELS OF EXPOSURES THAT SHOULD BE ELIMINATED IN ORDER TO PREVENT SILICOSIS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DETERMINE EFFECTS OF SILICA ON SURFACTANT METABOLISM.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ENDOTOXINS AND COTTON

BEGIN DATE: 11/87 END DATE: 09/90 DIV: DRDS

CAN: 118 PROJECT OFFICER: OLENCHOCK, STEPHEN A

PURPOSE: KNOWLEDGE RELATED TO WHICH ENDOTOXINS ARE THE MOST TOXIC WILL LEAD TO STANDARDS DEVELOPMENT BASED ON MEASUREMENT OF PRECISE BIOLOGIC/ETIOLOGIC AGENTS. RELATIVE TOXICITY OF THE MOST LIKELY ETIOLOGIC AGENT (ENDOTOXIN) WILL BE STUDIED AND DEFINED SO THAT INTERVENTION TECHNIQUES MAY BE APPLIED AT THE TIME OF CULTIVATION OR PROCESSING.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPARE EFFECTS OF DIFFERENT TYPES OF ENDOTOXINS ON THE LAL TEST.

TITLE: OCCUPATIONAL ASTHMA ROLE OF AIRWAY EPITHELIUM

BEGIN DATE: 02/87 END DATE: 09/90 DIV: DRDS

CAN: 119 PROJECT OFFICER: FEDAN, JEFFREY S

PURPOSE: THIS PROJECT WILL DEVELOP/EVALUATE ANIMAL/IN VITRO MODELS TO DETECT EARLY CELLULAR CHANGES IN AIRWAY EPITHELIUM/SMOOTH MUSCLE ASSOCIATED WITH EXPOSURE TO SELECTED IRRITANT VAPORS. IT WILL HELP IDENTIFY EARLY SIGNS OF DISEASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CHARACTERIZE IN VITRO EFFECTS OF MAJOR BASIC PROTEIN, EXAMINE EFFECT OF REMOVING AIRWAY EPITHELIUM ON REACTIVITY, IN VITRO, OF AIRWAY SMOOTH MUSCLE TO BRONCHOCONSTRICTOR AND BRONCHODILATOR AGENTS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ANIMAL AND EXPOSURE FACILITY SUPPORT FOR DRDS

BEGIN DATE: 10/80 END DATE: C DIV: DRDS

CAN: 123 PROJECT OFFICER: WEBER, KENNETH C

PURPOSE: THIS PROJECT PROVIDES ANIMALS TO NIOSH RESEARCHERS FOR THE PURPOSES OF DEFINING ETIOLOGIC AGENTS, ANIMAL MODELS OF ORD, PATHOGENETIC AND DEFENSE MECHANISMS AND NATURALLY OCCURRING VARIABILITY IN EXPOSURES WHICH CAUSE OR INFLUENCE OCCUPATIONAL LUNG DISEASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE DRDS AND COLLABORATING UNITS WITH EXPERIMENTAL ANIMALS. THIS INCLUDES PURCHASE OF ANIMALS, ANIMAL HUSBANDRY AND SELECTED CONTROLLED EXPOSURES. ANIMALS ARE MAINTAINED ACCORDING TO NIH GUIDELINES.

TITLE: VALIDATION STUDIES OF IN SITU ASSAY SYSTEM IN OCCUPATIONAL SETTING

BEGIN DATE: 07/86 END DATE: 06/91 DIV: DRDS

CAN: 124 PROJECT OFFICER: ONG, TONG-MAN

PURPOSE: THIS PROJECT WILL DEVELOP AND CHARACTERIZE A BIOLOGICAL ASSAY SYSTEM TO PROVIDE METHODS FOR THE DETECTION AND MONITORING OF GENOTOXIC AGENTS AND POTENTIAL CARCINOGENS IN WORKPLACE ENVIRONMENT, AND FOR THE DETECTION OF POTENTIAL HEALTH HAZARDS TO WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DEVELOPMENT AND LABORATORY VALIDATION OF AN IN SITU MUTAGENESIS ASSAY SYSTEM.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: AGRICULTURE: CHRONIC BRONCHITIS STUDIES

BEGIN DATE: 01/87 END DATE: 09/90 DIV: DRDS

CAN: 126 PROJECT OFFICER: OLENCHOCK, STEPHEN A

PURPOSE: THIS PROJECT WILL ADDRESS THE ISOLATION, CHARACTERIZATION AND DESCRIPTION OF THE AGENTS IN AGRICULTURAL (ORGANIC) DUSTS. THE EVALUATION OF THESE MECHANISMS WILL LEAD TO THE DEVELOPMENT OF APPROPRIATE PREVENTION STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ENUMERATION OF GRAM-NEGATIVE AND GRAM-POSITIVE BACTERIA IN SILAGE.

TITLE: ANIMAL MODEL VALIDATION STUDIES

BEGIN DATE: 10/84 END DATE: 09/90 DIV: DRDS

CAN: 127 PROJECT OFFICER: FRAZER, DAVID G

PURPOSE: THIS PROJECT WILL DEVELOP/EVALUATE SENSITIVE PULMONARY FUNCTION TESTS, LUNG CELL TECHNIQUES AND BLOOD TESTS FOR DETECTING BYSSINOSIS IN ANIMAL AND IN MAN.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP A SYSTEM TO EXPOSE AT LEAST 10 ANIMALS TO CONTROLLED LEVELS OF COTTON DUSTS. COMPLETE LUNG CELL DOSE RESPONSE FOR SINGLE EXPOSURES.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ENDOTOXINS IN BULK COTTONS AND AIRBORNE DUSTS

BEGIN DATE: 03/88 END DATE: 09/89 DIV: DRDS

CAN: 128 PROJECT OFFICER: OLENCHOCK, STEPHEN A

PURPOSE: THIS STUDY WILL PROVIDE THE OPPORTUNITY TO EXAMINE PROSPECTIVE ENDOTOXIN DATAIN ACTIVE COTTON MILLS THAT OPERATE (IN THE PRC) WITHOUT THE BENEFIT OF THE U.S. COTTON DUST STANDARD, IN ORDER TO DETERMINE WHETHER INCREASED INCIDENCE OF DISEASE (BYSSINOSIS) CORRELATES WITH ELEVATED ENDOTOXIN LEVELS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ENDOTOXIN ANALYSES

TITLE: NCWAS: DATA ANALYSIS AND RELATED RESEARCH

BEGIN DATE: 03/88 END DATE: 09/88 DIV: DRDS

CAN: 129 PROJECT OFFICER: WEBER, KENNETH C

PURPOSE: THIS PROJECT WILL ASSESS THE ACCURACY AND THE ADEQUACY OF THE REVIEW OF PATHOLOGY SPECIMINS SUBMITTED THROUGH THE NCWAS AND WILL THEN COMPARE THESE FINDINGS WITH ACTUAL RADIOGRAPHIC INTERPRETATIONS FOR THE SAME INDIVIDUALS. THIS PROCESS WILL SERVE TO EVALUATE THE EFFECTIVENESS OF THE PROCEDURES USED IN BOTH PROGRAMS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SELECT PATHOLOGIST AND HISTOPATHOLOGY TECHNICIAN. IDENTIFY PANEL OF PATHOLOGISTS AND BEGIN REVIEW OF NCWAS AUTOPSY SPECIMINS FROM THE YEARS 1971-1980

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: NHANES III SUPPORT

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DRDS

CAN: 135 PROJECT OFFICER: HANKINSON, JOHN L

PURPOSE: THIS PROJECT WILL PROVIDE SUPPORT TO THE RESPIRATORY DISEASE PART OF NHANES. PULMONARY FUNCTION EQUIPMENT WILL BE MAINTAINED, TRAINING PROVIDED, AND QUALITY CONTROL PERFORMED TO INSURE A UNIFORM APPROACH TO DATA COLLECTION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP AND IMPLEMENT EQUIPMENT, DATA COLLECTION, AND QUALITY CONTROL PROCEDURES FOR USE IN RESPIRATORY DISEASE COMPONENT OF NHANES III.

TITLE: PREVENTION OF SILICOSIS IN FOUNDRY WORKERS

BEGIN DATE: 03/88 END DATE: 09/90 DIV: DRDS

CAN: 137 PROJECT OFFICER: RICHARDS, THOMAS B

PURPOSE: THIS PROJECT WILL PROVIDE SUPPORT TO A STATE HEALTH DEPARTMENT (OHIO) IN THE DEVELOPMENT OF A MODEL PROGRAM FOR SURVEILLANCE AND PREVENTION OF SILICOSIS IN FOUNDRY WORKERS

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE FUNDING SUPPORT TO STATE HEALTH DEPARTMENT THROUGH THE SENTINEL EVENT NOTIFICATION SYSTEM FOR OCCUPATIONAL RISKS (SENSOR)

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ALVEOLAR TYPE II CELLS: EFFECTS OF SILICA

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DRDS

CAN: 140 PROJECT OFFICER: RABOVSKY, JEAN

PURPOSE: ANALYSIS OF SILICA EXPOSURE VS. CYTOCHROME P450 ACTIVITY IN ANIMALS WILL DEFINE THRESHOLDS OF CELLULAR RESPONSE. STUDIES CONCERNING PHOSPHOLIPID SYNTHESIS AND DEGRADATION WILL AID IN EVALUATION OF THE INITIAL LIPIDOTIC RESPONSE TO SILICA.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DOCUMENT THE PULMONARY LIPIDOSIS ASSOCIATED WITH ACUTE SILICOSIS. DETERMINE THE MECHANISM(S) INVOLVED IN THIS LUNG RESPONSE TO INHALED SILICA AND SUBMIT REPORT/PUBLICATION.

TITLE: ACTIVE SILICA CONTENT OF COAL MINE DUST

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DRDS

CAN: 143 PROJECT OFFICER: WALLACE, WILLIAM E

PURPOSE: THIS PROJECT WILL DETERMINE THE SIGNIFICANCE OF THE FACTORS WHICH AFFECT THE FIBROGENIC POTENTIAL OF SILICA (MASS, COUNT, PARTICLE SIZE, SURFACE CHARACTERISTICS, MATRIX COMPOSITION, ETC.).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SURFACE ANALYSES OF MINE DUSTS, COMPARE WITH FREE SILICA INDICES; PREPARE REPORT.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: POLYCYCLIC AROMATIC HYDROCARBONS, PARTICULATES & DEFENSE MECHANISMS

BEGIN DATE: 10/85 END DATE: 12/88 DIV: DRDS

CAN: 145 PROJECT OFFICER: HAHON, NICHOLAS

PURPOSE: THIS PROJECT WILL VERIFY AND CHARACTERIZE BY BIOLOGICAL ASSESSMENT, USING INHIBITION OF VIRAL INTERFERON INDUCTION CRITERION, THE CO-EFFECTS OF SELECTED OCCUPATION-RELATED AGENTS FOR DISEASE POTENTIAL AND MEANS FOR ABROGATION OR PREVENTION THEREOF.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RECOGNIZE AND CHARACTERIZE CO-INTERACTIONS BETWEEN BAP AND SELECTED DISEASE-PRODUCING PARTICULATES, I.E., ASBESTOS, SILICA, COAL, ON CELLULAR DEFENSE MECHANISMS.

TITLE: SILICOSIS PREVENTION THROUGH SENSOR PROGRAM IN STATE HEALTH DEPARTMENTS

BEGIN DATE: 03/88 END DATE: 09/88 DIV: DRDS

CAN: 146 PROJECT OFFICER: RICHARDS, THOMAS B

PURPOSE: THIS PROJECT PROVIDES SUPPORT TO STATE HEALTH DEPARTMENTS IN THE PREVENTION OF SILICOSIS THROUGH THE SENTINEL EVENT NOTIFICATION SYSTEM FOR OCCUPATIONAL RISKS (SENSOR).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE ANNUAL SUPPORT TH STATE HEALTH DEPARTMENT(S) PARTICIPATING IN THE SENSOR PROGRAM.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: LABORATORY ANIMAL ALLERGY STUDY - NIEHS

BEGIN DATE: 05/86 END DATE: 09/89 DIV: DRDS

CAN: 147 PROJECT OFFICER: LEWIS, DANIEL M

PURPOSE: THE OBJECTIVE OF THIS PROJECT IS TO DEVELOP A SENSITIVE METHOD TO QUANTITATE AIRBORNE ALLERGEN LEVELS. WITH SUCH TECHNOLOGY, THE EFFECTS OF ENGINEERING CONTROL OR WORK PRACTICES ON ALLERGEN LEVELS CAN BE MONITORED, AND ALLERGEN CONCENTRATION NEEDED FOR SENSITIZATION OR REACTION CAN BE ESTIMATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DEVELOPMENT OF RAST AND RAST INHIBITION ASSAY; COMPLETE CROSS-REACTIVITY STUDIES.

TITLE: RESPIRATORY MORBIDITY IN INDIAN WORKERS EXPOSED TO ORGANIC DUSTS

BEGIN DATE: 10/86 END DATE: 09/93 DIV: DRDS

CAN: 148 PROJECT OFFICER: CASTELLAN, ROBERT M

PURPOSE: THIS PROJECT WILL EVALUATE BOTH ACUTE AND CHRONIC RESPIRATORY EFFECTS OF COTTON DUST EXPOSURE, AS MEASURED GRAVIMETRICALLY AND IN TERMS OF ENDOTOXIN CONTAMINATION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE STUDY PROTOCOL TO DETERMINE RESPIRATORY MORBIDITY IN INDIAN WORKERS EXPOSED TO COTTON DUST.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: MICROORGANISMS IN CONTAMINATED OFF. BLDGS: EFFECTS OF REMEDIAL ACTION

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DRDS

CAN: 152 PROJECT OFFICER: STANEVICH, REBECCA S

PURPOSE: IN VITRO MEASUREMENT SYSTEMS WILL BE USED TO ASSESS LEVELS OF KNOWN ANTIGENIC AGENTS TO DEVELOP AND DETERMINE THE EFFECTIVENESS OF CONTROL STRATEGIES USED IN REMEDIAL ACTIONS. ADDITIONALLY, SUSPECT ANTIGENS WILL BE IDENTIFIED AS POTENTIALLY RESPONSIBLE FOR HP OUTBREAKS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
IDENTIFY SUSPECTED AGENTS FOR BUILDING-RELATED CASES OF HYPERSENSITIVITY PNEUMONITIS AND SUBMIT REPORT.

TITLE: EPIDEMIOLOGIC REVIEW OF COTTON MILL SURVEILLANCE DATA

BEGIN DATE: 02/85 END DATE: 09/88 DIV: DRDS

CAN: 154 PROJECT OFFICER: CASTELLAN, ROBERT M

PURPOSE: THIS PROJECT WILL EVALUATE THE ROLE OF ENDOTOXIN AS AN ETIOLOGIC AGENT IN COTTON DUST.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DETERMINE ENDOTOXIN EFFECT ON RESPIRATORY MORBIDITY EVENTS IN COTTON TEXTILE WORKERS AND SUBMIT REPORT/PUBLICATION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: SURVEILLANCE SYSTEM FOR OCCUPATIONAL LUNG DISEASES

BEGIN DATE: 10/84 END DATE: 09/88 DIV: DRDS

CAN: 155 PROJECT OFFICER: RICHARDS, THOMAS B

PURPOSE: THIS PROJECT PROVIDES MEDICAL TECHNICAL SUPPORT TO THE SENTINEL EVENT NOTIFICATION SYSTEM FOR OCCUPATIONAL RISKS (SENSOR) AND TO STATES DEVELOPING SURVEILLANCE SYSTEMS FOR OCCUPATIONAL RESPIRATORY DISEASES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE MEDICAL TECHNICAL SUPPORT TO SENSOR SYSTEM PROJECTS FOR OCCUPATIONAL RESPIRATORY DISEASES. ASSIST IN PUBLICATION OF SURVEILLANCE DATA FROM AT LEAST ONE STATE.

TITLE: PNEUMOCONIOSIS X-RAY INTERPRETATION USING COMPUTED IMAGE MODIFICATION

BEGIN DATE: 10/87 END DATE: 09/91 DIV: DRDS

CAN: 156 PROJECT OFFICER: HODOUS, THOMAS K

PURPOSE: EFFECTIVE RESEARCH AND MEDICAL SURVEILLANCE BOTH REQUIRE ACCURATE DETECTION METHODS, PRIMARILY X-RAY INTERPRETATION. THIS PROJECT IS DESIGNED TO IMPROVE BOTH THE CONSISTENCY AND THE ACCURACY OF X-RAY INTERPRETATION, AND IMPROVE COAL AND ASBESTOS RESEARCH/SURVEILLANCE, BY IMPLEMENTING NEW PROCESSING TECHNOLOGY IN THE READING OF CHEST X-RAYS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
WRITE PROTOCOL AND OBTAIN NEEDED APPROVALS. COMPLETE PILOT STUDY DATA COLLECTION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: SINO-AMERICAN CHEST X-RAY INTERPRETATION TRIALS

BEGIN DATE: 05/86 END DATE: 09/89 DIV: DRDS

CAN: 157 PROJECT OFFICER: HODOUS, THOMAS K

PURPOSE: APPROPRIATE EVALUATION OF THE CHINESE PNEUMOCONIOSIS DATA AND COMPARISON TO ANALOGOUS AMERICAN DATA WILL HELP BOTH COUNTRIES DETERMINE AREAS OF NEEDED CONTROL ACTIONS. PREVIOUSLY UNKNOWN ASSOCIATIONS MAY ALSO BECOME APPARENT. IMPORTANTLY, THE PROJECT WILL ALSO INVOLVE COAL AND ASBESTOS WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP A MUTUALLY ACCEPTABLE PROJECT PROTOCOL. SELECT X-RAYS AND COMPLETE AT LEAST ONE-HALF OF X-RAY READINGS.

TITLE: EMERGING PROBLEMS IN OCCUPATIONAL RESPIRATORY DISEASE

BEGIN DATE: 10/85 END DATE: 09/90 DIV: DRDS

CAN: 158 PROJECT OFFICER: JANKOVIC, JOHN T

PURPOSE: THE PROJECT WILL COLLECT EXPOSURE PROFILE DATA FOR WELDING FUME EXPOSURE, AS WELL AS CHARACTERIZATIONS OF VARIOUS ORGANIC DUSTS AND VAPORS SUSPECTED OF PRODUCING OCCUPATIONAL LUNG DISEASES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SUBMIT A REPORT ON RESULTS OF THE DISTRIBUTION OF CHARGE ON ASBESTOS FIBERS AND ON SIZE SAMPLING OF WELDING FUMES.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: SILICOSIS SURVEILLANCE: MORTALITY AND MORBIDITY TRENDS

BEGIN DATE: 11/87 END DATE: 09/88 DIV: DRDS

CAN: 159 PROJECT OFFICER: RICHARDS, THOMAS B

PURPOSE: THIS PROJECT WILL EXPLORE AND ANALYZE EXISTING DATA SOURCES TO DEVELOP ESTIMATES OF TRENDS IN NATIONAL AND MORBIDITY FROM SILICOSIS AND RESPIRATORY CONDITIONS INCLUDED ON THE LIST OF NIOSH TEN LEADING WORK RELATED DISEASES AND INJURIES (OTHER THAT COAL WORKERS' PNEUMOCONIOSIS)

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DETERMINE TRENDS IN MORTALITY FROM SILICOSIS BY ANALYSIS OF NCHS MULTIPLE CAUSE OF DEATH LISTINGS FROM 1968-1984

TITLE: SURVEILLANCE OF LUNG DISEASE AGENTS IN SMALL BUSINESSES

BEGIN DATE: 11/87 END DATE: 09/90 DIV: DRDS

CAN: 162 PROJECT OFFICER: HEWETT, PAUL

PURPOSE: THIS PROJECT WILL CHARACTERIZE EXPOSURES TO AGENTS WHICH CAUSE LUNG DISEASE IN SMALL BUSINESSES IN SELECTED HAZARDOUS STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES IN THE STATES OF WV AND PA. THE SIC CODE WILL BE DESIGNATED HIGH RISK IF EXPOSURES ARE ROUTINELY GREATER THAN APPLICABLE STANDARDS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SURVEY UP TO NINE SMALL BUSINESSES IN ONE OR TWO HAZARDOUS SIC CODES; REPORT RESULTS TO OSHA AND STATES; REPORT ON THE FEASIBILITY OF STUDYING SMALL BUSINESSES IN HAZARDOUS SIC CODES

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: MINE ENVIRONMENTAL DATA ANALYSIS LIBRARY

BEGIN DATE: 10/84 END DATE: C DIV: DRDS

CAN: 163 PROJECT OFFICER: DOAK, CLAYTON B

PURPOSE: ON AN ANNUAL BASIS, EXPOSURE TREND FOR COAL MINE DUST AND RESPIRABLE SILICA WILL BE DESCRIBED. HIGH RISK OCCUPATIONS, MINES AND INDUSTRIES WILL BE IDENTIFIED SO ENFORCEMENT ACTIVITIES CAN BE CONCENTRATED THERE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE COLLECTED MSHA, OSHA AND OTHER AVAILABLE SILICA DATA, RANKING JOBS, STATES, AND SIC CODES BY POTENTIAL FOR SILICOSIS AND SUBMIT REPORT/PUBLICATION.

TITLE: NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING

BEGIN DATE: 10/82 END DATE: 12/90 DIV: DRDS

CAN: 164 PROJECT OFFICER: POFAHL, SHERRY S

PURPOSE: THIS PROJECT WILL DEVELOP PROGRAMS TO COLLECT AND DISSEMINATE DATA ON THE MINING WORKFORCE AND THEIR POTENTIAL EXPOSURES TO FIBERS, ASBESTOS, SILICA, AND VARIOUS CHEMICAL EXPOSURE AGENTS. THE PROJECT WILL IDENTIFY WORKER GROUPS, JOBS, AND INDUSTRIES AT RISK FROM EXPOSURE TO TOXIC SUBSTANCES OR HARMFUL PHYSICAL AGENTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DETERMINE WHICH WELDING RODS ARE MOST FREQUENTLY USED IN DISTINCT SEGMENTS OF THE MINING INDUSTRY AND SUBMIT REPORT/PUBLICATION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: U.S. ARMY LUNG DEPOSITION STUDY

BEGIN DATE: 08/86 END DATE: 06/88 DIV: DRDS

CAN: 165 PROJECT OFFICER: MCCAWLEY, MICHAEL A

PURPOSE: HUMAN SUBJECTS WILL UNDERGO TESTING TO DETERMINE THE EFFECTS OF AGE, SEX, RACE, PULMONARY FUNCTION STATUS, BREATHING RATE AND INHALATION VOLUME ON THE DEPOSITION OF 0.5. MICROMETER CORN OIL AEROSOL.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PUBLISH A REPORT ON THE FACTORS AFFECTING THE VARIABILITY OF 0.5 MICROMETER AEROSOL DEPOSITION.

TITLE: MEASUREMENT OF EXPOSURES DURING FIREFIGHTING

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DRDS

CAN: 166 PROJECT OFFICER: JANKOVIC, JOHN T

PURPOSE: AN INDUSTRIAL HYGIENE SURVEY OF FIREFIGHTERS WILL BE UNDERTAKEN TO DETERMINE THE EXPOSURES ENCOUNTERED DURING FIREFIGHTING IN URBAN AREAS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SITE SURVEY REPORTS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: EFFECTIVE SILICA INDICES FOR RESPIRABLE MINERAL DUSTS

BEGIN DATE: 10/84 END DATE: 09/91 DIV: DRDS

CAN: 167 PROJECT OFFICER: WALLACE, WILLIAM E

PURPOSE: THIS PROJECT WILL EVALUATE DUST PROPERTIES WHICH AFFECT THE FIBROGENIC POTENTIAL OF SILICA BEARING DUST.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SURFACE AND CONTAMINANT ANALYSIS OF CLAY MINE/MILL DUST USING SEM-EDX/AUGER.

TITLE: NORTH CAROLINA DUSTY TRADES FILE

BEGIN DATE: 10/84 END DATE: 09/90 DIV: DRDS

CAN: 172 PROJECT OFFICER: AMANDUS, HARLAN E

PURPOSE: ESTIMATES OF SILICA-SILICOSIS DOSE-RESPONSE RELATIONSHIPS WILL BE DERIVED FROM THIS PROJECT.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MONITOR UNC AGREEMENT. COMPLETE VITAL STATUS FOLLOW-UP AND BEGIN DATA ANALYSIS. INITIATE STUDY OF ASBESTOS TEXTILE WORKERS. ENUMERATE TEXTILE WORKER COHORT.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ENVIRONMENTAL HAZARD SURVEILLANCE

BEGIN DATE: 10/82 END DATE: 09/90 DIV: DRDS

CAN: 173 PROJECT OFFICER: DOAK, CLAYTON B

PURPOSE: THE PROJECT DEVELOPS A PROGRAM TO COLLECT, MONITOR AND DISSEMINATE DATA ON PRODUCTION WORKFORCE AND EXPOSURES (FIBER SIZE, ETC.) IN THE ASBESTOS SUBSTITUTES INDUSTRY. IT WILL ALSO IDENTIFY INDUSTRIES WHERE POTENTIAL EXPOSURES TO NON-FIBROUS MINERALS (I.E., SILICA) OCCUR.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ENVIRONMENTAL INVESTIGATIONS OF TREMOLITE EXPOSURES IN THE VERMICULITE INDUSTRY AND SUBMIT VERMICULITE REPORT. COMPLETE REPORT ON SILICA FLOUR.

TITLE: NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING (ENHANCED)

BEGIN DATE: 03/88 END DATE: 09/88 DIV: DRDS

CAN: 174 PROJECT OFFICER: POFAHL, SHERRY S

PURPOSE: THIS PROJECT WILL DEVELOP PROGRAMS TO COLLECT AND DISSEMINATE ADDITIONAL DATA ON THE MINING WORKFORCE AND THEIR POTENTIAL EXPOSURE TO FIBERS, ASBESTOS, SILICA AND VARIOUS CHEMICAL EXPOSURE AGENTS. THIS PROJECT WILL IDENTIFY WORKER GROUPS, JOBS AND INDUSTRIES AT RISK FROM EXPOSURE TO TOXIC SUBSTANCES, HARMFUL PHYSICAL AGENTS & MUSCULOSKELETAL CONDITION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT 30 ADDITIONAL NOHSM SURVEYS, DOCUMENT THE NOHSM ADP SYSTEM, PRODUCE 10 ADDITIONAL COMMODITY REPORTS. KEY-ENTER DATA FROM 30 ADDITIONAL SURVEYS AND PRODUCE 100 ADDITIONAL FACILITY SITE REPORTS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: CASE CONTROL STUDY OF SILICA, SILICOSIS AND LUNG CANCER

BEGIN DATE: 10/84 END DATE: 09/88 DIV: DRDS

CAN: 179 PROJECT OFFICER: COSTELLO, JOSEPH

PURPOSE: THIS PROJECT WILL ATTEMPT TO DETERMINE IF THERE IS AN ASSOCIATION BETWEEN SILICA, SILICOSIS, AND LUNG CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE CASE CONTROL STUDY OF LUNG CANCER DEATHS IN THE GRANITE INDUSTRY. SUBMIT FINAL REPORT.

TITLE: MEDICAL FIELD TEAM TECHNICAL SUPPORT

BEGIN DATE: 10/87 END DATE: C DIV: DRDS

CAN: 182 PROJECT OFFICER: SPRANSY, GREGORY C

PURPOSE: THIS PROJECT WILL PROVIDE TECHNICAL SUPPORT IN THE COLLECTION OF DATA FROM ACTUAL WORK SITES THROUGHOUT THE COUNTRY TO ENABLE ACCURATE DETERMINATION OF THE PREVALENCE OR PROGRESSION OF RESPIRATORY OCCUPATIONAL HEALTH PROBLEMS, AND PROVIDE IN-HOUSE TECHNICAL SUPPORT SERVICES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE FIELD TEAM SUPPORT IN THE ARRANGEMENT AND CONDUCT OF DIVISION FIELD STUDIES.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: NATIONAL STUDY OF CWP AND RELATED RESEARCH

BEGIN DATE: 10/83 END DATE: 09/90 DIV: DRDS

CAN: 183 PROJECT OFFICER: ATTFIELD, MICHAEL D

PURPOSE: WITH THE NSCWP, TRENDS IN EXPOSURE TO COAL MINE DUSTS (DUST LEVEL, COMPOSITION, SIZE DISTRIBUTION, AND MINING METHODS) WILL BE IDENTIFIED AND THEIR RELATIONSHIP TO LUNG DISEASES WILL BE DETERMINED. IN ADDITION, THE EFFECTIVENESS OF THE CURRENT X-RAY SURVEILLANCE PROGRAM WILL BE DETERMINED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ASSESS COAL MINE DUST/DISEASE EXPOSURE TRENDS, IN X-RAY SURVEILLANCE PROGRAM, RELATIONSHIP OF PNEUMOCOTIC DISEASE-COAL MINE DUST FACTORS.

TITLE: ANALYSIS OF RECEIVING CENTER DATA

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DRDS

CAN: 184 PROJECT OFFICER: ALTHOUSE, ROCHELLE B

PURPOSE: A SECONDARY PREVENTION STRATEGY FOR COAL WORKERS' PNEUMOCONIOSIS IS THE USE OF THE CHEST RADIOGRAPH TO IDENTIFY MINERS WITH SIMPLE CWP. THIS PROJECT WILL ANALYZE RESULTS FROM THE COAL WORKERS' X-RAY SURVEILLANCE PROGRAM ON A YEARLY BASIS AND IDENTIFY TRENDS IN PNEUMOCONIOTIC LUNG DISEASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REPORT CURRENT YEAR'S TRENDS IN SIMPLE AND COMPLICATED COAL WORKERS' PNEUMOCONIOSES.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: COAL MINER MEDICAL SURVEILLANCE: MORTALITY AND MORBIDITY TRENDS

BEGIN DATE: 11/87 END DATE: 09/90 DIV: DRDS

CAN: 185 PROJECT OFFICER: ALTHOUSE, ROCHELLE D

PURPOSE: THIS PROJECT WILL EXPLORE AND ANALYZE EXISTING DATA SOURCES TO DEVELOP ESTIMATES OF TRENDS IN NATIONAL MORTALITY AND MORBIDITY FROM COAL WORKERS' PNEUMOCONIOSIS. THESE DATA SOURCES INCLUDE: CHEST RADIOGRAPHIC SURVEILLANCE MANDATED BY 42CFR37; NATIONAL CENTER FOR HEALTH STATISTICS MULTIPLE CAUSE OF DEATH LISTINGS FOR COAL WORKERS' PNEUMOCONIOSIS

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EVALUATE MORTALITY AND MORBIDITY TRENDS IN COAL WORKERS' PNEUMOCONIOSIS

TITLE: MORBIDITY/MORTALITY STUDY OF INDUSTRIAL SAND INDUSTRY

BEGIN DATE: 10/83 END DATE: 09/90 DIV: DRDS

CAN: 187 PROJECT OFFICER: AMANDUS, HARLAN E

PURPOSE: THIS PROJECT WILL PROVIDE DATA TO ESTIMATE EXPOSURE-RESPONSE RELATIONSHIP AND PROGRESSION OF SILICOSIS AND ASSOCIATION WITH LUNG CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE COLLECTION OF 50% OF STUDY DATA FROM COMPANIES. TRANSCRIBE, CODE, AND KEY DATA. INITIATE RADIOGRAPHIC READINGS. COMPLETE DATA COLLECTION AND TRANSCRIPTION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DOSE-RESPONSE RELATIONSHIP: LUNG CA/ASBESTOSIS - TREMOLITE ASBESTOS

BEGIN DATE: 10/86 END DATE: 09/88 DIV: DRDS

CAN: 189 PROJECT OFFICER: AMANDUS, HARLAN E

PURPOSE: THIS PROJECT WILL ESTIMATE THE EXPOSURE-RESPONSE CURVE FOR TREMOLITE AND ASSESS RADIOGRAPHIC CHANGES ATTRIBUTABLE TO VERMICULITE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DETERMINE THE EFFECTS OF TREMOLITE ON PFT RESULTS AND SUBMIT REPORT.

TITLE: MEDICAL TECHNICAL SUPPORT

BEGIN DATE: 10/87 END DATE: C DIV: DRDS

CAN: 202 PROJECT OFFICER: HANKINSON, JOHN L

PURPOSE: BY PROVIDING MEDICAL TECHNICAL SUPPORT, THIS PROJECT ENABLES OTHER RESEARCH PROJECTS AS WELL AS HEALTH HAZARDS EVALUATIONS TO COLLECT HIGH QUALITY DATA FOR USE IN THEIR RESPECTIVE STUDIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE DRDS WITH MEDICAL AND TECHNICAL YEARS SUPPORT IN THE FORM OF DATA PROCESSING AND IN THE CALIBRATION AND MAINTENANCE OF PULMONARY FUNCTION EQUIPMENT.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: BYSSINOSIS PREVENTION

BEGIN DATE: 10/81 END DATE: 09/88 DIV: DRDS

CAN: 205 PROJECT OFFICER: CASTELLAN, ROBERT M

PURPOSE: THIS PROJECT REPRESENTS CONSULTATION TO THE GOVERNMENT/INDUSTRY/UNION TASK FORCE FOR BYSSINOSIS PREVENTION, AS WELL AS THE REPORTING OF EXISTING DATA REGARDING THE HEALTH RISKS OF COTTON DUST ENVIRONMENTS. THIS INFORMATION WILL BE PERTINENT FOR FUTURE OSHA RULEMAKING CONCERNING DUST FROM COTTON AND OTHER ORGANIC MATTER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ATTEND ALL MEETINGS OF GOVERNMENT/INDUSTRY/UNION TASK FORCE FOR BYSSINOSIS PREVENTION. DEVELOP REPORTS OF ENDOTOXIN IN NON-TEXTILE INDUSTRIES. COMPLETE REPORTS FOR PUBLICATION.

TITLE: PROSPECTIVE EPIDEMIOLOGIC-IH STUDY OF MILD STEEL WELDERS

BEGIN DATE: 10/85 END DATE: 09/90 DIV: DRDS

CAN: 213 PROJECT OFFICER: GAMBLE, JOHN F

PURPOSE: THE WELDING STUDY WILL EVALUATE THE EXPOSURE-RESPONSE RELATIONSHIP BETWEEN WELDING CONTAMINANTS AND OCCUPATIONAL LUNG DISEASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SELECTION OF PLANTS AND BEGIN FIELD STUDIES.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ANALYSIS OF DATA FROM AN EGYPTIAN SILICA STUDY

BEGIN DATE: 10/86 END DATE: 03/90 DIV: DRDS

CAN: 214 PROJECT OFFICER: RICHARDS, THOMAS B

PURPOSE: THIS PROJECT PROVIDES TECHNICAL SUPPORT TO EGYPT IN DETERMINING THE PREVALENCE OF SILICOSIS AND EXPOSURE-RESPONSE RELATIONSHIPS IN EGYPTIAN INDUSTRIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE CHEST RADIOGRAPH INTERPRETATIONS BY NIOSH CERTIFIED PNEUMOCONIOSIS READERS.

TITLE: MORTALITY STUDY OF WORKERS EMPLOYED IN DIESEL MINES

BEGIN DATE: 10/85 END DATE: 09/90 DIV: DRDS

CAN: 215 PROJECT OFFICER: GAMBLE, JOHN F

PURPOSE: THE MORTALITY STUDY OF MINERS EXPOSED TO DIESEL EXHAUST WILL EVALUATE EXPOSURE-RESPONSE RELATIONSHIP BETWEEN LUNG CANCER AND EXPOSURE TO DIESEL EXHAUST AMONG WORKERS WITH THE HIGHEST LEVEL OF EXPOSURE AND THE LONGEST TIME PERIOD OF ANY COHORT OF U.S. WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE PEER REVIEW AND REQUEST OMB CLEARANCE. BEGIN PERSONNEL/ENVIRONMENTAL DATA RECORD COLLECTION.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: MORB/IH STUDY ANTHRACITE SURFACE MINERS/BITUMINOUS HIGHWALL DRILLERS

BEGIN DATE: 10/83 END DATE: 09/90 DIV: DRDS

CAN: 217 PROJECT OFFICER: AMANDUS, HARLAN E

PURPOSE: THIS PROJECT WILL PROVIDE DATA TO ESTIMATE THE PREVALENCE/PROGRESSION OF PNEUMOCONIOSIS IN ANTHRACITE SURFACE COAL MINERS AND HIGHWALL DRILLERS TO DETERMINE THE ADEQUACY OF THE CURRENT STANDARD, AND THE NEED FOR MEDICAL SURVEILLANCE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EVALUATE LUNG FUNCTION RESULTS IN ANTHRACITE COAL MINERS. ENUMERATE AND DEVELOP SAMPLE OF W. VA. AND PA. HIGHWALL DRILLERS. DETERMINE THE PREVALENCE OF PNEUMOCONIOSIS IN EX-SURFACE MINERS USING DOL RECORDS.

TITLE: INDUSTRIAL HYGIENE TECHNICAL SUPPORT

BEGIN DATE: 10/82 END DATE: C DIV: DRDS

CAN: 223 PROJECT OFFICER: CLERE, JERRY L

PURPOSE: THIS PROJECT QUANTIFIES LEVELS OF EXPOSURE TO TOXINS, ALLERGENS, PATHOGENS, HAZARDOUS DUSTS AND CARCINOGENS. IT PROVIDES REPAIR AND MAINTENANCE SERVICES FOR DIVISION ENVIRONMENTAL SAMPLING EQUIPMENT.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE FIELD SUPPORT SERVICES WITHIN SEVEN DAYS OF REQUEST.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: COMPUTER SUPPORT

BEGIN DATE: 10/87 END DATE: C DIV: DRDS

CAN: 232 PROJECT OFFICER: HANKINSON, JOHN L

PURPOSE: COMPUTER SUPPORT IN TERMS OF PARKLAWN COMPUTER CENTER CHARGES, DATA ENTRY, AND PROGRAMMING SUPPORT WILL BE PROVIDED TO ALL DRDS PROJECTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE COMPUTER SUPPORT TO DRDS.

TITLE: NATIONAL COAL WORKERS AUTOPSY STUDY

BEGIN DATE: 05/71 END DATE: C DIV: DRDS

CAN: 233 PROJECT OFFICER: MARTIN, MITZIE L

PURPOSE: THIS PROJECT WILL PROVIDE DATA FOR ASSESSING THE EFFECTIVENESS OF THE COAL MINE DUST STANDARD AND PROVIDE AUTOPSY SERVICES IN ACCORDANCE WITH PL91-173, SECTION 203(D) (AMENDED).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DETERMINE PREVALENCE OF PNEUMOCONIOSIS IN COAL WORKERS FROM AUTOPSY DATA. ANNUALLY ADMINISTER THE NATIONAL COAL WORKERS' AUTOPSY STUDY.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: RECEIVING CENTER - X-RAY SURVEILLANCE

BEGIN DATE: 08/70 END DATE: C DIV: DRDS

CAN: 235 PROJECT OFFICER: MARTIN, MITZIE L

PURPOSE: THIS PROJECT WILL ANNUALLY IDENTIFY EXPOSURE TRENDS FOR COAL MINE DUSTS/RELATED DISEASE OCCURRENCE FOR EVALUATION OF COAL MINE DUST STANDARD THROUGH THE OPERATION OF THE X-RAY SURVEILLANCE PROGRAM AND BY PROVIDING SUPPORT TO FILM READING TRIALS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE IDENTIFICATION OF CURRENT YEAR TRENDS IN PNEUMOCONIOSIS AND COMPLETE EVALUATION OF X-RAY SURVEILLANCE PROGRAM. COMPLETE IDENTIFICATION OF CURRENT YEAR TRENDS IN PNEUMOCONIOSIS.

TITLE: ACCESS TO OSHA INSPECTION DATA

BEGIN DATE: 10/83 END DATE: C DIV: DSHEFS

CAN: 504 PROJECT OFFICER: SETA, JOSEPH A

PURPOSE: THIS PROJECT PROVIDES ESTIMATES OF LEVEL OF EXPOSURE FOR HAZARDS OBSERVED BUT NOT MEASURED IN NIOSH HAZARD SURVEYS, TO HELP IDENTIFY OCCUPATIONAL HAZARDS THROUGHOUT THE U.S.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REPORT ON THE UTILITY OF OSHA DATA TO DIRECTOR, DSHEFS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ANALYSIS OF HEALTH INTERVIEW SURVEY DATA

BEGIN DATE: 10/83 END DATE: 06/89 DIV: DSHEFS

CAN: 508 PROJECT OFFICER: BEHRENS, VIRGINIA

PURPOSE: THIS PROJECT WILL CONTINUE THE SURVEILLANCE OF EMPLOYMENT-RELATED MORBIDITY TO HELP ACHIEVE THE GOAL OF IDENTIFYING AND MONITORING EMPLOYMENT-RELATED HEALTH EFFECTS IN THE U.S. WORKER POPULATION AND TO HELP ESTABLISH PRIORITIES FOR NIOSH RESEARCH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE REPORT FROM NATIONAL HEALTH INTERVIEW SURVEY-JOB EXPOSURE MATRIX LINKAGE.

TITLE: NATIONAL REPORTING OF SELECTED OCCUPATIONAL DISEASES

BEGIN DATE: 10/83 END DATE: C DIV: DSHEFS

CAN: 514 PROJECT OFFICER: MULLAN, ROBERT J

PURPOSE: THIS PROJECT WILL PROVIDE FOR THE SUCCESSFUL IMPLEMENTATION OF STATE-BASED REPORTING OF OCCUPATIONAL DISEASES AND WILL ALLOW FOR DIRECT MONITORING OF OCCUPATIONALLY RELATED DISEASE, DISABILITY, AND DEATH. THIS WILL IMPROVE OUR SURVEILLANCE CAPABILITY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP TABLE OF SELECTED SHE(O)S FOR PUBLICATION IN MMWR, ENLIST INVOLVEMENT OF STATES IN DEVELOPING A NETWORK FOR THE REPORTING OF SELECTED SHE(O)S.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: COHORT MORTALITY STUDY OF ANTIMONY SMELTER WORKERS

BEGIN DATE: 10/83 END DATE: 12/88 DIV: DSHEFS

CAN: 533 PROJECT OFFICER: SCHNORR, TERESA M

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO ANTIMONY AND THE RISK OF DEVELOPING LUNG CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE DRAFT FINAL REPORT AND THE INTERNAL AND EXTERNAL REVIEWS.

TITLE: MORTALITY STUDY OF WORKERS EXPOSED TO TOLUENE DIISOCYANATE

BEGIN DATE: 06/83 END DATE: 06/89 DIV: DSHEFS

CAN: 534 PROJECT OFFICER: SCHNORR, TERESA M

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO TDI AND THE RISK OF DEVELOPING RESPIRATORY CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE DATA ANALYSIS AND THE DRAFT FINAL REPORT.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: CASE-CONTROL STUDY OF LUNG CANCER IN TEAMSTERS UNION

BEGIN DATE: 10/83 END DATE: 09/89 DIV: DSHEFS

CAN: 539 PROJECT OFFICER: STEENLAND, NELSON K

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN LUNG CANCER IN TEAMSTERS AND EXPOSURES, ESPECIALLY TO DIESEL EXHAUST. (BLADDER CANCER ALSO WILL BE EVALUATED.)

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE INDEPTH I.H. SURVEYS. COMPLETE MORTALITY ANALYSIS AND DRAFT MORTALITY REPORT.

TITLE: MORTALITY AND I.H. STUDY OF WORKERS EXPOSED TO LEAD CHROMATE PAINTS.

BEGIN DATE: 10/82 END DATE: 09/89 DIV: DSHEFS

CAN: 559 PROJECT OFFICER: WALKER, JAMES T

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO LEAD CHROMATE PAINTS AND THE RISK OF DEVELOPING LUNG CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FINALIZE THE I.H. HISTORICAL REPORT, MORTALITY FOLLOW-UP AND FILE EDITING.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: URANIUM MINERS-LOW DOSE INVESTIGATION

BEGIN DATE: 10/82 END DATE: 09/89 DIV: DSHEFS

CAN: 567 PROJECT OFFICER: ROSCOE, ROBERT J

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO LOW LEVELS OF RADON DAUGHTERS AND THE RISK OF DEVELOPING LUNG CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE CODING OF THE QUESTIONNAIRE DATA AND THE DATA ANALYSIS.

TITLE: MORTALITY AND INDUSTRIAL HYGIENE STUDY OF FORMALDEHYDE

BEGIN DATE: 10/80 END DATE: 03/89 DIV: DSHEFS

CAN: 576 PROJECT OFFICER: STAYNER, LESLIE T

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO FORMALDEHYDE AND THE RISK OF DEVELOPING RESPIRATORY AND OTHER CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE HISTORICAL EXPOSURE ESTIMATES FOR THE MORTALITY RE-ANALYSIS AND COMPLETE THE SAMPLE COLLECTION AND ANALYSIS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: BERYLLIUM RETROSPECTIVE COHORT INVESTIGATION

BEGIN DATE: 10/81 END DATE: 09/89 DIV: DSHEFS

CAN: 583 PROJECT OFFICER: WARD, ELIZABETH M

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO BERYLLIUM AND THE RISK OF DEVELOPING LUNG CANCER AND OTHER RESPIRATORY/CARDIOVASCULAR DISEASES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FINAL COHORT MORTALITY REPORT. DEVELOP PRELIMINARY RANKING SYSTEM FOR INDUSTRIAL HYGIENE DATA.

TITLE: SENTINEL HEALTH EVENT LIST MAINTENANCE

BEGIN DATE: 10/82 END DATE: C DIV: DSHEFS

CAN: 627 PROJECT OFFICER: MURTHY, LEELA I

PURPOSE: CONTINUED SURVEILLANCE OF THE SCIENTIFIC LITERATURE WILL ENABLE US TO IDENTIFY AND DIRECT SURVEILLANCE EFFORTS AT THOSE DISEASES, DISABILITIES, AND DEATHS WHICH HAVE BEEN ESTABLISHED AS OCCUPATIONALLY RELATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FOLLOWING COMMITTEE REVIEW, PREPARE REVISED MANUSCRIPT; CONTINUE 1985-86 LITERATURE REVIEW AND SUBMIT TO FILE.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: DOCUMENTATION OF THE NATURE AND EXTENT OF SPECIFIC OCC ILLNESSES

BEGIN DATE: 10/85 END DATE: C DIV: DSHEFS

CAN: 635 PROJECT OFFICER: MORRISON, JOHN H

PURPOSE: EXAMINATION AND ANALYSIS OF HEALTH DATA SETS WILL BE USEFUL FOR THE DEVELOPMENT OF RESEARCH HYPOTHESES FOR FURTHER STUDY, DEVELOPMENT OF CONTROL PROGRAMS, AND DEFINING PROBLEM AREAS FOR POLICY MAKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SUMMARY OF SURVEILLANCE DATA FOR REPEATED TRAUMA AND MUSCULOSKELETAL CONDITIONS.

TITLE: RETROSPECTIVE COHORT INVESTIGATION OF NON-ASBESTOS WELDERS

BEGIN DATE: 10/84 END DATE: 09/89 DIV: DSHEFS

CAN: 683 PROJECT OFFICER: STEENLAND, NELSON K

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURES AMONG WELDERS AND THE RISK OF DEVELOPING LUNG CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE DATA ANALYSIS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: FIRESMOKE/FEMA

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DSR

CAN: 784 PROJECT OFFICER: NOONAN, GARY P

PURPOSE: THIS PROJECT WILL EVALUATE THE PERFORMANCE OF PRESSURE DEMAND SELF-CONTAINED BREATHING APPARATUS (SCBA) BY THE COLLECTION OF IN-FACEPIECE CARBON MONOXIDE & PERSONAL AND GENERAL AREA SAMPLES OF AIRBORNE CONTAMINANTS BOTH DURING & AFTER ACTUAL FIREFIGHTING ACTIVITIES. A PULMONARY EVALUATION OF FIREFIGHTERS WILL ALSO BE CONDUCTED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE RESPIRATOR, INDUSTRIAL HYGIENE, AND MEDICAL EVALUATION PORTIONS OF PILOT AND FOLLOW-UP STUDY.

TITLE: SIMULATED WORKPLACE PROTECTION FACTORS

BEGIN DATE: 01/88 END DATE: 09/89 DIV: DSR

CAN: 786 PROJECT OFFICER: CAMPBELL, DONALD L

PURPOSE: THIS PROJECT WILL DEVELOP MORE ACCURATE METHODS OF MEASURING RESPIRATOR PERFORMANCE WHICH WILL IMPROVE NIOSH RESPIRATOR CERTIFICATION AND RESPIRATOR PERFORMANCE, WHICH IN TURN WILL REDUCE WORKER EXPOSURE TO TOXIC CHEMICALS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THIS PROJECT WILL IDENTIFY THE MOST PROMISING CANDIDATE METHOD(S) TO ESTABLISH SIMULATED WORKPLACE PROTECTION FACTORS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: INHALATION VALVE LEAKAGE

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DSR

CAN: 787 PROJECT OFFICER: CAMPBELL, DONALD L

PURPOSE: THIS PROJECT WILL INVESTIGATE THE EXTENT TO WHICH WORKER EXPOSURE TO TOXIC CHEMICALS CAN BE REDUCED BY ELIMINATING INHALATION VALVE LEAKAGE IN RESPIRATORS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THIS PROJECT WILL DETERMINE THE EXTENT TO WHICH RESPIRATOR WEARERS MAY BE EXPOSED TO TOXIC CHEMICALS AS A RESULT OF LEAKING INHALATION VALVES AND WILL RECOMMEND APPROPRIATE CORRECTIVE ACTION TO DIRECTOR, DSR.

TITLE: EFFECT OF PARTICLE SIZE ON FACESEAL LEAKAGE ASSESSMENT

BEGIN DATE: 08/86 END DATE: 09/88 DIV: DSR

CAN: 804 PROJECT OFFICER: NOONAN, GARY P

PURPOSE: THIS PROJECT WILL DETERMINE HOW THE PARTICLE SIZE OF THE CHALLENGE AEROSOL MAY DISTORT ESTIMATES OF FACESEAL LEAKAGE. THE "TRUE" RATE OF LEAKAGE WILL BE DETERMINED SIMULTANEOUSLY WITH TRACER GAS ANALYSIS. MEASUREMENT OF LEAKAGE MADE WITH THE PARTICULATE SYSTEM CAN THEN BE COMPARED TO THE "TRUE" LEAKAGE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE EFFECT OF PARTICLE SIZE AND THE SITE OF FACESEAL LEAKAGE ON FIT MEASUREMENTS WILL BE EVALUATED. A FINAL REPORT WILL BE PREPARED FOR DELIVERY TO USAF SCHOOL OF AEROSPACE MEDICINE.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: FIBROUS AEROSOL RESEARCH (SUPPLEMENTAL)

BEGIN DATE: 07/86 END DATE: 09/88 DIV: DSR

CAN: 806 PROJECT OFFICER: STEVENS, GREGORY A

PURPOSE: THIS PROJECT WILL DEVELOP TEST METHODS FOR THE EVALUATION OF PARTICULATE FILTERS AGAINST FIBROUS AEROSOLS AND WILL EVALUATE THE EFFECT THESE AEROSOLS HAVE ON THE PERFORMANCE OF PARTICULATE AIR-PURIFYING RESPIRATOR FILTERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ALL DATA WILL BE COLLECTED AND ANALYZED. THE FINAL REPORT WILL BE COMPLETED.

TITLE: WORKPLACE PROTECTION FACTOR (WPF) STUDY

BEGIN DATE: 10/86 END DATE: 09/90 DIV: DSR

CAN: 832 PROJECT OFFICER: PALLAY, BARRY G

PURPOSE: THIS PROJECT WILL DETERMINE WPFS FOR HALF AND FULL FACEPIECE RESPIRATORS IN ACCORDANCE WITH PROPOSED 42 CFR PART 84. A STANDARD SAMPLING PROTOCOL WILL BE DEVELOPED THAT WILL PROVIDE RESPIRATOR MANUFACTURERS WITH A STRATEGY TO EVALUATE RESPIRATORS IN ACCORDANCE WITH 42 CFR PART 84.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE A PILOT STUDY TO MEASURE WORKPLACE PROTECTION FACTORS FOR A PARTICULATE EXPOSURE AGENT.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: FILTER LOADING EFFECTS WITH A "WORST CASE" DOP AEROSOL

BEGIN DATE: 10/87 END DATE: 03/89 DIV: DSR

CAN: 835 PROJECT OFFICER: MOYER, ERNEST S

PURPOSE: THIS PROJECT WILL DEVELOP IMPROVED PERFORMANCE STANDARDS FOR RESPIRATORS AND WILL ENABLE RESPIRATOR MANUFACTURERS TO PRODUCE RESPIRATORS THAT WILL BETTER PROTECT WORKERS FROM AIRBORNE CONTAMINANTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP TEST PROTOCOL, COMPLETE LABORATORY SETUP, COLLECT EXPERIMENTAL DATA.

TITLE: ANALYSIS OF RESOURCES NECESSARY FOR REVISED REGULATIONS

BEGIN DATE: 04/88 END DATE: 09/88 DIV: DSR

CAN: 836 PROJECT OFFICER: BOLLINGER, NANCY J

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY PLANNING IMPLEMENTATION OF IMPROVED STANDARDS WHICH CAN HELP ASSURE BETTER SAFETY AND RELIABILITY OF RESPIRATORS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
A REPORT WILL BE PREPARED OUTLINING THE NECESSARY RESOURCES AND PROVIDING A TIMETABLE FOR IMPLEMENTATION OF THE REVISED PORTIONS OF THE REGULATIONS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: EVALUATION OF CHEMICAL CARTRIDGE RESPIRATORS FOR PMN SUBSTANCES

BEGIN DATE: 10/87 END DATE: 09/89 DIV: DSR

CAN: 837 PROJECT OFFICER: BOLLINGER, NANCY J

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY DEVELOPING 1) A STANDARD SERVICE LIFE TEST PROTOCOL FOR CARTRIDGE TESTING; 2) A DECISION LOGIC FOR EPA TO USE FOR SELECTING CANDIDATE SUBSTANCES; AND 3) A FIELD MONITORING METHOD FOR CARTRIDGE BREAKTHROUGH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE TEST PROTOCOL AND DECISION LOGIC WILL BE FINALIZED. A DRAFT PROPOSED FIELD MONITORING TECHNIQUE FOR SUBSTANCES WITH INADEQUATE WARNING PROPERTIES WILL BE DEVELOPED.

TITLE: COAL MINE DUST PERSONAL SAMPLER UNIT

BEGIN DATE: 05/72 END DATE: C DIV: DSR

CAN: 855 PROJECT OFFICER: DOWER, JOHN M

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY CERTIFYING CMDPSU WHICH WILL PROVIDE MORE ACCURATE MEASUREMENTS OF PARTICULATE LEVELS FOR MSHA COMPLIANCE PURPOSE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE CERTIFICATION IN ACCORDANCE WITH 30 CFR 74.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: ATPM COOPERATIVE AGREEMENT

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DTMD

CAN: 762 PROJECT OFFICER: BERBERICH, NORBERT J

PURPOSE: THIS PROJECT REPRESENTS A COOPERATIVE AGREEMENT BETWEEN NIOSH AND THE ASSOCIATION OF TEACHERS OF PREVENTIVE MEDICINE. IT WILL BRING TOGETHER THE DIRECTORS OF ALL OCCUPATIONAL MEDICAL RESIDENCIES TO DETERMINE HOW TO IMPROVE THE MANNER IN WHICH OCCUPATIONAL MEDICINE IS TAUGHT.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COLLABORATIVELY CONDUCT CONFERENCE WITH ATPM.

TITLE: CONTINUING EDUCATION

BEGIN DATE: 10/77 END DATE: C DIV: DTMD

CAN: 766 PROJECT OFFICER: YACHER, JOHN

PURPOSE: THIS PROJECT SPECIFICALLY ADDRESSES EDUCATION, TRAINING AND INFORMATION DISSEMINATION STRATEGIES OUTLINED IN THE DOCUMENTS FOR OCCUPATIONAL LUNG DISEASES AND MUSCULOSKELETAL INJURIES, AND THE DRAFT DOCUMENTS FOR WORK-RELATED PSYCHOLOGICAL DISORDERS AND REPRODUCTIVE DISORDERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
TRAIN 18,000 STUDENTS DIRECTLY AND THROUGH EDUCATIONAL RESOURCE CENTERS.

PROGRAM AREA: OCCUPATIONAL LUNG DISEASES

TITLE: AUDIO VISUAL/GRAPHICS SUPPORT SERVICES

BEGIN DATE: 10/77 END DATE: C DIV: DTMD

CAN: 777 PROJECT OFFICER: WHITE, GLENDA M

PURPOSE: NUMEROUS EDUCATIONAL CURRICULUM MODULES AND TECHNICAL DOCUMENTS, BOTH WRITTEN AND VIDEO, REQUIRE INFORMATION TO BE PROVIDED IN THE FORM OF ILLUSTRATIONS OR BY TABULAR EXPLANATION. THIS PROJECT WILL PRODUCE SUCH MATERIALS IN SUPPORT OF THE DISSEMINATION OF THE NIOSH STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROJECT OUTPUTS INCLUDE AN IMPLEMENTED FEE SCHEDULE FOR AV/GRAPHICS SUPPORT, AND NEW AND REVISED AVS AND GRAPHICS TO SUPPORT THE INSTITUTE'S TRAINING, PUBLICATION AND PRESENTATION ACTIVITIES.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: ERGONOMIC INTERVENTIONS FOR REDUCING GRIP FORCES

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DBBS

CAN: 244 PROJECT OFFICER: FREDERICK, LINDA J

PURPOSE: THE EFFICACY OF USING CERTAIN ERGONOMIC INTERVENTIONS (TRAINING, THERMAL INPUTS, AND USE OF SPECIAL GLOVES) TO CONTROL THE USE OF EXCESSIVE GRIP FORCE IN MANUAL TASKS WILL BE DETERMINED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE LITERATURE REVIEW AND DEVELOP STUDY PROTOCOL. CONDUCT PEER REVIEW. DEVELOP METHODOLOGY FOR SUPPLYING WARM AIR TO HANDS AND FOR AN EMG BIOFEEDBACK SYSTEM.

TITLE: LOWER EXTREMITY DISORDERS OF OCCUPATIONAL ORIGIN

BEGIN DATE: 10/83 END DATE: 09/88 DIV: DBBS

CAN: 245 PROJECT OFFICER: HABES, DANIEL J

PURPOSE: A BIOMECHANICAL MODEL, KINEMATIC ANALYSIS SYSTEM, AND IMAGE PROCESSING TECHNIQUES WILL BE USED TO TEST AND EVALUATE A DOSIMETER THAT CAN BE USED TO CHARACTERIZE HAZARDOUS LOWER EXTREMITY PATTERNS OF MOTION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SUBMIT FINAL REPORTS DETAILING USE OF MODELS AND DOSIMETERS IN WORKSITE DETERMINATIONS OF BIOMECHANICAL STRESS FACTORS AND PROPOSE STRATEGIES FOR DOSIMETER VALIDATION AND CONTROL MEASURES.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: INTERVENTIONS FOR REDUCING EXCESSIVE FATIGUE FROM EXTENDED WORKDAYS

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DBBS

CAN: 246 PROJECT OFFICER: ROSA, ROGER R

PURPOSE: THIS PROJECT WILL IDENTIFY INTERVENTION MEASURES WHICH WILL MAXIMIZE BIOLOGICAL AND PSYCHOLOGICAL ADJUSTMENT TO, AND RECOVERY FROM, TIME-INTENSIVE OR DEMANDING WORK SCHEDULES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
A REPORT WILL BE PREPARED CONTAINING A SUMMARY AND CRITIQUE OF THE POSSIBLE INTERVENTIONS WITH RECOMMENDATIONS FOR FUTURE NIOSH RESEARCH AIMED AT INTRODUCING INTERVENTIONS IN THE WORKPLACE.

TITLE: OCCUPATIONAL INCIDENCE OF ERGONOMIC HAZARDS

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DBBS

CAN: 250 PROJECT OFFICER: WINN, FRANK J

PURPOSE: SOURCES AND TYPES OF ERGONOMIC HAZARDS WILL BE EXTRACTED FROM EXISTING NIOSH OCCUPATIONAL EXPOSURE SURVEYS (NOES II, NOHSM) TO IDENTIFY HIGH RISK OCCUPATIONS AND INDUSTRIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE TWO TECHNICAL REPORTS DOCUMENTING ERGONOMIC HAZARDS IDENTIFIED FROM NOES II AND NOHSM DATA BASES.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: APPRAISAL/EXPANSION OF MANUAL MATERIALS HANDLING LIMITS

BEGIN DATE: 10/84 END DATE: 04/89 DIV: DBBS

CAN: 252 PROJECT OFFICER: BADGER, DONALD W

PURPOSE: ADDITIONAL CONTROL TECHNIQUES FOR REDUCING BIOMECHANICAL STRESS TO THE MUSCULOSKELETAL SYSTEM RESULTING FROM MANUAL MATERIALS HANDLING TASKS WILL BE DEVELOPED. RECOMMENDATIONS FOR PERMISSIBLE LOAD LIMITS FOR ASYMMETRICAL LOADING OF THE SPINAL COLUMN, AND REPETITIVE LIFTING NOT COVERED BY CURRENT GUIDELINES WILL BE PROVIDED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE WORK PRACTICES GUIDE ADDENDUM OF PERMISSIBLE LIMITS FOR ASYMMETRIC LIFTS AND OTHER MANUAL MATERIALS HANDLING TASKS, USER'S GUIDE MANUAL, AND SUPPLEMENTARY VISUAL AIDS. SUBMIT FOR NIOSH REVIEW.

TITLE: SHOULDER/NECK MUSCLE TENSION FOR REPETITIVE WORK

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DBBS

CAN: 260 PROJECT OFFICER: PUTZ-ANDERSON, VERNON

PURPOSE: DESIGN ENGINEERS WILL BE ABLE TO USE THE RESULTS FROM THIS STUDY TO DETERMINE ACCEPTABLE WORK-REST RATIOS FOR STATIC AND REPETITIVE TASK FACTORS (HEIGHT, REACH, ETC.) THAT LOAD THE SHOULDER/NECK MUSCLES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SUBJECT TESTING USING PSYCHOPHYSICAL METHODOLOGY TO EVALUATE THE EFFECTS OF TOOL AND ELEVATION TASK FACTORS ON SHOULDER/NECK FATIGUE AS RELATED TO DEFINING ACCEPTABLE WORK-REST RATIOS.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: FATIGUE EFFECTS OF EXTENDED WORKDAYS AND WORKLOAD

BEGIN DATE: 10/82 END DATE: 09/89 DIV: DBBS

CAN: 263 PROJECT OFFICER: ROSA, ROGER R

PURPOSE: THE IMPACT OF EXTENDED WORK HOURS (12-HOUR SHIFTS) ON PHYSICAL AND PSYCHOLOGICAL FATIGUE HAS BEEN TESTED IN THE LABORATORY AND IS NOW BEING TESTED AT WORKSITES. RESULTS WILL BE USED TO IDENTIFY OCCUPATIONS AT RISK FOR ACCIDENTS OR JUDGMENT ERRORS UNDER EXTENDED-HOURS WORK SCHEDULE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FOLLOW-UP TEST OF ADAPTATION TO 12-HR SHIFTS (1ST WORKSITE) AND 9-MONTH FOLLOW-UP TEST AT A PHYSICALLY DEMANDING 2ND WORKSITE. BEGIN TESTS AT A 3RD SITE.

TITLE: EXPANDED SENTINEL HEALTH FOLLOW-BACK
BEGIN DATE: 10/87 END DATE: C DIV: DSHEFS

CAN: 518 PROJECT OFFICER: HALPERIN, WILLIAM E

PURPOSE: THE PROJECT WILL PROVIDE A SURVEILLANCE-INTERVENTION SYSTEM WHICH IDENTIFIES WHERE PREVENTABLE OCCUPATIONAL DISEASE IS OCCURRING AND THEN IMPLEMENT A SYSTEM TO REMEDY THE CAUSES OF DISEASE IN THE WORKPLACE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EVALUATE THE USE OF THIS MODEL FOR SEVERAL OTHER TOP 10 DISEASES. BUILD CAPACITY WITHIN THE STATES TO USE THE SURVEILLANCE INTERVENTION MODEL.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: SENTINEL HEALTH EVENT FOLLOW-BACK

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DSHEFS

CAN: 563 PROJECT OFFICER: TANAKA, SHIRO

PURPOSE: PROJECT WILL PROVIDE A SURVEILLANCE SYSTEM TO IDENTIFY WHERE PREVENTABLE OCCUPATIONAL DISEASE IS OCCURRING, WHICH WILL ASSIST IN DIRECT PREVENTION AND HELP PRIORITIZE FURTHER RESEARCH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SURVEYS FOR CHRONIC TRAUMA DISEASES AND LEAD FOLLOW-BACK.

TITLE: DISABILITY SURVEILLANCE OF OCCUPATION AND INDUSTRY

BEGIN DATE: 10/80 END DATE: C DIV: DSHEFS

CAN: 629 PROJECT OFFICER: BRACKBILL, ROBERT M

PURPOSE: THE PROJECT PROVIDES UNIQUE DATA ON PERMANENT DISABILITY THAT RELATES TO OCCUPATION AND INDUSTRY SUBGROUPS OF AMERICAN WORKERS. THE PROJECT'S DATABASE IS A BUILDING BLOCK FOR THE BRANCH'S EFFORT TO DEVELOP A NATIONWIDE SYSTEM FOR THE SURVEILLANCE OF OCCUPATIONALLY RELATED MORBIDITY AND MORTALITY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE REPORT ON NEUROPSYCHIATRIC DISEASE.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: PROSPECTIVE STUDY OF LOW BACK INJURY RISK FACTORS AMONG USAF PERSONNEL

BEGIN DATE: 10/87 END DATE: 09/92 DIV: DSR

CAN: 814 PROJECT OFFICER: NELSON, ROGER M

PURPOSE: THIS PROJECT WILL IDENTIFY RISK FACTORS FOR LOW BACK INJURY VIA A LONGITUDINAL STUDY QUESTIONNAIRE AND EVALUATE THESE RISK FACTORS FOR THEIR CONTRIBUTION TO LOW BACK INJURIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PILOT TEST QUESTIONNAIRE, TEST CONSISTENCY OF THE QUESTIONS, DEVELOP COMPUTER SOFTWARE TO MAINTAIN DATA BASE. INSTITUTE ADMINISTRATION OF QUESTIONNAIRE.

TITLE: NIOSH ATLAS OF LOW BACK TESTS/MEASURES: CLINICAL TRIALS

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DSR

CAN: 815 PROJECT OFFICER: NELSON, ROGER M

PURPOSE: THE NIOSH LOW BACK ATLAS HAS ESTABLISHED A SERIES OF STANDARDIZED DIAGNOSTIC TESTS/MEASURES WHICH HAVE THE POTENTIAL TO CLASSIFY LOW BACK MUSCULOSKELETAL INJURIES. THE CLINICAL TRIALS PROPOSED IN THIS STUDY WILL SERVE TO DEVELOP A CLASSIFICATION SYSTEM FOR LOW BACK STRAINS/ SPRAINS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DISSEMINATE NIOSH LOW BACK ATLAS; IDENTIFY CLINICAL SITES WITHIN THE U.S. NAVY HOSPITAL SYSTEM; COMPLETE DRAFT OF RESEARCH PROTOCOL.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: SURFACE ELECTROMYOGRAPHY PROCEDURES MANUAL FOR USE IN THE INDUS. SETTING

BEGIN DATE: 10/87 END DATE: 09/89 DIV: DSR

CAN: 816 PROJECT OFFICER: NELSON, ROGER M

PURPOSE: DEVELOP AND PUBLISH A STANDARDIZED TECHNICAL PROCEDURES MANUAL DESCRIBING SURFACE ELECTROMYOGRAPHIC INSTRUMENTATION, APPLICATION, INTERPRETATION AND ANALYSIS FOR INDUSTRIAL BIOMEDICAL AND ENGINEERING PERSONNEL.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SELECT INDIVIDUAL EXPERTS, ASSIGN MANUAL CHAPTERS, COMPLETE ANNOTATED BIBLIOGRAPHIES AND OUTLINES FOR EACH CHAPTER, AND COMPLETE DRAFT MANUAL.

TITLE: DEVELOPMENT OF NORMAL MOTOR AND SENSORY NEURONAL CONDUCTION IN HUMANS

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DSR

CAN: 817 PROJECT OFFICER: NESTOR, DAVID E

PURPOSE: THIS PROJECT WILL DEVELOP NORMAL NERVE CONDUCTION VALUES AND PROCEDURAL GUIDELINES FOR THE STANDARDIZED, OBJECTIVE EVALUATION OF NEUROMUSCULOSKELETAL INJURIES AMONG WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DATA COLLECTION AT FOUR SITES AND BEGIN DATA ANALYSIS; PUBLISH TECHNICAL PROCEDURES MANUAL FOR COLLECTING NCV DATA.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: ERGONOMIC TECHNICAL ASSISTANCE/RESEARCH IDENTIFICATION

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DSR

CAN: 822 PROJECT OFFICER: JENSEN, ROGER C

PURPOSE: THIS PROJECT WILL REDUCE BIOMECHANICAL STRESS TO THE MUSCULOSKELETAL SYSTEM BY PROVIDING RECOMMENDATIONS FOR IMPROVING TASK, TOOL, AND WORKSTATION DESIGN ON SELECTED JOBS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESPOND TO REQUESTS FOR TECH. ASSIS. & PROVIDE RECOMMENDATIONS TO REDUCE THE RISK OF INJURIES TO THE MUSCULOSKELETAL SYSTEM; DEVELOP FIRST TECH. BULLETIN. PREPARE TWO CONTRACTOR REPORTS FOR PUBLICATION.

TITLE: DEPARTMENT OF LABOR/LOW BACK INJURY INVESTIGATION

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DSR

CAN: 824 PROJECT OFFICER: NELSON, ROGER M

PURPOSE: CURRENT DEPARTMENT OF LABOR (DOL) CLAIMS PROCEDURES DO NOT ADDRESS ISSUES OF QUALITY OR QUANTITY OF MEDICAL CARE FOR LOW BACK INJURIES. THIS PROJECT WILL HELP TO DEFINE THE MUSCULOSKELETAL ASSESSMENT PROCEDURE USED IN LOW BACK INJURIES TO ENABLE HIGH QUALITY OF CARE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FORM A TASK FORCE OF SPECIALISTS TO REVIEW DOL PROGRAM PROCEDURES IN LOW BACK CARE AND DEVELOP FINAL REPORT.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: HEALTH CARE INDUSTRY - LOW BACK - EPIDEMIOLOGIC STUDY

BEGIN DATE: 10/84 END DATE: 09/89 DIV: DSR

CAN: 838 PROJECT OFFICER: JENSEN, ROGER C

PURPOSE: THIS PROJECT WILL IDENTIFY HIGH RISK JOBS IN HEALTH CARE INDUSTRIES. USING A COHORT STUDY, THE EFFECTIVENESS OF AN INTERVENTION METHOD FOR REDUCING BACK INJURY AMONG NURSING PERSONNEL IN A NURSING HOME WILL BE ASSESSED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT 12-MONTH PROSPECTIVE INTERVENTION STUDY AT NURSING HOME IN WISCONSIN. COMPLETE PAPER ON PATIENT HANDLING AS A RISK FACTOR FOR BACK PAIN AMONG NURSES.

TITLE: HOSPITAL EQUIPMENT DESIGN EFFECT ON MUSCULOSKELETAL INJURIES

BEGIN DATE: 10/86 END DATE: 09/88 DIV: DSR

CAN: 883 PROJECT OFFICER: NESTOR, DAVID E

PURPOSE: THIS PROJECT WILL EXAMINE THE EFFECTS OF VARIOUS HOSPITAL BED DESIGN AND OPERATION CHARACTERISTICS ON MANUAL PATIENT HANDLING TASKS. THE RESULTS WILL BE USED TO IDENTIFY BIOMECHANICAL STRESSES AND MUSCULOSKELETAL PROBLEMS AMONG NURSING PERSONNEL AND TO PROVIDE IMPROVED GUIDELINES FOR DESIGNING HOSPITAL BEDS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DATA COLLECTION AND ANALYSIS AND COMPLETE FINAL REPORT WHICH INCLUDES GUIDELINES FOR DESIGN OF HOSPITAL BEDS.

PROGRAM AREA: MUSCULOSKELETAL INJURIES

TITLE: EDUCATIONAL RESOURCE DEVELOPMENT - PROJECT SHAPE

BEGIN DATE: 10/84 END DATE: C DIV: DTMD

CAN: 775 PROJECT OFFICER: TALTY, JOHN T

PURPOSE: THE PROJECT WILL INCREASE OS&H AWARENESS IN THE ENGINEERING PROFESSION. THIS, IN TURN, WILL RESULT IN ENGINEERING EFFORTS TO PREVENT OCCUPATIONAL HAZARDS THROUGH ENGR. DESIGN AND OTHER ENGR. FUNCTIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROJECT OUTPUTS INCLUDE INSTRUCTIONAL MODULES FOR ENGINEERING FACULTY, ABET ACCREDITATION CRITERIA REVISIONS, SUPPORT TO ENGR. FACULTY THROUGH REG. WORKSHOPS, & INTERACTION BETWEEN ENGR. SOC. & RESEARCH DIVISIONS.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: IMPROVING HEALTH RISK MESSAGES TO WORKERS - FIELD TRIALS

BEGIN DATE: 10/85 END DATE: 01/89 DIV: DBBS

CAN: 253 PROJECT OFFICER: COHEN, ALEXANDER L

PURPOSE: IMPROVED WORKER UNDERSTANDING OF HEALTH RISKS FROM TOXIC/CARCINOGENIC AGENTS FOUND IN THEIR JOB ENVIRONS AND ADHERENCE TO SAFE WORK PRACTICES AS A RESULT OF APPLYING NIOSH GUIDELINES TO COMPANY HAZARD INFORMATION PROGRAMS WILL BE TESTED. POSITIVE RESULTS WOULD VERIFY EFFICACY OF GUIDELINES IN ACHIEVING PROGRAM AIMS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DATA COLLECTION AND ANALYSES AT TWO SITES. PLAN AND HOLD INTERAGENCY (EPA, NCI, ATSDR, NSF) WORKSHOP ON EVALUATING RISK COMMUNICATION ACTIVITIES.

TITLE: DIMETHYLFORMAMIDE - NTP CHEMICAL MANAGEMENT

BEGIN DATE: 10/86 END DATE: 02/92 DIV: DBBS

CAN: 282 PROJECT OFFICER: MASON, ROBERT W

PURPOSE: PROVISION OF THE CHEMICAL MANAGER FOR DIMETHYLFORMAMIDE (DMF) IS PART OF THE INTERAGENCY AGREEMENT BETWEEN NIOSH AND THE NATIONAL TOXICOLOGY PROGRAM TO COORDINATE TOXICOLOGY RESEARCH AMONG DHHS AGENCIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REVIEW AND REPORT ON CONTRACTOR'S INTERIM DATA RELATING TO EXPOSURE GENERATION AND MONITORING, STUDY PROTOCOL, AND MAKE SITE VISITS TO EVALUATE DATA.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: NTP CHEMICAL MANAGEMENT OF VANADIUM PENTOXIDE

BEGIN DATE: 10/86 END DATE: 09/90 DIV: DBBS

CAN: 283 PROJECT OFFICER: MOORMAN, WILLIAM J

PURPOSE: PROVISION OF THE CHEMICAL MANAGER FOR VANADIUM PENTOXIDE IS PART OF THE INTERAGENCY AGREEMENT BETWEEN NIOSH AND THE NATIONAL TOXICOLOGY PROGRAM TO COORDINATE TOXICOLOGY RESEARCH AMONG DHHS AGENCIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
INITIATE PRE-CHRONIC INHALATION TOXICITY TESTING (NTP MAO CONTRACT) INCLUDING SITE VISIT AND REVIEW OF PRELIMINARY STUDIES INVOLVING INHALATION TECHNOLOGY AND ORGAN SYSTEM TOXICITY.

TITLE: TEMPORAL FACTORS INFLUENCING CARCINOGENICITY OF INDUSTRIAL CHEMICALS

BEGIN DATE: 10/85 END DATE: 09/91 DIV: DBBS

CAN: 313 PROJECT OFFICER: MOORMAN, WILLIAM J

PURPOSE:
INFORMATION NEEDED TO JUSTIFY SHORT-TERM EXPOSURE LIMITS FOR CARCINOGENS WILL BE PROVIDED BY THIS DOSE-RATE STUDY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FINALIZE PROJECT PROTOCOL AND COMPLETE PILOT STUDIES TO CHARACTERIZE INHALATION EXPOSURE REGIMENS AND METHODOLOGIES TO ASSESS DNA ADDUCTS; INITIATE 2-YEAR EXPOSURES.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: ARYL AMINE ADDUCTS IN BLOOD AS INDICATORS OF EXPOSURE

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DBBS

CAN: 314 PROJECT OFFICER: CHEEVER, KENNETH L

PURPOSE: THE FEASIBILITY OF USING URINARY METABOLITES AND MACROMOLECULAR ADDUCTS (HEMOGLOBIN OR DNS) AS QUANTITATIVE, INTEGRAL EXPOSURE METHODS WILL BE INVESTIGATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT DOSE-RESPONSE STUDIES TO MEASURE THE LEVEL/STABILITY OF ADDUCTS FORMED FOLLOWING ORAL ADMINISTRATION OF THE MODEL AROMATIC AMINE TO RATS.

TITLE: MOLECULAR BIOLOGY OF CHEMICAL-MEDIATED OCCUPATIONAL CARCINOGENESIS

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DBBS

CAN: 315 PROJECT OFFICER: SAVAGE, RUSSELL E

PURPOSE: MOLECULAR EVENTS IN CARCINOGEN SENSITIVE AND RESISTANT TISSUES WILL BE EVALUATED FOR: 1) QUALITATIVE OR QUANTITATIVE CHANGE; 2) THE IMPORT- ANCE OF THE CHANGE TO THE DISEASE PROCESS; 3) THE POTENTIAL FOR THE PRODUCTS OF THESE CHANGES TO BE USED AS BIOLOGICAL MONITORING TOOLS; AND 4) THE POTENTIAL FOR ACCESSIBLE SAMPLES TO REFLECT THESE CHANGES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE PROJECT PROTOCOL AND SOP'S. CONDUCT PEER REVIEW. COMPLETE PILOT ASSAY DEVELOPMENTAL STUDIES.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: ENHANCEMENT OF MOLECULAR BIOLOGY EFFECTS IN BIOLOGICAL MONITORING

BEGIN DATE: 10/87 END DATE: 09/91 DIV: DBBS

CAN: 316 PROJECT OFFICER: SAVAGE, JR., RUSSELL E

PURPOSE: THIS PROJECT WILL EXPLORE, TAILOR, AND DEVELOP THROUGH INVESTIGATION A MORE SENSITIVE, ACCURATE, AND INDUSTRIALLY RELEVANT METHOD FOR BIOMONITORING IN THE WORKPLACE. THE ULTIMATE RESULT IS THE IMPLEMENTATION OF A ROUTINE ANALYTICAL PROCEDURE WHICH PREDICTS EXPOSURE AND POTENTIAL TOXICITY OF OCCUPATIONAL CARCINOGENS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE PROJECT PROTOCOL AND SOPS. SELECT PEER REVIEW PANEL AND CONDUCT PEER REVIEW. NEGOTIATE AND COMPLETE IA.

TITLE: ASSESSMENT OF COCARCINOGENIC ACTIVITY OF ASPHALT FUMES

BEGIN DATE: 10/82 END DATE: 03/89 DIV: DBBS

CAN: 327 PROJECT OFFICER: CAROLAN, ROBERT J

PURPOSE: IDENTIFICATION OF THE ACTIVE COMPONENTS OF ASPHALT FUMES WILL LEAD TO THE DEVELOPMENT OF INDUSTRIAL HYGIENE INDICATORS FOR ASSESSING EXPOSURE AND ULTIMATELY REDUCING THE CARCINOGENIC RISK.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MONITOR CONTRACT; VERIFY COMPLETION OF 24 MONTHS OF ANIMAL TREATMENT AND ANIMAL NECROPSY.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: IN VITRO TESTS FOR WORKPLACE COCARCINOGENS

BEGIN DATE: 10/80 END DATE: 03/89 DIV: DBBS

CAN: 343 PROJECT OFFICER: BOHRMAN, JEFFREY S

PURPOSE: THIS PROJECT WILL RESULT IN THE DEVELOPMENT AND EVALUATION OF THE V79 CELL METABOLIC COOPERATION ASSAY AS A SCREENING TEST TO DETERMINE THE COCARCINOGENIC POTENTIAL OF CHEMICALS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THIRTY-ONE METABOLIC COOPERATION ASSAYS WILL BE PERFORMED BY TWO CONTRACTORS. A MANUSCRIPT WILL BE PREPARED ON ASPHALT SAMPLES TESTED IN THE PREVIOUS YEAR.

TITLE: GLYCOL ETHERS--NTP MANAGEMENT

BEGIN DATE: 10/86 END DATE: 09/92 DIV: DBBS

CAN: 345 PROJECT OFFICER: LAL, JAG B

PURPOSE: PROVISION OF THE CHEMICAL MANAGER FOR GLYCOL ETHERS IS PART OF THE INTERAGENCY AGREEMENT BETWEEN NIOSH AND THE NATIONAL TOXICOLOGY PROGRAM TO COORDINATE TOXICOLOGY RESEARCH AMONG DHHS AGENCIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REVIEW REPORTS OF THE 14-DAY PRECHRONIC STUDIES.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: INHALATION TOXICOLOGY EXPOSURE GENERATION AND CHARACTERIZATION

BEGIN DATE: 10/85 END DATE: C DIV: DBBS

CAN: 377 PROJECT OFFICER: HULL, ROBERT D

PURPOSE: RESOURCES WILL BE MANAGED THROUGH THIS PROJECT TO DEVELOP GENERATION TECHNIQUES, MEASUREMENT METHODS, AND QUALITY CONTROL PROCEDURES FOR INHALATION CHAMBER EXPOSURE ATMOSPHERES FOR DBBS INHALATION TOXICOLOGY RESEARCH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP AND IMPLEMENT GENERATION AND MONITORING METHODS FOR ETHYLENE OXIDE AND VARIOUS SOLVENTS AND ALCOHOLS.

TITLE: ANIMAL HUSBANDRY SERVICES

BEGIN DATE: 10/76 END DATE: C DIV: DBBS

CAN: 385 PROJECT OFFICER: LAL, JAG B

PURPOSE: RESOURCES WILL BE MANAGED AND UTILIZED THROUGH THIS PROJECT TO PROVIDE EFFICIENT ANIMAL HUSBANDRY AND EFFECTIVE HEALTH SURVEILLANCE FOR EXPERIMENTAL ANIMALS USED FOR DBBS RESEARCH PROGRAMS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EFFECTIVE MONITORING OF THE ANIMAL HUSBANDRY SERVICE CONTRACT AND MAINTAINING AN EFFECTIVE VETERINARY MEDICAL PRACTICE TO ENSURE HEALTHY ANIMALS FOR THE DBBS RESEARCH PROGRAM WILL BE CONDUCTED.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: BIOMONITORING OF EXPOSURE TO COAL TAR PITCH

BEGIN DATE: 10/84 END DATE: 09/88 DIV: DBBS

CAN: 392 PROJECT OFFICER: TOLOS, WILLIAM P

PURPOSE: A BIOMONITORING METHOD DEVELOPED IN THE LABORATORY FOR ASSESSING WORKER EXPOSURE TO COAL TAR PITCH THROUGH THE ANALYSIS OF THE METABOLITE OF THE MARKER PAH, PYRENE, WILL BE EVALUATED THROUGH FIELD TESTING, USING WORKERS EXPOSED TO PAH'S.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FIELD STUDIES EVALUATION OF THE BIOMONITORING METHOD TO ASSESS WORKERS EXPOSED TO COAL TAR PITCH AND SUBMIT THE FINAL PROJECT REPORT TO OD, DBBS.

TITLE: APPLIED CONTROL TECHNOLOGY STUDIES

BEGIN DATE: 10/80 END DATE: C DIV: DPSE

CAN: 403 PROJECT OFFICER: CAPLAN, PAUL E

PURPOSE: THIS PROJECT PROVIDES FOR DISSEMINATION OF THE RESULTS OF CONTROL TECHNOLOGY STUDIES TO INDUSTRY, LABOR, AND OTHER AGENCIES. IT ALSO PROVIDES FOR THE INVESTIGATION OF EMERGING PROBLEMS AND CONTROL TECHNIQUES. THESE MAY INCLUDE SUBSTANCES FOR WHICH REGULATORY ACTION IS CONSIDERED, NEW PROCESSES OR MANUFACTURING TECHNOLOGIES, ETC.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE CONTROL TECHNOLOGY ASSISTANCE TO OTHER GROUPS, DISSEMINATE CONTROL TECHNOLOGY FINDINGS, AND PLAN FOR FUTURE CONTROL TECHNOLOGY RESEARCH.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: SYMPOSIA ON HAZARD CONTROL IN SEMICONDUCTOR MANUFACTURING

BEGIN DATE: 10/86 END DATE: 09/88 DIV: DPSE

CAN: 404 PROJECT OFFICER: JONES, JAMES H

PURPOSE: THIS PROJECT WILL DISSEMINATE INFORMATION ON HEALTH EFFECTS IN THIS INDUSTRY AND CONTROLS DEVELOPED BY INDUSTRY, AND PROMOTE THE INCLUSION OF THESE EFFECTIVE CONTROLS IN NEW OPERATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT SYMPOSIUM ON HEALTH ASSESSMENT AND CONTROL TECHNOLOGY FOR THE SEMICONDUCTOR INDUSTRY. SUBMIT SYMPOSIA PROCEEDINGS FOR PUBLICATION BY AMERICAN CONGRESS OF GOVERNMENTAL INDUSTRIAL HYGIENISTS.

TITLE: EVALUATION AND PREVENTION OF HAZARDOUS CHEMICAL RELEASES

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DPSE

CAN: 424 PROJECT OFFICER: GIDEON, JAMES A

PURPOSE: THIS PROJECT WILL IDENTIFY AND RECOMMEND PREVENTIVE MEASURES FOR CHEMICAL RELEASES THROUGH PLANT SURVEYS AND USE OF HAZARDOUS OPERATIONS TECHNIQUES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SITE INVESTIGATIONS AND PREPARE CONTROL RECOMMENDATIONS.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: CONTROL TECHNOLOGY FOR GALLIUM ARSENIDE PROCESSING

BEGIN DATE: 05/86 END DATE: 09/88 DIV: DPSE

CAN: 427 PROJECT OFFICER: SHEEHY, JOHN

PURPOSE: THE ELECTRONICS INDUSTRY IS EXPANDING THE USE OF GALLIUM ARSENIDE. IT WILL REQUIRE MORE CONTROLS THAN SIMILAR SILICON PROCESSING BECAUSE OF INCREASED POTENTIAL ARSENIC EXPOSURE. THE MOST EFFECTIVE CONTROLS ARE MORE LIKELY TO BE INCLUDED DURING CONSTRUCTION THAN DURING RETROFIT. THE BEST OPPORTUNITY TO INTERVENE IN THIS EXPANDING INDUSTRY IS NOW.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PREPARE FINAL REPORT AND DISSEMINATE TO THE INDUSTRY. PRESENT PAPER AT SEMICONDUCTOR SYMPOSIUM.

TITLE: CHEMICAL CHARACTERIZATION OF ROOFING ASPHALT FUME

BEGIN DATE: 01/83 END DATE: 12/88 DIV: DPSE

CAN: 433 PROJECT OFFICER: LUNSFORD, ROBERT A

PURPOSE: THE PROJECT WILL PROVIDE ANALYTICAL CHEMISTRY SUPPORT FOR THE IDENTIFICATION OF CARCINOGENS IN PETROLEUM ASPHALT FUME.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DATA COLLECTION AND REPORT RESULTS TO PROJECT OFFICER OF NIOSH/NCI ANIMAL STUDY.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: ANALYSIS OF EXHALED BREATH

BEGIN DATE: 10/83 END DATE: 06/89 DIV: DPSE

CAN: 435 PROJECT OFFICER: GLASER, ROBERT A

PURPOSE: NIOSH HAS DEVELOPED A DEVICE THAT PERMITS SAMPLING OF LARGE VOLUMES OF MIXED-EXPIRED BREATH. SIDESTREAM OR MAINSTREAM SAMPLING OPTIONS ARE PROVIDED. RESEARCH WILL BE CONDUCTED TO PERMIT A MORE ACCURATE ESTIMATION OF THE SIDESTREAM SAMPLE VOLUME. THE DEVICE WILL BE MODIFIED TO ALLOW ALVEOLAR SAMPLING. THE UNIFIED DEVICE WILL BE FIELD EVALUATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DEVELOPMENT OF UNIFIED SAMPLER AND STUDY OF SIDESTREAM SAMPLING. COMPLETE TEST OF THE ALVEOLAR AND MIXED EXPIRED BREATH SAMPLERS. SUBMIT DRAFT REPORT.

TITLE: ENGINEERING CONTROL ASSISTANCE

BEGIN DATE: 01/88 END DATE: 09/89 DIV: DPSE

CAN: 446 PROJECT OFFICER: HUGHES, ROBERT T

PURPOSE: THE PROJECT WILL PROVIDE ENGINEERING CONTROL DESIGN AND SUPPORT TO DSHEFS AND WILL DEVELOP CONTROL RESEARCH PROJECTS CONSISTENT WITH INSTITUTE GOALS. ENGINEERING SUPPORT OF DSHEFS PROJECTS WILL PROVIDE CONTROL RECOMMENDATIONS TO SOLVE WORKER EXPOSURE PROBLEMS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE PROJECT WILL PROVIDE SUPPORT FOR TWO HHE'S (LEAD EXPOSURE AT FIRING RANGES AND AEROSOL EXPOSURE DURING LASER SURGERY).

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: SENSOR DEVELOPMENT

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DPSE

CAN: 447 PROJECT OFFICER: BARTLEY, DAVID L

PURPOSE: DEVELOP GAS OR VAPOR MONITORS BASED ON BOTH MICRO-ELECTRONIC SURFACE ACOUSTIC WAVE (SAW) SENSORS AND ON COLOR-CHANGING SELECTIVE FILMS "CHROMO-FILMS".

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SUBMIT JOURNAL ARTICLE ON VAPOR TRANSFER IN POLYMERS.

TITLE: ANALYTICAL SUPPORT TO DBBS RESEARCH AND IWSB/DSHEFS

BEGIN DATE: 10/85 END DATE: C DIV: DPSE

CAN: 483 PROJECT OFFICER: BELINKY, BARRY R

PURPOSE: ANALYTICAL SUPPORT TO DBBS AND IWSB/DSHEFS WILL BE PROVIDED IN THE AREAS OF (1) INHALATION STUDIES OF TOXIC SUBSTANCES (2) CHEMICAL CHARACTERIZATION OF COMPLEX MIXTURES SUCH AS ASPHALT, DIESEL EMISSIONS, AND NEWSPRINT INKS, AND (3) INDUSTRY-WIDE STUDIES OF DYE WORKERS AND ETHYLENE OXIDE IN HOSPITALS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE 2200 IWS SAMPLES AND 850 DBBS SAMPLES.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: CONTROL OF PARTICULATE AND GASEOUS AGENTS BY AIR CURTAIN TECHNOLOGY

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DPSE

CAN: 492 PROJECT OFFICER: HAMPL, VLADIMIR

PURPOSE: CONTROL DESIGN CRITERIA WILL BE DEVELOPED FOR PROCESSES WHERE CONTAMI- NANTS ARE EMITTED OVER A LARGE AREA OR WHERE LOCAL EXHAUST IS NOT FEASIBLE. WHILE FOCUSED ON REDUCTION OF WOOD DUST, ADHESIVE JOINING OR OTHER GASEOUS OR VAPOROUS EMISSIONS, TECHNOLOGY WILL BE GENERICALLY APPLICABLE TO A NUMBER OF OTHER PROCESSES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CRITERIA FOR CONTROL AT PROCESS ASSOCIATED WITH WOOD DUST EMISSION WILL BE COMPLETED AND RESULTS SUBMITTED TO PROFESSIONAL JOURNAL AND AMERICAN CONGRESS OF GOVERNMENTAL INDUSTRIAL HYGIENISTS VENTILATION MANUAL.

TITLE: DEVELOPMENT OF MONITORING NETWORKS AND CONTROL MONITORING TECHNIQUES

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DPSE

CAN: 495 PROJECT OFFICER: SMITH, JEROME P

PURPOSE: CONTINUOUS MONITORING METHODS AND PROPER COMMUNICATION OF MONITORING RESULTS PROVIDE TIMELY FEEDBACK TO THE CONTROL OF CHEMICAL AGENTS AND THEREBY IMPROVE INDUSTRIAL HYGIENE METHODS AND ENVIRONMENTAL MONITORING. THIS PROJECT EXAMINES THE DEVELOPMENT OF CONTINUOUS MONITORING METHODS AND THE PROPER COMMUNICATION OF THE DATA.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEMONSTRATE USE OF DATA COMMUNICATIONS WITH NETWORK OF AIR MONITORS, DETERMINE FEASIBILITY OF LOW COST IMS INSTRUMENT.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: CASE-CONTROL SURV. TO TEST HYPOTHESES GENERATED BY COMPUTER MAPS

BEGIN DATE: 10/83 END DATE: C DIV: DSHEFS

CAN: 509 PROJECT OFFICER: ROBINSON, CYNTHIA

PURPOSE: THIS PROJECT WILL HELP TO BUILD DEATH CERTIFICATE BASED CASE-CONTROL STUDIES AS A NEW, IN-HOUSE SURVEILLANCE CAPABILITY. THESE HYPOTHESIS TESTING ACTIVITIES FACILITATE THE INSTITUTE'S SETTING OF RESEARCH PRIORITIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE PROTOCOL FOR ONE NEW CASE COMPARISON STUDY.

TITLE: INDUSTRYWIDE STUDY OF WORKERS EXPOSED TO 4,4'-METHYLENE DIANILINE

BEGIN DATE: 10/84 END DATE: 06/89 DIV: DSHEFS

CAN: 512 PROJECT OFFICER: BOENIGER, MARK F

PURPOSE: THIS STUDY WILL USE SEVERAL INNOVATIVE TECHNIQUES AND NEW ANALYTICAL METHODS TO SAMPLE FOR MDA. THESE NEW PROCEDURES WILL BE COMPARED TO ROUTINE METHODS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE 100% OF INDEPTH AIR MONITORING SURVEYS AND THE INDIVIDUAL PLANT SURVEY REPORTS.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: MORTALITY AND I.H. STUDY OF AUTOMOTIVE WOOD DIE AND MODEL MAKERS

BEGIN DATE: 10/87 END DATE: 06/89 DIV: DSHEFS

CAN: 516 PROJECT OFFICER: ROSCOE, ROBERT J

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE IN THE AUTOMOTIVE WOOD DIE AND MODEL MAKING INDUSTRY AND THE RISK OF DEVELOPING CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ADDITIONAL FOLLOW-UP AND CODING OF SSA 941 FORM INFORMATION.

TITLE: INVENTORY OF UNION RECORDS SYSTEMS

BEGIN DATE: 04/83 END DATE: 12/87 DIV: DSHEFS

CAN: 527 PROJECT OFFICER: OKUN, ANDREA H

PURPOSE: THIS PROJECT WILL TARGET RESEARCH TO ADDRESS THE NATIONAL STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE FINAL REPORT, DISSEMINATE TO ALL INVOLVED PARTIES AND PUBLISH.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: EPIDEMIOLOGIC METHODS DEVELOPMENT

BEGIN DATE: 10/84 END DATE: C DIV: DSHEFS

CAN: 532 PROJECT OFFICER: BROWN, DAVID P

PURPOSE: THIS EPIDEMIOLOGIC METHODS PROJECT WILL IMPROVE THE OVERALL RESEARCH PROGRAM BEING CONDUCTED AS PART OF THE INDUSTRYWIDE STUDIES PROGRAM BY MAINTAINING STATE-OF-THE-ART METHODS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE NEW DSHEFS FILE AND THE INSTALLATION OF VERSION F.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: O-DIANISIDINE AND O-TOLIDINE DYE WORKERS EXPOSURE STUDY

BEGIN DATE: 10/82 END DATE: 09/88 DIV: DSHEFS

CAN: 535 PROJECT OFFICER: HILLS, BRUCE W

PURPOSE: THIS STUDY WILL ASSESS THE PRESENCE OF BIOLOGICAL MARKERS (METABOLITES OF THE DYES) IN THE URINE OF EXPOSED WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ANALYSES FOR MUTAGENICITY AND DYE METABOLITES AND THE FINAL REPORT.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: MORTALITY STUDY OF WORKERS EXPOSED TO HALOWAX

BEGIN DATE: 10/83 END DATE: 09/90 DIV: DSHEFS

CAN: 536 PROJECT OFFICER: WARD, ELIZABETH M

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO HALOWAX AND THE RISK OF DEVELOPING CANCER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE DATA ANALYSIS AND THE DRAFT FINAL REPORT FOR THE COHORT STUDY.

TITLE: UPDATE OF COMPLETED COHORT MORTALITY STUDIES

BEGIN DATE: 10/82 END DATE: C DIV: DSHEFS

CAN: 542 PROJECT OFFICER: BROWN, DAVID P

PURPOSE: THESE ARE EPIDEMIOLOGIC STUDIES THAT ASSESS THE ASSOCIATION BETWEEN EXPOSURE AND THE RISK OF DEVELOPING DISEASE (PRIMARILY CANCER).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE FINAL REPORTS FOR ATTAPULGITE CLAY AND VINYL CHLORIDE.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: MEDICAL, BIOMETRIC AND IH STUDY OF EMERGING PROBLEMS

BEGIN DATE: 10/79 END DATE: C DIV: DSHEFS

CAN: 543 PROJECT OFFICER: HALPERIN, WILLIAM E

PURPOSE: PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING EPIDEMIOLOGIC RESEARCH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESPOND TO FOUR NEW EMERGING PROBLEMS. ASSIST WITH FOUR HEALTH HAZARD EVALUATIONS. COMPLETE REPORTS AND CLOSE OUT SIX FILES.

TITLE: EPIDEMIOLOGIC AND INDUSTRIAL HYGIENE SUPPORT OF TSCA-EPA

BEGIN DATE: 10/81 END DATE: C DIV: DSHEFS

CAN: 544 PROJECT OFFICER: HERRICK, ROBERT

PURPOSE: AS PART OF A COLLABORATIVE EFFORT WITH EPA, EXTENT OF EXPOSURE ASSESSMENTS WILL BE CONDUCTED ON CHEMICAL EXPOSURES WITH MUTUAL INTEREST TO THE TWO AGENCIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE COMPOSITE INDUSTRIAL HYGIENE REPORTS FOR ACRYLATES. DISSEMINATE REPORTS TO ALL INVOLVED PARTIES AND PUBLISH.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: WORKER NOTIFICATION

BEGIN DATE: 03/85 END DATE: C DIV: DSHEFS

CAN: 554 PROJECT OFFICER: SCHULTE, PAUL A

PURPOSE: NOTIFICATION OF WORKERS REGARDING THEIR RISK OF DISEASE RESULTS IN PREVENTION OF THE DISEASE BY ENCOURAGING SCREENING, HEALTH PROMOTION, AND BETTER AWARENESS (EDUCATION).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE REVIEW OF FIRST 5 NOTIFICATION ASSESSMENT DOCUMENTS AND BEGIN NOTIFICATION PROCESS.

TITLE: ETHYLENE OXIDE MORTALITY STUDY

BEGIN DATE: 10/82 END DATE: 09/90 DIV: DSHEFS

CAN: 557 PROJECT OFFICER: STAYNER, LESLIE T

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO ETHYLENE OXIDE AND THE RISK OF DEVELOPING LEUKEMIA.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE FINAL COMPOSITE INDUSTRIAL HYGIENE REPORT. COMPLETE ALL FOLLOW-UP FOR PLANTS 1, 3, 4, 7, AND 10.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: MORTALITY STUDY OF CHEMICAL PLANTS IN KANAWHA VALLEY, WEST VIRGINIA

BEGIN DATE: 10/79 END DATE: 09/90 DIV: DSHEFS

CAN: 560 PROJECT OFFICER: WARD, ELIZABETH M

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURES IN A LARGE CHEMICAL PLANT AND THE RISK OF DEVELOPING CANCER AND OTHER CHRONIC DISEASES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DATA EDITING FOR THE TWO SUBCOHORTS AND THE ANALYSIS FOR THE BUTADIENE SUBCOHORT.

TITLE: INVESTIGATION OF WORKERS EXPOSED TO MBOCA

BEGIN DATE: 10/82 END DATE: 06/89 DIV: DSHEFS

CAN: 572 PROJECT OFFICER: WARD, ELIZABETH M

PURPOSE: THIS STUDY WILL ASSESS THE PRESENCE OF BIOLOGICAL MARKERS (MBOCA IN URINE AND BLADDER CYTOLOGY) IN EXPOSED WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE SCREENING OF ALL INTERESTED STUDY PARTICIPANTS AND THE DATA ANALYSIS.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: SUPPORT OF EPA'S ENVIRONMENTAL EPIDEMIOLOGIC PROGRAM

BEGIN DATE: 10/85 END DATE: 06/89 DIV: DSHEFS

CAN: 607 PROJECT OFFICER: SCHULTE, PAUL A

PURPOSE: THIS STUDY WILL ASSESS THE ROLE OF BIOLOGICAL MARKERS AMONG WORKERS WHO HAVE BEEN EXPOSED TO SUBSTANCES OF INTEREST TO THE EPA AND NIOSH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ANALYSES OF SPECIMENS.

TITLE: SURVEILLANCE COOPERATIVE AGREEMENTS BETWEEN NIOSH AND STATES (SCANS)

BEGIN DATE: 10/79 END DATE: C DIV: DSHEFS

CAN: 624 PROJECT OFFICER: LALICH, NINA R

PURPOSE: THIS PROJECT TESTS THE ABILITY OF STATES TO DEVELOP AND MAINTAIN OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE PROGRAMS THROUGH INFORMATION EXCHANGE AND ROUTINE OCCUPATIONAL HEALTH DATA SUBMISSIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE PC-BAUD RETRIEVAL SYSTEM.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: JOB/EXPOSURE MATRIX

BEGIN DATE: 10/85 END DATE: C DIV: DSHEFS

CAN: 637 PROJECT OFFICER: SIEBER, WILLIAM K

PURPOSE: COMPUTERIZATION OF AN INDUSTRY/OCCUPATION/HAZARD MATRIX OF MORE THAN 2 MILLION CELLS WILL MAKE READILY AVAILABLE TO RESEARCHERS A TECHNIQUE FOR ASSESSING 1971-1983 CHANGE IN WORKERS' EXPOSURE TO POTENTIAL HAZARDS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DISSEMINATE THE JOB EXPOSURE MATRIX TO POTENTIAL USERS.

TITLE: ACCESS TO NOHS DATABASE - PROFILE DEVELOPMENT

BEGIN DATE: 10/78 END DATE: C DIV: DSHEFS

CAN: 662 PROJECT OFFICER: SETA, JOSEPH A

PURPOSE:
TREND ANALYSES FOR THE PERIOD SPANNED BY NOHS (1972-74) AND NOES (1981-83) WILL BE ACCOMPLISHED BY COMPARING KEY VARIABLES COMMON TO BOTH SURVEYS, TO IDENTIFY POTENTIAL OCCUPATIONAL HAZARDS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESPOND TO REQUESTS FOR NOHS INFORMATION (APPROXIMATELY 200).

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: TRADENAME INGREDIENTS - NATIONAL OCCUPATIONAL EXPOSURE SURVEY (NOES)

BEGIN DATE: 10/77 END DATE: C DIV: DSHEFS

CAN: 663 PROJECT OFFICER: SUNDIN, DAVID S

PURPOSE: THIS PROJECT WILL RESULT IN DEVELOPMENT OF AN UPDATED OCCUPATIONAL HAZARD FILE AS A NECESSARY PREREQUISITE FOR A NATIONAL DATABASE THAT CAN BE USED TO ASSESS INDUSTRY HAZARD CHANGES DURING THE PERIOD 1971-1983.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EDIT AND AUTOMATE APPROXIMATELY 70,000 RESPONSES.

TITLE: INDUSTRIAL HYGIENE CHARACTERIZATION OF 1,3-BUTADIENE EXPOSED WORKERS

BEGIN DATE: 10/84 END DATE: 09/88 DIV: DSHEFS

CAN: 675 PROJECT OFFICER: FAJEN, JOHN M

PURPOSE: THIS STUDY WILL CHARACTERIZE THE EXTENT OF EXPOSURE TO THE SUSPECTED CHEMICAL CARCINOGEN, 1, 3-BUTADIENE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE INDEPTH END-USERS SURVEYS AND REPORTS.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: REGISTRY OF DIOXIN WORKERS AND MORTALITY STUDY

BEGIN DATE: 10/79 END DATE: 12/88 DIV: DSHEFS

CAN: 685 PROJECT OFFICER: FINGERHUT, MARILYN A

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO DIOXIN AND THE RISK OF DEVELOPING CANCER, ESPECIALLY SOFT TISSUE SARCOMA.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE ANALYSES USING THE EXPOSURE MATRIX AND THE DRAFT FINAL EPIDEMIOLOGY REPORT.

TITLE: QUANTITATIVE RISK ASSESSMENT

BEGIN DATE: 10/70 END DATE: C DIV: DSDTT

CAN: 085 PROJECT OFFICER: MEINHARDT, THEODORE J

PURPOSE: QRA EFFORTS WILL BE CONDUCTED TO UNDERSTAND THE BASIC MECHANISM OF DISEASE CAUSATION; EVALUATE THE METABOLIC PATHWAYS OF & VARIATION IN RESPONSE TO A PARTICULAR SUBSTANCE; ESTIMATE THE ADVERSE HEALTH RISKS TO HUMANS; PROVIDE A BASIS FOR PRIORITIZING THE ISSUES FOR REGULATORY RECOMMENDATIONS; PROVIDE COMPONENT FOR DECISION MAKING.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT TWO THREE-RISK ASSESSMENTS.

PROGRAM AREA: OCCUPATIONAL CANCERS

TITLE: CURRICULUM DEVELOPMENT - COURSES/MODULES

BEGIN DATE: 10/77 END DATE: C DIV: DTMD

CAN: 765 PROJECT OFFICER: BERBERICH, NORBERT J

PURPOSE: TRAINING MATERIALS DEVELOPED WILL BE DISSEMINATED TO THE OSH PRACTITIONER AND OTHER TARGET AUDIENCES IDENTIFIED IN THE PREVENTION STRATEGY DOCUMENTS THROUGH THE C.E. NETWORK OF NIOSH AND THE ERCS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROJECT OUTPUTS INCLUDE ADDITIONAL CHAPTERS OF NIOSH TEXT, PILOT TESTED TRAINING COURSE FOR UTILITY WORKERS, LECTURE MODULES ON EPI., AND TOXICOLOGY REVISED COURSE & OUTLINE FOR NEW COURSE.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: CARPAL TUNNEL STUDY

BEGIN DATE: 11/88 END DATE: 12/89 DIV: DSHEFS

CAN: 507 PROJECT OFFICER: SELIGMAN, PAUL

PURPOSE: THIS STUDY WILL GIVE AN ESTIMATE OF THE INCIDENCE OF WORKRELATED CARPAL TUNNEL SYNDROME SEEN IN THE OFFICES OF PRIMARY CARE DOCTORS AND PROVIDE INSIGHT INTO THE OPERATION OF PROVIDER BASED SURVEILLANCE OF WORK RELATED DISEASE AND INJURY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PHASE 1; CONDUCT A FEASIBILITY STUDY TO DETERMINE FREQUENCY OF CPS IN OFFICES OF PRIMARY CARE PHYSICIANS.
PHASE 2; CONDUCT A PILOT STUDY TO PRETEST FULL STUDY METHODS.

TITLE: INFORMATION SYSTEMS DEVELOPMENT

BEGIN DATE: 10/86 END DATE: 09/88 DIV: DSR

CAN: 692 PROJECT OFFICER: LINN, HERBERT I

PURPOSE: THIS PROJECT WILL EXAMINE THE FEASIBILITY OF DEVELOPING AN INFORMATION CENTER WHICH INCLUDES INFORMATION ON TRAUMATIC INJURY HAZARDS AND HAZARD PREVENTION/CONTROL TECHNOLOGY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SLIDE-TAPE PRESENTATION ON DSR PROGRAM. SUBMIT FEASIBILITY REPORT TO DIRECTOR, DSR. COMPLETE AUTOMATED INFORMATION REPOSITORY DATA ENTRY.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: DISSEMINATION

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DSR

CAN: 693 PROJECT OFFICER: LINN, HERBERT I

PURPOSE: 1) THIS PROJECT WILL PROVIDE COORDINATION OF DSR DISSEMINATION PLANNING, DOCUMENT AND INFORMATION PRODUCT DEVELOPMENT, AND PROGRAM INFORMATION. 2) A STRATEGIC DISSEMINATION MODEL TO AID DSR PROJECT OFFICERS AND PROGRAM MANAGERS IN PLANNING WILL BE DEVELOPED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE STRATEGIC DISSEMINATION MODEL; PRODUCE "CAMERA-READY" DSR DOCUMENTS AND OTHER INFORMATION PRODUCTS.

TITLE: SAFETY IN HAZARDOUS MATERIALS INCIDENTS

BEGIN DATE: 10/81 END DATE: C DIV: DSR

CAN: 803 PROJECT OFFICER: RONK, RICHARD M

PURPOSE: DEVELOP ON-LINE DATA BASE AND CRITERIA FOR SELECTION AND USE OF PERSONAL PROTECTIVE EQUIPMENT AND EQUIPMENT DECONTAMINATION PROCEDURES FOR EMERGENCY RESPONSE PERSONNEL.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP AND DISSEMINATE PREVENTION STRATEGIES TO NIOSH, OSHA, AND ATSDR.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: OCCUPATIONAL FATALITY INJURY SURVEILLANCE

BEGIN DATE: 10/84 END DATE: C DIV: DSR

CAN: 805 PROJECT OFFICER: STOUT-WIEGAND, NANCY

PURPOSE: THIS PROJECT WILL IDENTIFY THE NUMBER OF OCCUPATIONAL FATALITIES OCCURRING IN THE NATION THROUGH ESTABLISHMENT OF A NATIONAL OCCUPATIONAL INJURY FATALITY DATABASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COLLECT AND AUTOMATE FY87 DEATH CERTIFICATES. DESCRIBE 1980-1986 FATAL OCCUPATIONAL INJURIES AND DISSEMINATE RESULTS TO STATE EPIDEMIOLOGISTS AND NATIONAL AND STATE SAFETY AND HEALTH ORGANIZATIONS.

TITLE: FATAL ACCIDENT CIRCUMSTANCES AND EPIDEMIOLOGY-TECHNICAL ASSISTANCE

BEGIN DATE: 10/83 END DATE: C DIV: DSR

CAN: 807 PROJECT OFFICER: CHIEF, AIS,

PURPOSE: THIS PROJECT WILL IDENTIFY PERSONAL, ORGANIZATIONAL, AND CIRCUMSTANTIAL RISK FACTORS CONTRIBUTING TO OCCUPATIONAL FATALITIES AND INJURIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MAINTAIN TECHNICAL ASSISTANCE ACTIVITY. CONTINUE TO GATHER RESEARCH DATA AND REPORT PRELIMINARY FINDINGS OF PORTIONS OF THE STUDY. CONTINUE TO REFINE FACE PROTOCOL.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: OCCUPATIONAL INJURY DATA BASE MANAGEMENT

BEGIN DATE: 10/87 END DATE: C DIV: DSR

CAN: 808 PROJECT OFFICER: CUTLIP, PATRICIA M

PURPOSE: THIS PROJECT WILL PROVIDE FOR THE MANAGEMENT OF DSR'S OCCUPATIONAL DATABASES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE MOST RECENT DATA FILE FOR EACH INJURY DATABASE WILL BE ACQUIRED, DOCUMENTED, MAINTAINED, AND A DESCRIPTION WILL BE DISSEMINATED TO DSR RESEARCHERS.

TITLE: FATAL ACCIDENT CIRCUMSTANCES AND EPIDEMIOLOGY--STATE INITIATIVES

BEGIN DATE: 10/87 END DATE: C DIV: DSR

CAN: 809 PROJECT OFFICER: CHIEF, AIS,

PURPOSE: PROVIDE INDIVIDUAL STATES WITH THE TRAINING AND QUESTIONNAIRES NECESSARY TO PARTICIPATE IN OCCUPATIONAL TRAUMA RESEARCH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP MEMORANDUM OF UNDERSTANDING WITH 3 STATES TO CONDUCT FACE FIELD EVALUATIONS. PROVIDE TRAINING AND MONITOR PROGRESS OF STATES. DATA WILL BE PROVIDED TO DSR.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: HUMAN MOTOR REACTION TO DANGEROUS MOTIONS

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DSR

CAN: 818 PROJECT OFFICER: ETHERTON, JOHN R

PURPOSE: THIS PROJECT WILL BEGIN TO PROVIDE A SCIENTIFIC BASIS FOR THE CURRENT CONSENSUS STANDARD OF 25 CM/SEC AS A SAFE SLOW SPEED FOR ROBOT MAINTENANCE AND PROGRAMMING TASKS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE RESULTS OF PILOT STUDY AND SUBMIT FINAL REPORT FOR PUBLICATION.

TITLE: MACHINE SAFETY TECHNICAL ASSISTANCE/RESEARCH IDENTIFICATION

BEGIN DATE: 09/87 END DATE: 09/90 DIV: DSR

CAN: 819 PROJECT OFFICER: ETHERTON, JOHN R

PURPOSE: THIS PROJECT WILL REDUCE TRAUMATIC INJURIES AND FATALITIES ON INDUSTRIAL MACHINERY BY PROVIDING RESEARCH-BASED RECOMMENDATIONS FOR SAFE MACHINE WORKSTATIONS, CONCENTRATING ON ENCOURAGING THE IMPLEMENTATION OF EXISTING TECHNOLOGY AND ON SURVEILLANCE TO COMPARE EFFECTIVENESS IN APPLICATIONS FOR MACHINE SAFETY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESPOND TO REQUESTS FOR TECHNICAL ASSISTANCE AND PROVIDE RECOMMENDATIONS TO REDUCE TRAUMATIC INJURIES; INITIATE STUDY TO PRIORITIZE MACHINE SAFETY RESEARCH; DISSEMINATE TECHNICAL BULLETIN(S).

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: ANALYSIS OF SITE-SPECIFIC CONSTRUCTION INJURIES

BEGIN DATE: 10/87 END DATE: 10/90 DIV: DSR

CAN: 825 PROJECT OFFICER: STANEVICH, RONALD L

PURPOSE: THIS PROJECT WILL EVALUATE THE UTILITY OF TWO SELF-EVALUATION INSTRUMENTS FOR IDENTIFYING SAFETY PROGRAM STRENGTHS/WEAKNESSES ON A CONSTRUCTION SITE, AND PURSUE THE FEASIBILITY OF COLLECTING WORKER CHARACTERISTIC DATA, OCCUPATIONAL DENOMINATOR DATA AND INJURY CIRCUMSTANCE DATA FOR DESCRIPTIVE ANALYSIS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COLLECT AND ENCODE OCCUPATIONAL EXPOSURE HOUR AND WORK HISTORY DATA; INITIATE BASELINE DATA COLLECTION ON SUBSTANCE USE. COMPLETE DRAFT OF RESEARCH PROTOCOL AND TWO SELF-EVALUATION INSTRUMENTS.

TITLE: IMPROVING NATIONAL OCCUPATIONAL RECORD KEEPING SYSTEMS

BEGIN DATE: 10/87 END DATE: C DIV: DSR

CAN: 826 PROJECT OFFICER: CONROY, CAROL S

PURPOSE: THIS PROJECT WILL IMPROVE NATIONAL OCCUPATIONAL RECORD KEEPING SYSTEMS THROUGH COORDINATION WITH THE BUREAU OF LABOR STATISTICS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP INTERAGENCY AGREEMENT WITH BUREAU OF LABOR STATISTICS TO CONDUCT PILOT STUDY.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: OCCUPATIONAL TRAUMATIC INJURY SURVEILLANCE OF FARMERS

BEGIN DATE: 10/87 END DATE: C DIV: DSR

CAN: 827 PROJECT OFFICER: MYERS, JOHN R

PURPOSE: THIS PROJECT WILL PROMOTE A UNIFORM AGRICULTURAL SURVEILLANCE SYSTEM THROUGH EXTENSION SAFETY SPECIALISTS IN VARIOUS STATES, EVALUATE DATA ACQUIRED SPECIFICALLY FROM THE AGRICULTURAL INDUSTRY, AND PERFORM ANALYSES IN SUPPORT OF INTERVENTION TO REDUCE FATALITIES AND TRAUMATIC INJURIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COORDINATE AND ESTABLISH UNIFORM AGRICULTURAL TRAUMATIC INJURY SURVEILLANCE SYSTEM.

TITLE: FALL HAZARDS ASSOC. WITH ERECTION OF PAINTED STEEL STRUCTURES-PART I

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DSR

CAN: 828 PROJECT OFFICER: STANEVICH, RONALD L

PURPOSE: THIS PROJECT WILL DEVELOP TECHNICAL RATIONALE FOR RECOMMENDATION OF MINIMUM SURFACE COEFFICIENT OF FRICTION OF PAINTED STRUCTURAL STEEL MEMBERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FINAL REPORT WITH RECOMMENDED COEFFICIENT OF FRICTION REQUIREMENTS FOR STRUCTURAL STEEL MEMBERS, TRANSMIT TO OSHA, AND PRESENT RESULTS TO ASTM D-1 COMMITTEE AND INDUSTRY TRADE GROUPS.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: GENERAL SURVEILLANCE

BEGIN DATE: 10/79 END DATE: C DIV: DSR

CAN: 834 PROJECT OFFICER: CONROY, CAROL S

PURPOSE: THIS PROJECT WILL PROVIDE INTEGRATED STATISTICAL AND EPIDEMIOLOGIC SUPPORT SERVICE TO DSR. ALSO, DATA FOR DETERMINING NATIONAL AND STATE OCCUPATIONAL INJURY RESEARCH PRIORITIES WILL BE DEVELOPED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PUBLISH ONE OR MORE REPORTS DESCRIBING OCCUPATIONAL INJURY PATTERNS IN SPECIFIC INDUSTRIES.

TITLE: SAFE DISTANCE REQUIREMENTS FOR MECHANICAL POWER PRESSES

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DSR

CAN: 843 PROJECT OFFICER: JENSEN, ROGER C

PURPOSE: THIS STUDY WILL PROVIDE EPIDEMIOLOGIC DOCUMENTATION FOR THE NEED TO IMPROVE PRESS SAFEGUARDING, AND WILL MAKE SPECIFIC RECOMMENDATIONS FOR MODIFYING STANDARDS CONCERNING PLACEMENT OF DUAL PALM-BUTTONS ON PRESSES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FINAL REPORTS ON EPIDEMIOLOGY OF AMPUTATIONS AMONG POWER PRESS OPERATORS. COMPLETE REPORT ON RESULTS OF LABORATORY STUDY WITH SPECIFIC RECOMMENDATIONS FOR MODIFYING EXISTING SAFETY DISTANCE STANDARDS.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: TRAUMA EPIDEMIOLOGY OF OCC HIGHWAY VEHICLE FATALITIES AND INJURIES

BEGIN DATE: 10/86 END DATE: 09/90 DIV: DSR

CAN: 862 PROJECT OFFICER: TRENT, ROGER B

PURPOSE: THIS PROJECT PROVIDES A MEANS TO COORDINATE DSR OCCUPATIONAL HIGHWAY FATALITY AND INJURY RELATED ACTIVITIES WITH NHTSA WITH A VIEW TOWARD FUTURE COORDINATED RESEARCH PROJECTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT RECORD LINKAGE STUDY OF FATALITIES IN FARS, WCC, AND NTOF DATA BASES.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: AGRICULTURAL INJURY SURVEILLANCE SYSTEM

BEGIN DATE: 10/86 END DATE: C DIV: DSR

CAN: 863 PROJECT OFFICER: MYERS, JOHN R

PURPOSE: THIS PROJECT WILL EVALUATE EXISTING DATA ON AGRICULTURAL AND RELATED INDUSTRIES, PERFORM ANALYSES IN SUPPORT OF INTERVENTION TO REDUCE FATALITIES AND TRAUMATIC INJURIES, AND COORDINATE PUBLIC, STATE AND FEDERAL AGENTS TOWARD A UNIFORM AGRICULTURAL SURVEILLANCE SYSTEM.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ANALYSES TO CHARACTERIZE SOURCE-SPECIFIC AGRICULTURAL INJURIES.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: DISSEMINATION OF FACE

BEGIN DATE: 10/86 END DATE: C DIV: DSR

CAN: 864 PROJECT OFFICER: CHIEF, AIS,

PURPOSE: THIS PROJECT WILL USE VARIOUS METHODS OF DISSEMINATION OF FACE-RELATED INFORMATION TO ENABLE INTERVENTION STRATEGIES TO BE DEVELOPED THAT REACH INDUSTRY AND LABOR ORGANIZATIONS CONCERNED WITH THE CAUSES OF WORK-RELATED FATALITIES. A PUBLIC SERVICE ANNOUNCEMENT AND FOUR NIOSH ALERTS WILL BE DEVELOPED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FACE-RELATED FINDINGS WILL BE DISSEMINATED THROUGH PUBLICATIONS AND PRESENTATIONS. THE CONFINED SPACE PUBLIC SERVICE ANNOUNCEMENT WILL BE PRODUCED AND DISTRIBUTED.

TITLE: STUDY OF LINEMAN-RELATED FATALITIES AND INJURIES

BEGIN DATE: 10/86 END DATE: 09/90 DIV: DSR

CAN: 878 PROJECT OFFICER: COLLINS, JAMES W

PURPOSE: THIS PROJECT WILL IDENTIFY INJURY RISK FACTORS FOR UTILITY LINEMEN AND DEVELOP EFFECTIVE INTERVENTION HAZARD CONTROL STRATEGIES TO REDUCE THE RISK OF INJURY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FINALIZE STUDY PROTOCOL AND OBTAIN APPROPRIATE STUDY CLEARANCES.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: STUDY OF DOZER-RELATED FATALITIES AND INJURIES

BEGIN DATE: 10/86 END DATE: 09/90 DIV: DSR

CAN: 879 PROJECT OFFICER: STANEVICH, RONALD L

PURPOSE: THIS PROJECT WILL IDENTIFY INJURY RISK FACTORS FOR DOZER OPERATORS AND DEVELOP EFFECTIVE INTERVENTION/HAZARD CONTROL STRATEGIES TO REDUCE THE RISK OF INJURY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FINALIZE STUDY PROTOCOL AND OBTAIN APPROPRIATE STUDY CLEARANCES.

TITLE: CENTER FOR EXCELLENCE IN CONSTRUCTION SAFETY

BEGIN DATE: 09/86 END DATE: 09/89 DIV: DSR

CAN: 882 PROJECT OFFICER: PIZATELLA, TIMOTHY J

PURPOSE: THIS PROJECT WILL ESTABLISH A CENTRAL CLEARINGHOUSE FOR CONSTRUCTION SAFETY INFORMATION WHICH INCLUDES A COMPUTERIZED DATA BASE, AND WILL DEVELOP TRAINING COURSES TO ADDRESS THE NEED FOR INTEGRATING SAFETY AND HEALTH TOPICS INTO ENGINEERING CURRICULA, AND FOR TRAINING OTHER PROFESSIONALS WITHIN THE CONSTRUCTION INDUSTRY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP AND PUBLISH A QUARTERLY NEWSLETTER ON CONSTRUCTION SAFETY; DEVELOP THREE-HOUR COURSE IN CONSTRUCTION SAFETY FOR UNDERGRADUATE CIVIL ENGINEERS.

PROGRAM AREA: SEVERE OCCUPATIONAL TRAUMATIC INJURIES

TITLE: IDENTIFICATION OF RISK FACTORS FOR ROBOTIC WORKSTATIONS

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DSR

CAN: 884 PROJECT OFFICER: ETHERTON, JOHN R

PURPOSE: THIS PROJECT WILL ATTEMPT TO IDENTIFY ACCURATE RISK FACTOR DATA FOR EXPOSURES AT ROBOTIC WORKSTATIONS, ESPECIALLY FOR MAINTENANCE AND PROGRAMMER OCCUPATIONS. ALSO, THIS PROJECT WILL PROVIDE DESIGN INFORMATION FOR THE LOCATION AND CONFIGURATION OF EMERGENCY STOP BUTTONS ON TEACH PENDANTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REPORT FINDINGS ON RISK FACTOR IDENTIFICATION; COMPLETE DEVELOPMENT OF TEACH PENDANT SIMULATOR AND INITIATE DATA COLLECTION.

TITLE: CURRICULUM DEVELOPMENT - VIDEO

BEGIN DATE: 10/77 END DATE: C DIV: DTMD

CAN: 778 PROJECT OFFICER: SINCLAIR, RAYMOND C

PURPOSE: THROUGH THE DEVELOPMENT OF A SERIES OF VIDEOTAPES ON OCCUPATIONAL DERMATOLOGICAL CONDITIONS, MANUAL LIFTING, ROBOTICS, AND MECHANICAL POWER PRESSES, HAZARD COMMUNICATION INFORMATION FOR CONTROL MEASURES WILL BE PROVIDED TO DIVERSE AUDIENCES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP TWO VIDEO TAPES (VT'S) ON DERMA. COND. & MUSCU. INJ. FOR A WORKER AUDIENCE, ONE ON ROBOTICS FOR ENG. STUD. & 2 VT'S ON POWER PRESSES & HAZ COMM. FOR MGRS.

PROGRAM AREA: OCCUPATIONAL CARDIOVASCULAR DISEASES

TITLE: CELLULAR AND MOLECULAR CARDIAC TOXICOLOGY

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DBBS

CAN: 285 PROJECT OFFICER: TORAASON, MARK

PURPOSE: IN VITRO METHODS WILL BE DEVELOPED AND TESTED AS ALTERNATIVES TO USING WHOLE ANIMALS FOR SCREENING POTENTIAL CARDIOTOXINS, AND FOR EVALUATING MECHANISMS OF ACTION OF KNOWN CARDIOTOXINS. METHODS DEVELOPED WILL BE SUITABLE FOR ASSESSING HEART FUNCTION IN ADULT AS WELL AS FETAL AND NEONATAL CARDIAC TISSUE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP METHODS FOR ASSESSING HYDROCARBON-INDUCED SENSITIZATION OF CULTURED HEART CELLS TO CATECHOLAMINES, AND FOR MEASURING ELECTRON TRANSPORT, AND OXIDATIVE PHOSPHORYLATION IN HEART MITOCHONDRIA.

TITLE: CASE-CONTROL MORTALITY STUDY OF NITROGLYCERIN-EXPOSED WORKERS

BEGIN DATE: 10/84 END DATE: 09/89 DIV: DSHEFS

CAN: 577 PROJECT OFFICER: ELLIOTT, LARRY

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO NITROGLYCERIN AND THE RISK OF DEVELOPING CARDIOVASCULAR DISEASE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE FINAL REPORT OF THE COHORT MORTALITY STUDY AND THE DRAFT REPORT OF THE CASE CONTROL STUDY. COMPLETE ALL INDUSTRIAL HYGIENE METHODS DEVELOPMENT AND FIELD INVESTIGATIONS.

PROGRAM AREA: OCCUPATIONAL CARDIOVASCULAR DISEASES

TITLE: MORTALITY SURVEILLANCE OF OCCUPATION AND INDUSTRY

BEGIN DATE: 10/80 END DATE: C DIV: DSHEFS

CAN: 633 PROJECT OFFICER: BURNETT, CAROL A

PURPOSE: BY THE LATTER PART OF THIS DECADE, OCCUPATIONAL HEALTH RESEARCHERS WILL HAVE THE DATA RESOURCES NECESSARY TO MONITOR U.S. OCCUPATIONAL AND INDUSTRIAL MORTALITY DIFFERENTIALS, TO ASSIST IN IMPLEMENTATION OF THE NATIONAL STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE CONDUCT OF INDUSTRY/OCCUPATION CODING TRAINING.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: BEHAVIORAL TERATOLOGY OF ALCOHOL SOLVENTS

BEGIN DATE: 10/82 END DATE: 09/88 DIV: DBBS

CAN: 276 PROJECT OFFICER: BRIGHTWELL, W S

PURPOSE: REPRODUCTIVE HAZARDS OF ALCOHOL SOLVENTS USING TERATOLOGICAL AND NEUROBEHAVIORAL INDICES OF TOXICITY WILL BE EVALUATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE TESTING OF FINAL (T-BUTANOL) ALCOHOL FOR BEHAVIORAL TERATOGENICITY, AND PUBLISH RESULTS OF MORPHOLOGICAL AND BEHAVIORAL TERATOGENICITY FOR ALCOHOL SOLVENTS OF VARYING CHAIN LENGTH.

TITLE: METHODS FOR ASSESSING REPRODUCTION POTENTIAL IN FEMALES

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DBBS

CAN: 287 PROJECT OFFICER: SCHRADER, STEVEN M

PURPOSE: THE POTENTIAL OF CURRENTLY AVAILABLE METHODS TO ASSESS REPRODUCTIVE FUNCTION IN FEMALES WILL BE EVALUATED AND THE MOST USEFUL METHOD(S) WILL BE INCORPORATED INTO A DBBS PROFILE WHICH WILL BE USED TO ASSESS REPRODUCTIVE HAZARDS TO FEMALES IN THE WORKPLACE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROCURE NECESSARY SUPPLIES AND EQUIPMENT; SET UP LABORATORY. DEVELOP AND TEST SELECTED ASSAYS.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: METHODS FOR DETERMINING EVIDENCE OF MUTATIONS DURING SPERMATOGENESIS

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DBBS

CAN: 289 PROJECT OFFICER: SCHRADER, STEVEN M

PURPOSE: THE POTENTIAL OF CURRENTLY AVAILABLE METHODS TO ASSESS GERM CELL MUTATIONS WILL BE EVALUATED AND THE MOST USEFUL METHOD(S) WILL BE INCORPORATED INTO THE CURRENT DBBS SEMEN PROFILE TO ASSESS REPRODUCTION HAZARDS IN THE OCCUPATIONAL ENVIRONMENT.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REVIEW LITERATURE; CONTACT EXPERTS IN THE FIELD; AND SELECT METHODS TO BE EVALUATED.

TITLE: SEMEN ANALYSIS IN ANIMAL, LONGITUDINAL AND FIELD STUDIES

BEGIN DATE: 10/84 END DATE: 09/88 DIV: DBBS

CAN: 307 PROJECT OFFICER: SCHRADER, STEVEN M

PURPOSE: THIS PROJECT WILL PROVIDE BASELINE DATA ON SEMEN CHARACTERISTICS OF HEALTHY, UNEXPOSED MEN WHICH WILL BE USED TO INTERPRET REPRODUCTIVE EFFECTS OBSERVED IN OCCUPATIONAL GROUPS. ANIMAL STUDIES WILL TEST FOR INTERSPECIES EXTRAPOLATION OF EXPOSURE EFFECTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
HOLD SYMPOSIUM ADDRESSING REPRODUCTIVE HAZARDS IN THE WORKPLACE. ANALYZE SEMEN QUALITY OF WORKERS EXPOSED TO RF RADIATION. CONDUCT SIMILAR ANALYSES ON ANIMALS IN CONJUNCTION WITH NIEHS.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: IN VITRO SYSTEMS FOR HUMAN BIOLOGICAL MONITORING

BEGIN DATE: 10/87 END DATE: 09/90 DIV: DBBS

CAN: 317 PROJECT OFFICER: RICHARDS, DONALD E

PURPOSE: THIS PROJECT WILL EVALUATE AND IMPLEMENT AN IN VITRO HUMAN TISSUE CULTURE METHOD FOR THE DETERMINATION OF METABOLIC PROFILES OF OCCUPATIONALLY RELEVANT CHEMICALS. THESE METABOLIC PROFILES WILL BE UTILIZED TO EXPEDITE DEVELOPMENT OF BIOLOGICAL MONITORING METHODS TO DETERMINE WORKER EXPOSURE TO SUSPECTED OCCUPATIONAL TOXICANTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROCURE 14C-LABELED DIGLYME. DEVELOP METHODS FOR IN VITRO METABOLISM STUDIES AND PREPARE SOFS.

TITLE: EVALUATION OF DROSOPHILA FOR TERATOGEN SCREENING

BEGIN DATE: 10/81 END DATE: 09/88 DIV: DBBS

CAN: 344 PROJECT OFFICER: LYNCH, DENNIS W

PURPOSE: THIS PROJECT WILL RESULT IN THE DEVELOPMENT AND EVALUATION OF A TEST SYSTEM USING DROSOPHILA MELANOGASTER TO SCREEN CHEMICALS FOR POTENTIAL AS MAMMALIAN TERATOGENS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE TO MONITOR THE PROGRESS OF THE CONTRACT VALIDATING THE DROSOPHILA TEST SYSTEM. COMPLETE THE 94 SCHEDULED TESTS. SUBMIT MANUSCRIPT ASSESSING TEST SYSTEM TO A PEER-REVIEWED JOURNAL.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: EPIDEMIOLOGIC STUDY OF RADIOFREQUENCY HEATER OPERATORS

BEGIN DATE: 10/84 END DATE: 09/91 DIV: DBBS

CAN: 358 PROJECT OFFICER: COX, CLINTON

PURPOSE: THIS PROJECT WILL DETERMINE IF OCCUPATIONAL RF RADIATION EXPOSURE IS RELATED TO REDUCED SEMEN QUALITY IN MEN OR ADVERSE REPRODUCTIVE OUTCOMES IN WOMEN. SEMEN QUALITY PARAMETERS, BLOOD HORMONE LEVELS, AND RELATIVE DENATURATION OF SEMEN DNA WILL SERVE AS ENDPOINTS OF MALE EFFECTS. FOR WOMEN, A QUESTIONNAIRE WILL BE USED TO EVALUATE PREGNANCY OUTCOMES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FOR MALE STUDY, COMPLETE DATA COLLECTION AND LABORATORY ANALYSES OF FIELD SAMPLES, AND CONDUCT INITIAL DATA ANALYSIS.

TITLE: RF-INDUCED BODY CURRENT AND ABSORBED POWER DETERMINATIONS

BEGIN DATE: 10/87 END DATE: 09/89 DIV: DBBS

CAN: 363 PROJECT OFFICER: CONOVER, DAVID L

PURPOSE: THIS PROJECT WILL DEVELOP IMPROVED INSTRUMENTATION AND MEASUREMENT TECHNIQUES TO QUANTIFY BODY CURRENTS INDUCED IN WORKERS EXPOSED TO LOW FREQUENCY RF SOURCES. THE BODY CURRENT MEASUREMENTS WILL THEN BE RELATED TO ABSORBED ENERGY RATES, INCIDENT FIELDS AND POTENTIAL ADVERSE REPRODUCTIVE HEALTH EFFECTS IN EXPOSED WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP AND TEST IMPROVED RF BODY CURRENT METER AND METHODOLOGY; CONSTRUCT RF HEATER SIMULATION FACILITY; DETERMINE RELATIONSHIP BETWEEN RF FIELDS (E-FIELD), BODY CURRENTS AND ABSORBED ENERGY RATE.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: INTERACTION OF CHEMICAL TOXINS WITH RF RADIATION EXPOSURE

BEGIN DATE: 10/87 END DATE: 03/89 DIV: DBBS

CAN: 365 PROJECT OFFICER: NELSON, BENJAMIN K

PURPOSE: THIS EXPLORATORY STUDY WILL DETERMINE IF SIMULTANEOUS EXPOSURE TO RF RADIATION AND SELECTED CHEMICAL AGENTS CAN POTENTIATE THE TOXIC EFFECTS OF THESE AGENTS ON THE ADULT FEMALE OR THE DEVELOPING EMBRYO. POSITIVE FINDINGS WOULD SUGGEST THE NEED FOR MORE EXTENSIVE RESEARCH ON CHEMICAL AND PHYSICAL AGENT INTERACTIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SELECT CHEMICALS TO BE STUDIED AND COMPLETE STUDY PLAN.

TITLE: REPRODUCTIVE EFFECTS OF LOW FREQUENCY RF RADIATION IN RATS

BEGIN DATE: 10/83 END DATE: 09/91 DIV: DBBS

CAN: 368 PROJECT OFFICER: LARY, JOSEPH M

PURPOSE: THE EFFECTS OF ACUTE HIGH LEVEL AND SUBCHRONIC LOW LEVEL EXPOSURE TO LOW FREQUENCY (10-MHZ) RF RADIATION ON SPERMATOGENESIS, OOGENESIS, TESTICULAR AND OVARIAN ENDOCRINE FUNCTION, AND FEMALE FERTILITY IN LABORATORY RATS WILL BE EVALUATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DEVELOPMENTAL STUDY AND COMPLETE EXPOSURES AND GROSS EXAMINATIONS FOR THE SUBACUTE FEMALE STUDY.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: CONTROL OF ANESTHETIC GASES IN DENTAL OPERATORIES

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DPSE

CAN: 405 PROJECT OFFICER: MCGLOTHLIN, JAMES D

PURPOSE: THE PROJECT WILL EVALUATE AND/OR DEVELOP AND RECOMMEND CONTROLS FOR REDUCING PERSISTENT OVER-EXPOSURES TO ANESTHETIC GASES IN DENTAL OPERATORIES. THIS INFORMATION WILL BE DISSEMINATED THROUGH THE AMERICAN DENTAL ASSOCIATION AND OTHER PROFESSIONAL ORGANIZATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FINALIZE PROTOCOL, COMPLETE IN-DEPTH SURVEYS, AND COMPLETE DESIGN AND EVALUATION OF IMPROVED CONTROLS.

TITLE: MONITORING REPRODUCTIVE OUTCOMES

BEGIN DATE: 10/83 END DATE: 09/89 DIV: DSHEFS

CAN: 506 PROJECT OFFICER: SALG, JOYCE A

PURPOSE: THIS PROJECT WILL ESTABLISH A LIMITED FLOW OF BIRTH AND FETAL DEATH DATA TO DSHEFS. THESE DATA WILL BE USED TO SUPPORT THE MEASUREMENT OF SELECTED REPRODUCTIVE OUTCOMES AND THE SETTING OF PRIORITIES FOR NIOSH RESEARCH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE MATERNAL EMPLOYMENT REPORT FOR JOURNAL SUBMISSION.

PROGRAM AREA: DISORDERS OF REPRODUCTION

TITLE: REPRODUCTIVE STUDY OF FEMALE VIDEO DISPLAY TERMINAL (VDT) OPERATORS

BEGIN DATE: 10/84 END DATE: 09/89 DIV: DSHEFS

CAN: 687 PROJECT OFFICER: SCHNORR, TERESA M

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN WORKING WITH VIDEO DISPLAY TERMINALS AND THE RISK OF ADVERSE REPRODUCTIVE OUTCOMES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
OBTAIN AND EDIT ALL STUDY DATA.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: HUMAN NEUROBEHAVIORAL EFFECTS OF COMBINATION CHEMICAL EXPOSURES

BEGIN DATE: 10/87 END DATE: 03/92 DIV: DBBS

CAN: 243 PROJECT OFFICER: DICK, ROBERT B

PURPOSE: THE NEUROTOXIC AND PHARMACOKINETIC PROPERTIES OF TWO SELECTED CHEMICAL COMBINATIONS WILL BE INVESTIGATED. THE SET OF CHEMICALS IN EACH COMBINATION WILL BE SELECTED TO PRODUCE METABOLIC COMPETITION, AND DOSES WILL BE VARIED BY MANIPULATING CONCENTRATION AND WORKLOAD.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE LITERATURE REVIEW AND PROJECT PROTOCOL. HOLD PEER REVIEW.

TITLE: NEUROTOXICITY OF ALIPHATIC CARBON SOLVENTS

BEGIN DATE: 10/83 END DATE: 09/88 DIV: DBBS

CAN: 247 PROJECT OFFICER: RUSSO, JOHN M

PURPOSE: THE RELATION OF ALIPHATIC HYDROCARBON CHAIN LENGTH TO SEVERITY OF BEHAVIORAL EFFECTS (REFLEXES, COORDINATION, AND BALANCE) WILL BE EVALUATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE EXPOSURES AND BEHAVIORAL TESTING OF ANIMAL GROUPS (RATS AND MICE), AND SUBMIT FINAL REPORT ON FOUR SOLVENTS.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: METHODOLOGIES FOR WORKSITE NEUROTOXICITY EVALUATIONS

BEGIN DATE: 10/83 END DATE: 09/89 DIV: DBBS

CAN: 248 PROJECT OFFICER: ANGER, W K

PURPOSE: SCREENING, DIAGNOSTIC, AND MONITORING TESTS FOR BEHAVIORAL/NEUROLOGICAL DYSFUNCTION USED IN WORKSITE RESEARCH AND HAZARD ASSESSMENT WILL BE ASSESSED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE RELIABILITY ASSESSMENT AND INITIATE VALIDITY TESTING FOR COMPUTER-BASED AND OTHER NEUROBEHAVIORAL TEST BATTERIES.

TITLE: NEUROBEHAVIORAL EFFECTS FROM SINGLE/MIXED SPRAY PAINT AGENTS

BEGIN DATE: 10/78 END DATE: 09/88 DIV: DBBS

CAN: 272 PROJECT OFFICER: DICK, ROBERT B

PURPOSE: NEUROBEHAVIORAL EFFECTS OF ACUTE EXPOSURES TO KETONE SOLVENTS IN HUMAN SUBJECTS WILL BE INVESTIGATED IN THE LABORATORY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE SUBJECT TESTING OF MIBK/MEK EXPOSURES, DATA ANALYSIS, AND FINAL PROJECT REPORT.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: NEUROTOXICITY OF ETHYLENE AND PROPYLENE OXIDE (TERMINATION)

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DBBS

CAN: 277 PROJECT OFFICER: SETZER, JAMES V

PURPOSE: PRIMATES, PREVIOUSLY EXPOSED TO ETHYLENE OXIDE OR PROPYLENE OXIDE, WILL BE FURTHER EVALUATED FOR DELAYED NERVOUS SYSTEM IMPAIRMENT USING CORRELATIVE NEURODIAGNOSTIC AND NEUROHISTOLOGICAL TECHNIQUES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE NEURODIAGNOSTIC TESTING AND PREPARE ANIMALS FOR NEUROHISTOLOGICAL EVALUATION.

TITLE: FACTORS AFFECTING SKIN PENETRATION OF M-DET

BEGIN DATE: 10/86 END DATE: 03/89 DIV: DBBS

CAN: 347 PROJECT OFFICER: SMALLWOOD, ANTHONY W

PURPOSE: QUANTITATIVE PROCEDURES TO DETERMINE M-DET VALUES IN BLOOD AND URINE WILL BE DEVELOPED AND VALIDATED. HUMAN SUBJECTS WILL BE EXPOSED TO INSECT REPELLENTS CONTAINING M-DET UNDER VARYING HEAT CONCENTRATIONS. FACTORS AFFECTING M-DET ABSORPTION WILL BE EVALUATED BY MEASUREMENT OF M-DET IN BLOOD AND URINE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT A DEVELOPMENTAL STUDY UTILIZING HUMAN SUBJECTS TO DETERMINE THE SENSITIVITY OF THE M-DET ANALYTICAL METHODOLOGIES. SUBMIT PROJECT PROTOCOL FOR MAIN STUDY.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: SPECIAL MEASUREMENT EFFORTS: BIOLOGICAL MONITORING

BEGIN DATE: 01/88 END DATE: 09/90 DIV: DBBS

CAN: 349 PROJECT OFFICER: LOWRY, LARRY K

PURPOSE: EXPANDED SUPPORT SERVICES, INCLUDING DEVELOPMENT OF NEW ANALYTICAL METHODS, WILL BE PROVIDED VIA CONTRACT LABORATORIES TO FURTHER THE APPLICATION OF BIOLOGICAL MONITORING METHODS FOR ASSESSING WORKER EXPOSURE IN NIOSH FIELD INVESTIGATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PREPARE RFC FOR NEW ANALYTICAL METHODS DEVELOPMENT FOR SPECIAL BIOLOGICAL MONITORING APPLICATIONS.
PROVIDE EMERGENCY BIOLOGICAL MONITORING SUPPORT FOR STUDIES REQUIRING ROUTINE METHODS.

TITLE: INHALATION TOXICOLOGY RESEARCH SUPPORT

BEGIN DATE: 10/80 END DATE: C DIV: DBBS

CAN: 379 PROJECT OFFICER: KHAN, AMIR

PURPOSE: RESOURCES WILL BE MANAGED AND UTILIZED THROUGH THIS PROJECT TO CONDUCT INHALATION EXPOSURES REQUIRED FOR THE INHALATION TOXICOLOGY RESEARCH CONDUCTED WITHIN DBBS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PILOT AND EXPOSURE INHALATION STUDIES FOR SELECTED SOLVENTS, ALCOHOLS, DUSTS, AND ETHYLENE OXIDE WILL BE CONDUCTED.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: DEVELOPMENT AND EVALUATION OF BIOMONITORING METHODS FOR MEK

BEGIN DATE: 10/85 END DATE: 09/88 DIV: DBBS

CAN: 388 PROJECT OFFICER: PHIPPS, FREDERICK C

PURPOSE: BIOMONITORING METHODS FOR MEK AND ITS METABOLITES WILL BE DEVELOPED AND USED TO DEVELOP RELATIONSHIPS BETWEEN ATMOSPHERIC EXPOSURE CONCENTRATIONS AND RESULTING CONCENTRATIONS IN BODY FLUIDS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE URINE SAMPLES COLLECTED FROM HUMAN SUBJECTS EXPOSED TO MEK WILL BE ANALYZED. RELATIONSHIPS BETWEEN METABOLITE AND EXPOSURE LEVELS WILL BE EXAMINED AND A REPORT SUITABLE FOR A SCIENTIFIC JOURNAL PREPARED.

TITLE: CONTROL OF METHYLENE CHLORIDE IN FURNITURE STRIPPING

BEGIN DATE: 10/87 END DATE: 09/89 DIV: DPSE

CAN: 418 PROJECT OFFICER: JENSEN, PAUL W

PURPOSE: THE PROJECT WILL RECOMMEND CONTROLS FOR METHYLENE CHLORIDE, A NEUROTOXIN AND CARCINOGEN, IN FURNITURE STRIPPING. THIS IS AN INDUSTRY MADE UP OF MOSTLY SMALL BUSINESSES WITH NO OCCUPATIONAL HEALTH EXPERTISE. DSHEFS REPORTS CURRENT EXPOSURES ARE VERY HIGH.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE INITIAL LITERATURE REVIEW AND 5 WALK-THROUGH SURVEYS.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: ANALYTICAL METHOD FOR TOTAL HYDROCARBONS ON CHARCOAL

BEGIN DATE: 07/88 END DATE: 06/90 DIV: DPSE

CAN: 438 PROJECT OFFICER: LUNSFORD, ROBERT A

PURPOSE: THE PROJECT WILL PROVIDE IMPROVED ENVIRONMENTAL MONITORING METHODS NEEDED TO SUPPORT EXPOSURE SURVEILLANCE AND EVALUATION STUDIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
INSTALL ATMOSPHERIC-PRESSURE MICROWAVE CAVITY AND VERIFY INSTRUMENT PERFORMANCE.

TITLE: MONITORING TECHNIQUES FOR CHEMICAL AGENTS

BEGIN DATE: 03/87 END DATE: 09/88 DIV: DPSE

CAN: 449 PROJECT OFFICER: POSNER, JUDD C

PURPOSE: IMPROVED SENSITIVITY MONITORING TECHNIQUES WILL BE EVALUATED/DEVELOPED. THIS INCLUDES EVALUATING/COMPARING EXISTING METHODOLOGIES AND OPTIMIZATION OF ANALYTICAL PROCEDURES. PARTICULAR ATTENTION WILL BE PAID TO SAMPLING HIGH RELATIVE HUMIDITY ATMOSPHERES. AN INTERLABORATORY QUALITY ASSURANCE PROGRAM FOR THESE METHODS WILL BE DEVELOPED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE DATA AND PROVIDE CONSULTATION WORK IN CHEMICAL WEAPONS DISPOSAL AREA.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: AN ASSESSMENT OF THE EFFECTIVENESS OF OSHA'S LEAD STANDARD

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DSHEFS

CAN: 515 PROJECT OFFICER: SELIGMAN, PAUL J

PURPOSE: BY IDENTIFYING INDUSTRIES WITH CURRENT PROBLEMS CONTROLLING LEAD EXPOSURE, SURVEILLANCE EFFORTS AND PREVENTION STRATEGIES CAN BE FOCUSED TO ELIMINATE OCCUPATIONAL LEAD POISONING.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE 50% OF THE PLANNED SURVEYS.

TITLE: DIOXIN MORBIDITY AND REPRODUCTIVE STUDY OF U.S. CHEMICAL WORKERS

BEGIN DATE: 10/84 END DATE: 09/90 DIV: DSHEFS

CAN: 849 PROJECT OFFICER: SWEENEY, MARIE HARING L

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN EXPOSURE TO DIOXIN AND THE RISK OF DEVELOPING DISEASE, INCLUDING NEUROLOGIC DISEASE, REPRODUCTIVE DISORDERS, AND OTHERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE INTERVIEWS FOR PHASE II WORKERS AND REFERENTS.

PROGRAM AREA: NEUROTOXIC DISORDERS

TITLE: PROJECT MINERVA COOPERATIVE AGREEMENT

BEGIN DATE: 10/87 END DATE: 09/91 DIV: DTMD

CAN: 772 PROJECT OFFICER: BERBERICH, NORBERT J

PURPOSE: THE COOPERATIVE AGREEMENT WILL ALLOW NIOSH TO WORK CLOSELY WITH AN EXTERNAL ACADEMIC-BASED ORGANIZATION TO EXPEDITE THE IMPLEMENTATION OF PROJECT MINERVA INTO THE ENTIRE BUSINESS SCHOOL CURRICULUM.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
OUTPUTS WILL INCLUDE ASSISTING THE AWARDEE WITH REGIONAL WORKSHOPS, ADDING 10 NEW SCHOOLS OF BUSINESS, ATTENDING THE ACADEMY OF MANAGEMENT MEETING, AND MONITORING THE COOPERATIVE AGREEMENT.

TITLE: EDUCATIONAL RESOURCE DEVELOPMENT - PROJECT MINERVA

BEGIN DATE: 10/83 END DATE: 09/91 DIV: DTMD

CAN: 776 PROJECT OFFICER: WALTERS, JAMES B

PURPOSE: THIS PROJECT WILL SERVE AS THE MAJOR RESOURCE FOR PROVIDING BUSINESS FACULTY THROUGHOUT THE U.S. WITH OS&H CURRICULUM MATERIALS DESIGNED FOR CLASSROOM INSTRUCTIONS. GRADUATES OF BUSINESS PROGRAMS WILL BE MORE KNOWLEDGEABLE ABOUT OSH ISSUES & THEIR IMPACT ON THE OPERATIONS & PROFITABILITY OF ORGANIZATIONS IN WHICH THEY ARE EMPLOYED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP THREE NEW S/H MODULES; DEVELOP CURRICULUM MATRIX AND TEST BANK; ATTEND PROFESSIONAL MEETINGS; COMPLETE ASSESSMENT OF OS&H TEXT/PUBLISHERS; DISSEMINATE NEW MINERVA MATERIALS TO PARTICIPATING SCHOOLS.

PROGRAM AREA: NOISE-INDUCED HEARING LOSS

TITLE: MONITORING OF INDUSTRIAL HEARING LOSS

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DBBS

CAN: 352 PROJECT OFFICER: DUNN, DEREK E

PURPOSE: THIS PROJECT WILL FURNISH GUIDELINES FOR INDUSTRIAL HEARING CONSERVATION PROGRAMS AND WILL DEFINE "NORMAL" HEARING LEVELS THAT CAN SERVE AS BASELINE VALUES FOR EVALUATING PROGRAM EFFECTIVENESS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE EVALUATION OF PILOT NHANES III AUDIOMETRIC DATA PROCEDURES. COMPLETE ANALYSIS OF AN INDUSTRIAL AUDIOMETRIC DATABASE. DEVELOP GUIDELINES FOR EFFECTIVE HEARING CONSERVATION PROGRAMS.

TITLE: CONSTANT NOISE POWER SPECTRUM: AUDITORY EFFECTS

BEGIN DATE: 09/85 END DATE: 09/88 DIV: DBBS

CAN: 353 PROJECT OFFICER: DUNN, DEREK E

PURPOSE: THIS PROJECT WILL EVALUATE HEARING HAZARDS FROM EXPOSURE TO IMPULSE NOISE RELATIVE TO CONTINUOUS NOISE OF THE SAME POWER SPECTRUM. SUCH DETERMINATIONS WILL INDICATE WHETHER THE TEMPORAL CHARACTERISTICS OF IMPULSE NOISE REQUIRE EXTRA PRECAUTIONS WHEN PROTECTING THE EAR FROM NOISE-INDUCED HEARING LOSS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COLLECT AND ANALYZE HEARING DATA OBTAINED FROM NOISE-EXPOSED CHINCHILLAS. COMPLETE MANUSCRIPT FOR PUBLICATION.

PROGRAM AREA: NOISE-INDUCED HEARING LOSS

TITLE: HEARING PROTECTOR EFFECTS ON COMMUNICATION

BEGIN DATE: 09/86 END DATE: 09/88 DIV: DBBS

CAN: 362 PROJECT OFFICER: LEMPERT, BARRY L

PURPOSE: THIS PROJECT WILL PROVIDE SPEECH TEST RESULTS WHICH INDICATE THE EFFECT OF HEARING PROTECTORS ON SPEECH DISCRIMINATION FOR INDUSTRIAL WORKERS EXPOSED TO HIGH LEVELS OF NOISE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT LABORATORY STUDY. SUBMIT HEARING PROTECTOR REVIEW ARTICLE FOR PUBLICATION. COMPLETE STUDY REPORT FOR PUBLICATION.

TITLE: OPTIMIZATION OF SPEECH FOR COMMUNICATIVE/PROTECTIVE DEVICES

BEGIN DATE: 10/87 END DATE: 09/89 DIV: DBBS

CAN: 364 PROJECT OFFICER: FRANKS, JOHN R

PURPOSE: SPEECH RECORDED IN THE TALKER'S EAR CANAL WILL BE EVALUATED TO DETERMINE IF IT CAN BE USED IN A COMMUNICATION/HEARING-PROTECTION SYSTEM. THE EVALUATION WILL INCLUDE THE ASSESSMENT OF ITS UTILITY FOR APPLICATION IN NOISY ENVIRONMENTS AS WELL AS FOR WORKERS WHO HAVE PRE-EXISTING HEARING LOSS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE LITERATURE REVIEW; COMPLETE STUDY PROTOCOL; ACQUIRE ALL INSTRUMENTATION; AND CONDUCT PEER REVIEW.

PROGRAM AREA: DERMATOLOGICAL CONDITIONS

TITLE: CPC INFORMATION COLLECTION/DISSEMINATION

BEGIN DATE: 10/84 END DATE: 09/88 DIV: DSR

CAN: 774 PROJECT OFFICER: RODER, MICHAEL M

PURPOSE: THIS PROJECT WILL DEVELOP A DECISION LOGIC FOR THE SELECTION OF CPC BASED ON PERMEATION PROPERTIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP AND PUBLISH CPC DECISION LOGIC. TRANSMIT TO OSHA, EPA, ASTM, CEH, ATSDR, AND NTIS.

TITLE: DERMAL EXPOSURE LIMITS

BEGIN DATE: 12/87 END DATE: 09/88 DIV: DSR

CAN: 788 PROJECT OFFICER: CHIEF, PES (VACANT),

PURPOSE: PROJECT WILL ASSESS THE FEASIBILITY OF UTILIZING "DERMAL EXPOSURE LIMITS" AS A BASIS FOR INTERPRETING THE HEALTH SIGNIFICANCE OF THE PERMEATION RATES NOW ROUTINELY MEASURED IN TESTS OF CHEMICAL PROTECTIVE CLOTHING (CPC).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ELEMENTARY METHODS FOR ESTIMATING SYSTEMIC TOXIC BURDEN TO WEARERS OF CPC WILL BE DEVELOPED AND INCLUDED IN REPORT TO DIRECTOR, DSR.

PROGRAM AREA: DERMATOLOGICAL CONDITIONS

TITLE: TRANSPORT OF LIQUIDS THROUGH POLYMERS

BEGIN DATE: 01/88 END DATE: 09/88 DIV: DSR

CAN: 789 PROJECT OFFICER: MICKELSEN, RONALD L

PURPOSE: THIS PROJECT WILL EVALUATE THE PARAMETERS INVOLVED IN TRANSPORT OF ORGANIC LIQUIDS THROUGH NITRILE RUBBER AND WILL DETERMINE THE CORRELATION OF THESE MEASUREMENTS AS THEY RELATE TO THE POLYMER COMPOSITION (PERCENT OF MONOMER) AND POLYMER FABRICATION PROCESS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
REPORT TO DIVISION DIRECTOR WILL DETAIL THE ROLE OF MANUFACTURING PROCESSES IN DETERMINING THE PERFORMANCE OF CHEMICAL PROTECTIVE CLOTHING (CPC).

TITLE: PHYSIOLOGICAL RESPONSES TO THE WEARING OF DISPOSABLE COVERALLS

BEGIN DATE: 10/86 END DATE: C DIV: DSR

CAN: 812 PROJECT OFFICER: KNOWLES, DONALD F

PURPOSE: THE PROJECT WILL DEVELOP FUNCTIONAL RELATIONSHIPS BETWEEN THE PHYSIOLOGICAL RESPONSES TO ENVIRONMENTAL CONDITIONS, WORK RATES, AND PROTECTIVE EQUIPMENT ENSEMBLES. THESE RELATIONSHIPS WILL BE USED TO DEFINE SAFE WORK PRACTICES FOR THE USE OF PROTECTIVE EQUIPMENT AND MEASURES RECOMMENDED IN THE ABOVE STRATEGY.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT LITERATURE SEARCH, DEVELOP PROTOCOL, AND BEGIN VALIDATION STUDIES OF PREDICTIVE MODELS.

PROGRAM AREA: DERMATOLOGICAL CONDITIONS

TITLE: SIMPLE BREAKTHROUGH TEST EVALUATION

BEGIN DATE: 10/86 END DATE: 09/88 DIV: DSR

CAN: 813 PROJECT OFFICER: RODER, MICHAEL M

PURPOSE: THIS PROJECT WILL DEVELOP A METHOD TO EASILY OBTAIN THE BREAKTHROUGH TIME OF CHEMICALS THROUGH CPC WITHOUT REQUIRING SOPHISTICATED ANALYTICAL EQUIPMENT AND EXPERTISE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEFINE OPERATING PARAMETERS OF COLORIMETRIC METHOD. PERFORM CORRELATION STUDIES COMPARING RESULTS WITH ASTM F739 PERMEATION METHOD. COMPLETE TEST METHOD.

TITLE: SEMI-AUTOMATIC VAPOR PERMEATION TEST SYSTEM

BEGIN DATE: 10/86 END DATE: 09/89 DIV: DSR

CAN: 823 PROJECT OFFICER: BERARDINELLI, STEPHEN P

PURPOSE: THIS PROJECT WILL PERMIT CONSTRUCTION AND PRELIMINARY EVALUATION OF A SEMI-AUTOMATED SYSTEM TO MONITOR AND EVALUATE VAPOR PERMEATION THROUGH CPC. STANDARDIZED VAPOR TEST METHODS FOR CPC DO NOT NOW EXIST.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
IN-DEPTH EVALUATIONS OF A PROTOTYPE TEST SYSTEM WILL BE CONDUCTED.

PROGRAM AREA: DERMATOLOGICAL CONDITIONS

TITLE: PERSONAL PROTECTION FOR PESTICIDE APPLICATORS

BEGIN DATE: 10/87 END DATE: 12/88 DIV: DSR

CAN: 829 PROJECT OFFICER: BERARDINELLI, STEPHEN P

PURPOSE: THIS PROJECT WILL EVALUATE GUIDELINES FOR PROPER SELECTION AND USE OF PROTECTIVE EQUIPMENT, PESTICIDE LABELING, AND APPLICATION TECHNIQUES FOR PESTICIDE APPLICATORS. A REPORT RECOMMENDING FUTURE ROLE OF NIOSH/DSR WILL BE SUBMITTED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
A LITERATURE REVIEW WILL BE COMPLETED AND SITE VISITS WILL BE CONDUCTED. DRAFT REPORT WILL BE PEER REVIEWED. FINAL REPORT SUBMITTED TO DIRECTOR, DSR.

TITLE: PESTICIDE PERMEATION

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DSR

CAN: 833 PROJECT OFFICER: BERARDINELLI, STEPHEN P

PURPOSE: AGRICULTURAL WORKERS WHO HANDLE PESTICIDES ARE AT HIGH RISK DUE TO DERMAL ABSORPTION OF THESE CHEMICALS. THIS PROJECT WILL EVALUATE A PERMEATION TEST METHOD FOR USE WITH PESTICIDES SO THAT SUCH EXPOSURES ARE MINIMIZED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PARTICIPATING LABORATORIES WILL EVALUATE THE ASTM F23 PESTICIDE PERMEATION TEST METHOD.

PROGRAM AREA: DERMATOLOGICAL CONDITIONS

TITLE: EDUCATIONAL RESOURCE DEVELOPMENT - GRANTS PROGRAM MANAGEMENT

BEGIN DATE: 10/77 END DATE: C DIV: DTMD

CAN: 764 PROJECT OFFICER: THELEN, DAVID S

PURPOSE: THIS PROJECT SPECIFICALLY ADDRESSES SECTION 21 OF THE OSH ACT WHICH CALLS FOR AN ADEQUATE SUPPLY OF QUALIFIED PERSONNEL TO CARRY OUT THE PURPOSES OF THE ACT. IT SUPPORTS ACADEMIC PROGRAMS BY BUILDING THE OSH PROFESSIONAL WORK FORCE FOR IMPLEMENTATION OF THE NIOSH STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
TO PROVIDE FINANCIAL SUPPORT TO 14 ERC'S AND 26 PROJECT GRANTS.

PROGRAM AREA: PSYCHOLOGICAL DISORDERS

TITLE: OCCUPATIONAL INCIDENCE OF STRESS DISORDERS

BEGIN DATE: 10/83 END DATE: 09/89 DIV: DBBS

CAN: 240 PROJECT OFFICER: MURPHY, LAWRENCE R

PURPOSE: THE USEFULNESS OF SOCIAL SECURITY DISABILITY DATA BASES FOR IDENTIFYING AND TRACKING PSYCHOLOGICAL DISORDERS WITH RESPECT TO OCCUPATION AND JOB CHARACTERISTICS WILL BE EVALUATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SSA ALLOWANCE DATA FOR 1978 WILL BE ANALYZED TO CORROBORATE THE 1978 SSA SURVEY FINDINGS REGARDING JOB RISK FACTORS IN MENTAL AND CIRCULATORY DISABILITIES.

TITLE: METHODS FOR RATING JOB STRESS/STRAIN

BEGIN DATE: 10/83 END DATE: 09/89 DIV: DBBS

CAN: 242 PROJECT OFFICER: HURRELL, JOSEPH J

PURPOSE: IMPROVED METHODS FOR ASSESSING STRESS FACTORS FOR PURPOSES OF DETECTING STRESSFUL JOB CONDITIONS AND PROMOTING MORE UNIFORM APPROACHES TO ASSESSING JOB STRESS AND STRAIN WILL BE DEVELOPED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DATA COLLECTED USING AN IMPROVED PSYCHOMETRIC INSTRUMENT WILL BE ANALYZED AND AN INTERIM REPORT WILL BE PREPARED ON THE MERITS OF THE TECHNIQUE.

PROGRAM AREA: PSYCHOLOGICAL DISORDERS

TITLE: DEFINITION OF SUCCESSFUL INTERVENTIONS FOR STRESS CONTROL

BEGIN DATE: 10/87 END DATE: 12/88 DIV: DBBS

CAN: 254 PROJECT OFFICER: SAUTER, STEVEN L

PURPOSE: PROJECT WILL CONVENE A WORKSHOP TO EVALUATE THE MERITS OF INDUSTRY INTERVENTIONS TO CONTROL STRESS ARISING IN COMPUTER-MEDIATED INFORMATION/OFFICE WORK.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
SOLICIT, EVALUATE, AND FINALIZE CONTRIBUTIONS; CONDUCT THE WORKSHOP TO EVALUATE INTERVENTION EFFORTS.

TITLE: STRESS REDUCTION FOR NURSING HOME STAFF

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DBBS

CAN: 255 PROJECT OFFICER: MURPHY, LAWRENCE

PURPOSE: THIS DEVELOPMENTAL PROJECT WILL EXPLORE THE POTENTIAL FOR MUSCULOSKELETAL AND STRESS-RELATED DISORDERS IN GERIATRIC RESIDENTIAL NURSING CARE FACILITIES AND CONSIDER INTERVENTION OPTIONS FOR THEIR CONTROL.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONDUCT SITE VISITS/STAFF INQUIRIES IN NOT MORE THAN EIGHT PUBLIC AND PRIVATE GERIATRIC RESIDENTIAL NURSING CARE FACILITIES TO OBSERVE WORK PRACTICES REGARDING STRESS/ERGONOMIC PROBLEMS AND REMEDIAL OPTIONS.

PROGRAM AREA: PSYCHOLOGICAL DISORDERS

TITLE: STRESS CONTROL STRATEGIES IN COMPUTER-MEDIATED WORK

BEGIN DATE: 10/85 END DATE: 09/89 DIV: DBBS

CAN: 256 PROJECT OFFICER: SAUTER, STEVEN L

PURPOSE: WORKER AND JOB DESIGN FOCUSED METHODS FOR PREVENTING STRESS IN COMPUTER-MEDIATED WORK WILL BE TESTED. FINDINGS CAN PROVIDE AN EMPIRICAL BASIS FOR NIOSH DECISIONS ON RECOMMENDATIONS OF SUCH METHODS, AND FOR MANAGEMENT/WORKER DECISIONS ON THEIR IMPLEMENTATION IN THE WORKPLACE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FINALIZE PROTOCOL AND CONDUCT PEER REVIEW FOR TESTING REST/BREAK CONDITIONS, AND INITIATE EXPERIMENTATION.

TITLE: COMPUTERIZED WORK MEASUREMENT: IMPLICATIONS FOR JOB STRESS

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DBBS

CAN: 257 PROJECT OFFICER: SCHLEIFER, LAWRENCE M

PURPOSE: EXPLORATORY WORK WILL BE CONDUCTED TO CHARACTERIZE CURRENT COMPUTERIZED WORK MEASUREMENT PRACTICES AND EXAMINE THEIR IMPLICATIONS FOR JOB STRESS. RECOMMENDATIONS FOR EMPIRICAL RESEARCH TO INVESTIGATE WORKER STRESS REACTIONS TO COMPUTERIZED WORK MEASUREMENT PRACTICES WILL BE FORMULATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MEET WITH MANAGERS AND ASSESS AVAILABILITY/UTILITY OF DATA SOURCES FOR EVALUATION OF COMPUTERIZED WORK MEASUREMENT PRACTICES/STRESS EFFECTS. RECOMMEND RESEARCH TO CLARIFY STRESS IMPLICATIONS AND CONTROL MEASURES.

PROGRAM AREA: PSYCHOLOGICAL DISORDERS

TITLE: JOB STRESS IN VDT WORK

BEGIN DATE: 10/78 END DATE: 06/88 DIV: DBBS

CAN: 267 PROJECT OFFICER: SCHLEIFER, LAWRENCE M

PURPOSE: JOB ORGANIZATIONAL AND ERGONOMIC FACTORS THAT CONTRIBUTE TO STRESS IN VDT WORK WILL BE INVESTIGATED AND CONTROL MEASURES ADDRESSING PROBLEMATIC CONDITIONS WILL BE FORMULATED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE LAB TESTING AND DATA ANALYSES FOR COMPUTER FEEDBACK OF WORK PERFORMANCE STUDY. SUBMIT FINAL REPORT ON RESULTS OF PERFORMANCE FEEDBACK STUDY TO DIRECTOR, DBBS.

TITLE: STRESS IN INFORMATION PROCESSING

BEGIN DATE: 10/81 END DATE: 06/88 DIV: DBBS

CAN: 288 PROJECT OFFICER: HURRELL, JOSEPH J

PURPOSE: THE BASIS FOR ASSESSING COGNITIVE TASK DEMANDS AS A STRESS FACTOR IN INFORMATION PROCESSING WORK WILL BE PROVIDED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE ANALYSES AND FINAL REPORT ON RESULTS FOR STUDIES EXAMINING MERITS OF PSYCHOMETRIC TECHNIQUES FOR MEASURING COGNITIVE LOAD.

PROGRAM AREA: PSYCHOLOGICAL DISORDERS

TITLE: IMMUNOTOXICOLOGIC METHODS FOR CLINICAL ASSESSMENTS

BEGIN DATE: 10/87 END DATE: 09/88 DIV: DBBS

CAN: 346 PROJECT OFFICER: HENNINGSEN, GERRY M

PURPOSE: THIS PROJECT WILL DEVELOP AND ESTABLISH IMMUNOTOXICITY ASSAYS THAT WILL PROVIDE ENHANCED CAPABILITY FOR ASSESSING HEALTH EFFECTS RELATED TO EXPOSURE TO CHEMICAL OR PHYSICAL AGENTS AND/OR PSYCHOLOGICAL STRESSORS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
A PANEL OF VALIDATED IMMUNOASSAYS WILL BE ESTABLISHED FOR USE AS CELLULAR AND MOLECULAR PROBES OF OCCUPATIONAL EXPOSURE OR DISEASE. A FINAL REPORT WILL BE SUBMITTED TO OD, DBBS, ON THE RESULTS AND UTILITY.

PROGRAM AREA: ASSISTANCE REQUESTS

TITLE: BEHAVIORAL-ERGONOMIC EVALUATIONS RE HHES, TAS, CTAS

BEGIN DATE: 10/80 END DATE: C DIV: DBBS

CAN: 273 PROJECT OFFICER: BIERSNER, ROBERT J

PURPOSE: TECHNICAL SUPPORT TO THE NIOSH HEALTH HAZARD EVALUATIONS/TECHNICAL ASSISTANCE PROGRAM, WHERE RISK FACTORS OF A NEUROTOXIC, MUSCULOSKELETAL, OR PSYCHOLOGICAL STRESS NATURE ARE INVOLVED WILL BE FURNISHED. ERGONOMIC INPUT INTO CONTROL TECHNOLOGY ASSESSMENTS OF SELECT INDUSTRIAL PROCESSES WILL ALSO BE MADE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE CONSULTATION, DATA COLLECTION, AND ANALYSIS FOR 2-3 NEW HAZARD EVALUATIONS; FINISH 6-7 REPORTS ON CARRYOVER/NEW WORK. OFFER INPUT TO WORK PRACTICES CHECKLIST FOR CONTROL TECHNOLOGY ASSESSMENTS.

TITLE: TOXICOLOGY, TECHNICAL ASSISTANCE, AND CONSULTATION

BEGIN DATE: 10/86 END DATE: C DIV: DBBS

CAN: 348 PROJECT OFFICER: LEWIS, TRENT R

PURPOSE: MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH AND METHODS DEVELOPMENT WILL BE PROVIDED AS WILL TOXICOLOGIC TECHNICAL ASSISTANCE AND CONSULTATION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MAINTAIN NCI AND NTP RESEARCH PLANNING AND EXECUTION; DEVELOP 5-YEAR RESEARCH PROGRAMS ADDRESSING PREVENTION STRATEGIES; RESPOND TO INQUIRIES FROM THE PUBLIC AND PRIVATE SECTOR; MANAGE BRANCH RESOURCES.

PROGRAM AREA: ASSISTANCE REQUESTS

TITLE: HEALTH HAZARD EVALUATIONS OF PHYSICAL AGENTS

BEGIN DATE: 10/80 END DATE: C DIV: DBBS

CAN: 354 PROJECT OFFICER: MURRAY, WILLIAM E

PURPOSE: HETA REQUESTS ARE RECEIVED TO EVALUATE WORKER EXPOSURE TO PHYSICAL AGENT HAZARDS. THE BRANCH HAS THE INSTRUMENTATION AND EXPERTISE NEEDED TO CONDUCT THESE EVALUATIONS AND MAINTAIN SURVEILLANCE OF EXPOSURES TO PHYSICAL HAZARDS FOR EXPERIMENTAL AND WORKPLACE STUDIES. RESEARCH NEEDS ARE ALSO IDENTIFIED FROM THIS WORKPLACE EXPERIENCE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
TWO NEW HETA REQUESTS WILL BE ACCEPTED. WORK ON ONE CARRYOVER REQUEST WILL CONTINUE. TWO REQUESTS WILL BE COMPLETED. MANUSCRIPT SUMMARIZING WORK ON RADIATION HHES WILL BE PREPARED.

TITLE: QUALITY ASSURANCE OF ANALYTICAL MEASUREMENTS

BEGIN DATE: 10/85 END DATE: C DIV: DPSE

CAN: 420 PROJECT OFFICER: ELLER, PETER M

PURPOSE: THIS PROJECT WILL EXPAND THE INTERNAL QUALITY ASSURANCE PROGRAM TO INSURE THE QUALITY OF ANALYTICAL DATA GENERATED INTERNALLY AND BY MRSB CONTRACT LABORATORIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
EXTEND QUALITY CONTROL EFFORTS TO THE INDUSTRIAL HYGIENE SAMPLING PROCESS.

PROGRAM AREA: ASSISTANCE REQUESTS

TITLE: HHE ANALYTICAL CHEMISTRY SUPPORT

BEGIN DATE: 10/85 END DATE: C DIV: DPSE

CAN: 425 PROJECT OFFICER: HOLTZ, JOHN L

PURPOSE: PROVIDES TIMELY ANALYTICAL CHEMISTRY SERVICES TO THE HHE PROGRAM BY ASSURING RAPID TURNAROUND OF REQUESTS FOR SAMPLE ANALYSES AND METHOD DEVELOPMENT. IT IS PROJECTED THAT 5200 HHE FIELD SAMPLES WILL BE ANALYZED AND 4 SAMPLING/ANALYTICAL METHODS WILL BE DEVELOPED OR MODIFIED UNDER THIS PROJECT DURING FY 1988.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE 5200 HHE SAMPLES AND DEVELOP 4 METHODS.

TITLE: COMPREHENSIVE ANALYTICAL CHEMISTRY SERVICES

BEGIN DATE: 10/83 END DATE: C DIV: DPSE

CAN: 482 PROJECT OFFICER: DOLLBERG, DONALD D

PURPOSE: THIS PROJECT COORDINATES REQUESTS FROM NIOSH RESEARCHERS FOR ANALYTICAL CHEMISTRY SUPPORT FOR ALL NIOSH PROJECTS WHICH REQUIRE CHEMICAL ANALYSES. THE PROJECT ALSO PROVIDES OVERALL LABORATORY ADMINISTRATION OF SAMPLE ANALYSES PERFORMED EITHER ON CONTRACT OR IN THE NIOSH LABORATORIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COORDINATE 400 REQUESTS FOR ANALYTICAL SUPPORT AND ANALYZE 13,000 SAMPLES BY CONTRACT AND IN THE NIOSH LABORATORY. MONITOR THE COMPREHENSIVE ANALYTICAL SUPPORT CONTRACT AND CONDUCT AWARD FEE MEETING.

PROGRAM AREA: ASSISTANCE REQUESTS

TITLE: MINING HEALTH HAZARD EVALUATION AND TECHNICAL ASSISTANCE

BEGIN DATE: 10/87 END DATE: C DIV: DRDS

CAN: 153 PROJECT OFFICER: HANKINSON, JOHN L

PURPOSE: THIS PROJECT RESPONDS TO HEALTH CONCERNS OF MINERS IN COAL, METAL AND NON-METAL MINES AND OF WORKERS IN GENERAL INDUSTRY WITH RESPIRATORY RELATED COMPLAINTS. THIS PROJECT WILL ADDRESS THE DIVISION OBJECTIVE TO INCREASE THE NUMBER OF COMPLETED HHE/TA'S BY EFFECTIVELY RESPONDING TO REQUESTS FOR HEALTH HAZARD EVALUATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESPOND TO ALL REQUESTS FOR HEALTH HAZARD EVALUATIONS AND TECHNICAL ASSISTANCE.

TITLE: URINARY TRACT EFFECTS IN URANIUM PRODUCTION WORKERS

BEGIN DATE: 06/87 END DATE: 09/89 DIV: DSHEFS

CAN: 517 PROJECT OFFICER: THUN, MICHAEL J

PURPOSE: THIS EPIDEMIOLOGIC STUDY WILL ASSESS THE ASSOCIATION BETWEEN URANIUM AND THORIUM AND KIDNEY DISEASE IN NUCLEAR FUEL WORKERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE DATA COLLECTION AND NOTIFY SUBJECTS OF INDIVIDUAL RESULTS.

PROGRAM AREA: ASSISTANCE REQUESTS

TITLE: HEALTH HAZARD EVALUATIONS AND TECHNICAL ASSISTANCE

BEGIN DATE: 10/80 END DATE: C DIV: DSHEFS

CAN: 688 PROJECT OFFICER: BAINBRIDGE, JOHN K

PURPOSE: MANY OF THE EVALUATIONS WILL RESULT IN RECOMMENDATIONS RELATING TO THE NATIONAL STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
WE WILL RESPOND TO 500 REQUESTS FOR ASSISTANCE INCLUDING 80 FROM STATE HEALTH DEPARTMENTS. WE WILL SUBMIT FOR PUBLICATION AT LEAST 6 MMWR ARTICLES AND 12 JOURNAL ARTICLES.

PROGRAM AREA: ADMINISTRATION

TITLE: BRANCH ADMINISTRATION AND CONSULTATION

BEGIN DATE: 10/80 END DATE: C DIV: DBBS

CAN: 284 PROJECT OFFICER: BIERSNER, ROBERT J

PURPOSE: ASSURES PROGRAM PLANNING, BUDGET MANAGEMENT AND STAFF DEVELOPMENT TO CONDUCT INVESTIGATIVE RESEARCH, METHODS DEVELOPMENT, AND CONTROL STUDIES AS PRESCRIBED IN STRATEGIES FOR PREVENTING MUSCULOSKELETAL, NEUROTOXIC, PSYCHOLOGICAL, REPRODUCTIVE AND CANCER DISORDERS OF WORKPLACE ORIGIN.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PLAN RESEARCH IN MUSCULOSKELETAL, NEUROBEHAVIORAL AND STRESS AREAS TO MEET GOALS OF NIOSH PREVENTION STRATEGIES. SUPPORT TWO NRC ASSOCIATES. OFFER INPUT ON LIBRARY OF CONGRESS OFFICE PROJECTS.

TITLE: DBBS ADMINISTRATION

BEGIN DATE: 10/76 END DATE: C DIV: DBBS

CAN: 303 PROJECT OFFICER: HAARTZ, JANET C

PURPOSE: EXPEDITION, INTERVENTION, OR REALLOCATION OF EXPENDITURES BY FOUR BRANCHES IS PROVIDED. PERSONNEL UTILIZATION IS EVALUATED AND CONSIDERED WHEN ASSIGNING SPECIAL TASKS AND ALLOCATING POSITIONS. RESPONSES TO REQUESTS FOR TECHNICAL ASSISTANCE ARE ASSIGNED TO AVAILABLE PERSONNEL AND EXPEDITED THROUGH A TRACKING SYSTEM.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COORDINATE AND CONTINUE INSTITUTION OF NTP AND NRC PROGRAMS. REVIEW RESEARCH, CONTINUE Q.A. PROGRAM, AND MONITOR UTILIZATION OF PERSONNEL AND DISCRETIONARY FUNDS TO ASSURE 100% UTILIZATION.

PROGRAM AREA: ADMINISTRATION

TITLE: STATISTICAL SUPPORT TO DBBS

BEGIN DATE: 10/85 END DATE: C DIV: DBBS

CAN: 305 PROJECT OFFICER: SIMON, STEPHEN D

PURPOSE: SUPPORT PERSONNEL, EQUIPMENT, AND TRAINING ARE PROVIDED TO INCREASE THE QUALITY AND QUANTITY OF SUPPORT GIVEN TO DIVISION PROJECT OFFICERS IN DESIGN, IMPLEMENTATION, AND ANALYSES OF PLANNED PROJECTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE STATISTICS UNIT WILL BE INVOLVED TO A VARYING DEGREE WITH EACH DIVISION'S PROJECT AT THE LEVEL APPROPRIATE TO THE PROJECT PHASE OF PLANNING OR EXECUTION.

TITLE: BRANCH ADMINISTRATION AND CONSULTATION

BEGIN DATE: 10/83 END DATE: C DIV: DBBS

CAN: 374 PROJECT OFFICER: SMITH, JAMES M

PURPOSE: THIS PROJECT WILL PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH, INSTRUMENT METHODS DEVELOPMENT, AND PERSONAL PROTECTIVE EQUIPMENT.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE FY 1988 PHYSICAL AGENTS EFFECTS PROGRAM WILL BE CONDUCTED; TIMELY TECHNICAL CONSULTATION WILL BE PROVIDED TO THE DIVISION/INSTITUTE; AND FY 1989 PROGRAM/PROJECT PLANS WILL BE SUBMITTED.

PROGRAM AREA: ADMINISTRATION

TITLE: CONSULTATION AND BRANCH ADMINISTRATION

BEGIN DATE: 10/80 END DATE: C DIV: DBBS

CAN: 390 PROJECT OFFICER: STETTLER, LLOYD E

PURPOSE: PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH, INSTRUMENT/ METHODS DEVELOPMENT, BIOLOGICAL MONITORING, AND SUPPORT SERVICES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE FINAL REPORTS/MANUSCRIPTS AND PROTOCOL/PEER REVIEWS FOR BRANCH PROJECTS, ASSURING APPROPRIATE PERSONNEL STAFFING, COMPLETION OF TRAINING NEEDS, AND PERFORMANCE EVALUATIONS.

TITLE: ADMINISTRATIVE SUPPORT FOR DPSE RESEARCH

BEGIN DATE: 10/85 END DATE: C DIV: DPSE

CAN: 402 PROJECT OFFICER: BIERBAUM, PHILIP J

PURPOSE: IN ADDITION TO PROVIDING STRATEGY IMPLEMENTATION, THE PROGRAM DEVELOPS CRITERIA FOR MONITORING, AND ASSESSES CONTROL TECHNOLOGY THROUGH RESEARCH AND DEVELOPMENT. PROVIDES FOR THE INSTITUTE'S CHEMICAL ANALYSIS NEEDS AND OPERATES A QUALITY CONTROL REFERENCE PROGRAM FOR ANALYTICAL LABORATORIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE PURPOSE OF THIS PROJECT IS TO MANAGE THE DPSE PROGRAM, FUNDS, AND PERSONNEL TO ACCOMPLISH FY 1988 GOALS.

PROGRAM AREA: ADMINISTRATION

TITLE: OFFICE OF THE DIRECTOR - DIVISION MANAGEMENT

BEGIN DATE: 10/86 END DATE: C DIV: DRDS

CAN: 103 PROJECT OFFICER: GLENN, ROBERT E

PURPOSE: PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH, ENVIRONMENTAL AND MEDICAL SURVEILLANCE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RECEIVE COMPLETED AND REVIEWED FINAL REPORTS, PRESENT SIGNIFICANT FINDINGS TO APPROPRIATE FORUM, AND DEVELOP CONTINUATION RESEARCH PLANNING.

TITLE: TECHNICAL MANAGEMENT - DSHEFS (OD)

BEGIN DATE: 10/80 END DATE: C DIV: DSHEFS

CAN: 522 PROJECT OFFICER: FINE, LARRY

PURPOSE: THIS PROJECT PROVIDES MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH, SURVEILLANCE SYSTEMS, AND HEALTH EVALUATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
TO SATISFACTORILY GUIDE THE DIVISION TOWARDS MEETING ALL OF ITS GOALS AND OBJECTIVES.

PROGRAM AREA: ADMINISTRATION

TITLE: TECHNICAL MANAGEMENT

BEGIN DATE: 10/87 END DATE: C DIV: DSHEFS

CAN: 680 PROJECT OFFICER: CATLETT, LAWRENCE R

PURPOSE: THIS PROJECT SUPPORTS STATISTICAL AND DATA PROCESSING ASPECTS OF DSHEFS' INDUSTRYWIDE STUDIES, HEALTH HAZARD EVALUATIONS, AND SURVEILLANCE ACTIVITIES. IT ALSO PROVIDES BIOMEDICAL INSTRUMENTATION SUPPORT TO ALL CINCINNATI NIOSH OPERATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
AWARD CONTRACTS: (1) DATE ENTRY (2) NOES "VAULT" OPERATION & TECHNICAL DATA COLLECTION/MGMT. INVESTIGATE FEASIBILITY OF DOING ADABAS & LTAS PROJECT ON PCS.

TITLE: INJURY PREVENTION RESEARCH BRANCH MANAGEMENT

BEGIN DATE: 10/85 END DATE: C DIV: DSR

CAN: 785 PROJECT OFFICER: MILLS, GARY R

PURPOSE: THIS PROJECT WILL PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE LABORATORY FIELD RESEARCH WITH ALL TYPES OF RESPIRATORS, CHEMICAL AND OTHER PROTECTIVE CLOTHING AND EQUIPMENT, AND ASSOCIATED PHYSIOLOGICAL RESPONSES TO SUCH EQUIPMENT.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COORDINATE BRANCH ACTIVITIES. ASSURE INTRA AND INTERDIVISIONAL PROGRAM COORDINATION.

PROGRAM AREA: ADMINISTRATION

TITLE: SAFETY DIVISION MANAGEMENT

BEGIN DATE: 06/77 END DATE: C DIV: DSR

CAN: 802 PROJECT OFFICER: COHEN, MURRAY L

PURPOSE: THIS PROJECT WILL PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH, INFORMATION DISSEMINATION/DOCUMENT DEVELOPMENT, RESPIRATORS, SURVEILLANCE, AND OTHER EPIDEMIOLOGICAL STUDIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MANAGE DSR RESOURCES TO ACHIEVE DSR FY 1988 GOALS AND OBJECTIVES WITHIN RESOURCE ALLOCATION.

TITLE: PROMULGATION OF REVISED 30 CFR PART 11

BEGIN DATE: 01/87 END DATE: 09/89 DIV: DSR

CAN: 839 PROJECT OFFICER: BOLLINGER, NANCY J

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY UPGRADING THE CERTIFICATION STANDARDS AND INCREASING THE SAFETY AND RELIABILITY OF RESPIRATORS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PUBLIC COMMENTS WILL BE RECEIVED AND A PUBLIC HEARING WILL BE CONDUCTED.

PROGRAM AREA: ADMINISTRATION

TITLE: INJURY SURVEILLANCE BRANCH MANAGEMENT

BEGIN DATE: 10/85 END DATE: C DIV: DSR

CAN: 847 PROJECT OFFICER: REESE, CHARLES D

PURPOSE: PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING INVESTIGATIVE RESEARCH, CONTROL SYSTEMS, AND SURVEILLANCE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COORDINATE ISB PROJECTS WITHIN BRANCH, DIVISION, AND INSTITUTE.

TITLE: EVALUATION, CERTIFICATION, AND COORDINATION ACTIVITIES

BEGIN DATE: 05/72 END DATE: C DIV: DSR

CAN: 852 PROJECT OFFICER: BOLLINGER, NANCY J

PURPOSE: PROVIDE JUDGMENT AND GUIDANCE TO THE LEGISLATIVELY MANDATED RESPIRATOR AND COAL MINE DUST PERSONAL SAMPLER CERTIFICATION PROGRAMS WHICH WILL HELP TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE CERTIFICATION OF RESPIRATORS AND CMDPSU IN ACCORDANCE WITH 30 CFR 11 AND 30 CFR 74.

PROGRAM AREA: ADMINISTRATION

TITLE: AIR PURIFYING RESPIRATOR TESTING

BEGIN DATE: 05/72 END DATE: C DIV: DSR

CAN: 853 PROJECT OFFICER: COFFEY, CHRISTOPHER C

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY 1) APPROVING RESPIRATORS IN ACCORDANCE WITH REGULATIONS, 2) THROUGH THE AUDIT AND COMPLAINTS PROGRAM ASSURING THAT RESPIRATORS IN THE MARKETPLACE COMPLY WITH REGULATIONS, AND 3) PROVIDING EXPERT ADVICE ON RESPIRATOR APPLICATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE CERTIFICATION IN ACCORDANCE WITH 30 CFR 11.

TITLE: ATMOSPHERE SUPPLIED RESPIRATOR TESTING

BEGIN DATE: 05/72 END DATE: C DIV: DSR

CAN: 854 PROJECT OFFICER: TERRY, SAMUEL L

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY 1) APPROVING RESPIRATORS IN ACCORDANCE WITH REGULATIONS, 2) THROUGH THE AUDIT AND COMPLAINTS PROGRAM ASSURING THAT RESPIRATORS IN THE MARKETPLACE COMPLY WITH REGULATIONS, AND 3) PROVIDE EXPERT ADVICE ON RESPIRATOR APPLICATIONS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE CERTIFICATION IN ACCORDANCE WITH 30 CFR 11.

PROGRAM AREA: ADMINISTRATION

TITLE: QUALITY ASSURANCE DOCUMENTATION CONTROL

BEGIN DATE: 05/72 END DATE: C DIV: DSR

CAN: 857 PROJECT OFFICER: BOLLINGER, NANCY J

PURPOSE: THE GOAL IS TO INCREASE WORKER PROTECTION FROM AIRBORNE CONTAMINANTS BY 1) EVALUATING QUALITY ASSURANCE OF RESPIRATOR MANUFACTURERS AND 2) THROUGH IN-PLANT AUDIT PROGRAM ASSURING THAT RESPIRATORS ARE RELIABLE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE CERTIFICATION IN ACCORDANCE WITH 30 CFR 11.

TITLE: DIVISION MANAGEMENT

BEGIN DATE: 10/70 END DATE: C DIV: DSDTT

CAN: 082 PROJECT OFFICER: LEMEN, RICHARD A

PURPOSE: PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES. THIS PROJECT IS PRIMARILY DIRECTED TOWARD INCREASING THE NUMBER AND QUALITY OF DOCUMENTS AND OTHER NIOSH POLICY STATEMENTS PRODUCED ANNUALLY THROUGH MANAGEMENT OF RESOURCES AND DISSEMINATING INFORMATION.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE 6 POLICY DOCUMENTS, RESPOND TO 4-6 OSHA/MSHA RULES, AND ANSWER 4,000 INFORMATION REQUESTS IN FY 1988.

PROGRAM AREA: ADMINISTRATION

TITLE: TECHNOLOGY TRANSFER

BEGIN DATE: 10/83 END DATE: C DIV: DSDTT

CAN: 084 PROJECT OFFICER: MORGAN, VIVIAN K

PURPOSE: THIS PROJECT ADDRESSES THE GOAL BY EXTENDING ACCESS TO NIOSH-DEVELOPED DATA BASES WORLDWIDE BY MONITORING MEMORANDA OF AGREEMENTS AND MEMORANDA OF UNDERSTANDING FOR NIOSH INFORMATION SERVICES. IN ADDITION, NIOSH-DEVELOPED TECHNOLOGIES WILL BE PRESENTED THROUGH THE EXHIBIT PROGRAM WHICH WILL BE CONDUCTED DURING FY 1988.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
NIOSH MATERIAL WILL BE PROVIDED TO A DEVELOPING COUNTRY THROUGH THE INTERNATIONAL LABOR ORGANIZATION/ CHEMICAL INFORMATION SYSTEM AND OTHER SOURCES.

TITLE: CONSULTATION AND BRANCH ADMINISTRATION: DOCUMENT DEVELOPMENT BRANCH

BEGIN DATE: 10/84 END DATE: C DIV: DSDTT

CAN: 094 PROJECT OFFICER: WAGNER, WILLIAM D

PURPOSE: PROVIDE ADMINISTRATIVE, CONSULTATIVE, STATISTICAL, AND TECHNICAL ASSISTANCE FOR IMPLEMENTATION OF THE TOP 10 NATIONAL PREVENTION STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
IN ADDITION TO THE REVIEWS OF DOCUMENTS, 2 MMWR OR JOURNAL ARTICLES, 2 PRESENTATIONS AT PROFESSIONAL MEETINGS, AND 15 STATISTICAL CONSULTATIONS WILL BE COMPLETED.

PROGRAM AREA: ADMINISTRATION

TITLE: DIVISION ADMINISTRATION AND SPECIAL PROJECTS

BEGIN DATE: 10/77 END DATE: C DIV: DTMD

CAN: 763 PROJECT OFFICER: PURCELL, THOMAS C

PURPOSE: PROVIDE MANAGEMENT AND GUIDANCE FOR THE IMPLEMENTATION OF THE NATIONAL PREVENTION STRATEGIES INVOLVING WORKFORCE DEVELOPMENT, HEALTH PROMOTION AND SUPPORT TO ACADEMIC PROGRAMS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
MANAGE DIVISION PROGRAMS TO ACCOMPLISH FY 1988 GOALS.

PROGRAM AREA: OTHER

TITLE: BIOLOGICAL MONITORING METHODS EVALUATION AND SUPPORT

BEGIN DATE: 10/80 END DATE: C DIV: DBBS

CAN: 378 PROJECT OFFICER: LOWRY, LARRY K

PURPOSE: BIOLOGICAL MONITORING AND CLINICAL LABORATORY SUPPORT WILL BE SUPPLIED TO IMPLEMENT RESEARCH STRATEGIES IN DSHEFS AND DBBS. IN COOPERATION WITH DSHEFS, BIOLOGICAL MONITORING METHODS WILL BE EVALUATED IN THE FIELD USING HUMAN SUBJECTS. DEVELOPMENTAL STUDIES WILL BE CONDUCTED TO IDENTIFY FUTURE RESEARCH IN SUPPORT OF PREVENTION STRATEGIES.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
FURNISH CLINICAL/BIOLOGICAL MONITORING SUPPORT. SUBMIT REPORTS ON ASSAYS PERFORMED TO DSHEFS AND DBBS INVESTIGATORS AS REQUIRED. SUBMIT A SUMMARY OF THE ANNUAL CLINICAL AND BIOLOGICAL EFFORTS TO OD, DBBS.

TITLE: STATISTICAL SUPPORT FOR DPSE RESEARCH

BEGIN DATE: 10/85 END DATE: C DIV: DPSE

CAN: 407 PROJECT OFFICER: FISCHBACH, THOMAS J

PURPOSE: EXPERIMENTS WILL BE DESIGNED USING STATISTICS AND DATA WILL BE STATISTICALLY ANALYZED TO SUPPORT DPSE RESEARCH PROJECTS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
CONTINUE PLANNING OF EXPERIMENTS AND ANALYSIS OF DATA. IMPLEMENT SURVEY RESULTS VIA PRESENTATION OF COURSES.

PROGRAM AREA: OTHER

TITLE: IMPLEMENT ASBESTOS CONTROLS DURING BRAKE SHOE REPLACEMENT

BEGIN DATE: 01/88 END DATE: 09/90 DIV: DPSE

CAN: 409 PROJECT OFFICER: SCHOENBORN, THEODORE F

PURPOSE: THIS PROJECT WILL DISSEMINATE NIOSH-EVALUATED ASBESTOS CONTROLS FOR THE BRAKE SHOE REPLACEMENT INDUSTRY THROUGH THE USE OF TECHNOLOGY TRANSFER AGENTS IN THE OHIO COMMUNITY COLLEGE SYSTEM.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
DEVELOP A COOPERATIVE AGREEMENT BETWEEN THE STATE OF OHIO AND NIOSH AND BEGIN THE DISSEMINATION OF DPSE-EVALUATED ASBESTOS DUST CONTROLS.

TITLE: ANALYTICAL CHEMISTRY SUPPORT TO DPSE RESEARCH

BEGIN DATE: 10/85 END DATE: C DIV: DPSE

CAN: 484 PROJECT OFFICER: HOLTZ, JOHN L
PURPOSE: THIS PROJECT PROVIDES FOR CHEMISTRY SUPPORT TO DPSE RESEARCH ACTIVITIES. SAMPLING AND ANALYTICAL SUPPORT WILL BE GIVEN TO THE CONTROL TECHNOLOGY PROGRAM'S ATTEMPTS TO PREVENT THE EXPOSURE OF WORKERS TO HAZARDOUS LEVELS OF CHEMICAL AGENTS. NEW MEASUREMENT METHODS FOR ASBESTOS WILL ALSO BE IMPLEMENTED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ANALYZE 1699 SAMPLES IN SUPPORT OF DPSE RESEARCH AND OTHER INSTITUTE/GOVERNMENTAL AGENCY REQUESTS.

PROGRAM AREA: OTHER

TITLE: CASE CONTROL STUDY OF RENAL DISEASE AND OCCUPATIONAL EXPOSURE

BEGIN DATE: 02/83 END DATE: 12/88 DIV: DSHEFS

CAN: 524 PROJECT OFFICER: STEENLAND, NELSON K

PURPOSE: IN THIS STUDY, FACTORS CONTRIBUTING TO END-STAGE RENAL DISEASE ARE BEING EXPLORED. OCCUPATIONAL AS WELL AS LIFE STYLE FACTORS ARE BEING EXAMINED.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
COMPLETE THE DATA ANALYSIS AND THE FINAL REPORT.

TITLE: RTECS - AUTHOR EXPANSION

BEGIN DATE: 10/87 END DATE: C DIV: DSDTT

CAN: 075 PROJECT OFFICER: SWEET, DORIS V

PURPOSE: THIS PROJECT IS DESIGNED TO DELIVER TOXICOLOGICAL DATA TO SERVE THE INFORMATION NEEDS OF THE OCCUPATIONAL SAFETY AND HEALTH COMMUNITY AND TO PRODUCE INNOVATIVE CHANGES TO ASSIST USERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
UPDATE REGULATORY SUBFILE, PUBLISH QUARTERLY MICROFICHE AND UPDATE COMPUTER TAPE.

PROGRAM AREA: OTHER

TITLE: TECHNICAL INFORMATION RESPONSE PACKAGES

BEGIN DATE: 10/88 END DATE: C DIV: DSDTT

CAN: 093 PROJECT OFFICER: TATKEN, RODGER L

PURPOSE: THIS PROJECT PROVIDES FOR THE DEVELOPMENT OF SUBJECT-RELATED BIBLIOGRAPHIES OF NIOSH-DEVELOPED MATERIALS. THESE PACKETS WILL ENABLE NIOSH TO IMPROVE ITS RESPONSE DUE TO TECHNICAL INFORMATION REQUESTS, PARTICULARLY IN LIGHT OF THE 800 TELEPHONE NUMBER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
RESPOND TO ABOUT 3,000 REQUESTS FROM OTHER GOVERNMENT AGENCIES, INDUSTRY, LABOR ORGANIZATIONS, AND OSHA PROFESSIONALS.

TITLE: NIOSH INFORMATION SYSTEMS

BEGIN DATE: 10/70 END DATE: C DIV: DSDTT

CAN: 095 PROJECT OFFICER: ROGERS, ROLLAND

PURPOSE: THIS PROJECT PROVIDES FOR AVAILABILITY OF TECHNICAL INFORMATION THROUGH CURRENT, COMPUTERIZED DATA BASES TO NIOSH PERSONNEL AND THE OS&H COMMUNITY. PRINCIPAL SYSTEMS INCLUDE THE DOCUMENT INFORMATION SYSTEM (DIDS), THE TRANSLATION SYSTEM (TRAINS), AND THE NIOSH MAILING LIST (NMLS).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
PROVIDE PC COORDINATION FOR DIVISION AND IMPROVE THE QUALITY OF BRANCH DATA BASES.

PROGRAM AREA: OTHER

TITLE: REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS)

BEGIN DATE: 10/70 END DATE: C DIV: DSDTT

CAN: 096 PROJECT OFFICER: SWEET, DORIS V

PURPOSE: THIS PROJECT IS DESIGNED TO DELIVER TOXICOLOGICAL DATA TO SERVE THE INFORMATION NEEDS OF THE OCCUPATIONAL SAFETY AND HEALTH COMMUNITY AND TO PRODUCE INNOVATIVE CHANGES TO ASSIST USERS.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
UPDATE REGULATORY SUBFILE, PUBLISH QUARTERLY MICROFICHE AND UPDATE COMPUTER TAPE.

TITLE: NIOSHTIC

BEGIN DATE: 10/70 END DATE: C DIV: DSDTT

CAN: 097 PROJECT OFFICER: BENNETT, WILLIAM D

PURPOSE: THE NIOSHTIC COMPUTERIZED INFORMATION RETRIEVAL SYSTEM IS DESIGNED TO ASSIST THE RESEARCH AND TECHNICAL ASSISTANCE ACTIVITIES OF NIOSH AND THE OCCUPATIONAL SAFETY AND HEALTH COMMUNITY AS A WHOLE. THIS SYSTEM CURRENTLY CONTAINS OVER 140,000 CITATIONS DERIVED FROM THE WORLD'S OCCUPATIONAL SAFETY AND HEALTH LITERATURE.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
THE ON-LINE FULL TEXT SEARCHABLE BIBLIOGRAPHIC DATABASE WILL INCREASE FROM 140,000 TO 150,000 CITATIONS.

PROGRAM AREA: OTHER

TITLE: PUBLICATION AND DISSEMINATION OF NIOSH PUBLICATIONS

BEGIN DATE: 10/83 END DATE: C DIV: DSDTT

CAN: 098 PROJECT OFFICER: MALONEY, CHARLENE C

PURPOSE: THIS PROJECT ADDRESSES THE GOAL BY PROVIDING FOR DISSEMINATION OF OCCUPATIONAL SAFETY AND HEALTH INFORMATION IN SUPPORT OF NIOSH RESEARCH AND IN RESPONSE TO PUBLIC INQUIRIES. IN ADDITION, NIOSH-DEVELOPED TECHNOLOGIES WILL BE PRESENTED THROUGH THE EXHIBIT PROGRAM.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
APPROXIMATELY 26,000 REQUESTS FOR NIOSH PUBLICATIONS WILL BE ANSWERED. EIGHT EXHIBIT SITES WILL BE STAFFED.

TITLE: INFORMATION RETRIEVAL AND ANALYSIS

BEGIN DATE: 10/70 END DATE: C DIV: DSDTT

CAN: 099 PROJECT OFFICER: TATKEN, RODGER L

PURPOSE: THIS PROJECT PROVIDES TECHNICAL INFORMATION SERVICES TO INSTITUTE PERSONNEL IN SUPPORT OF RESEARCH AND PUBLIC HEARINGS, AND TO THE PUBLIC REQUESTING INFORMATION ON OS&H ISSUES. INCLUDED IN THE LATTER IS THE STAFFING OF THE INFORMATION & HETA TOLL-FREE TELEPHONE NUMBER.

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
ABOUT 4,000 TECHNICAL INFORMATION RESPONSES FOR NIOSH STAFF, OTHER GOVERNMENT AGENCIES, INDUSTRY, LABOR ORGANIZATIONS, OSHA PROFESSIONALS, AND THE PUBLIC WILL BE COMPLETED.

PROGRAM AREA: OTHER

TITLE: WORKER PROTECTION INFORMATION

BEGIN DATE: 10/83 END DATE: C DIV: DSDTT

CAN: 848 PROJECT OFFICER: MORGAN, VIVIAN K

PURPOSE: THIS PROJECT PROVIDES INFORMATION IN SUPPORT OF NIOSH REIMBURSABLE ACTIVITIES UNDER EPA'S HAZARDOUS WASTE DISPOSAL SUPERFUND. IT INCLUDES FUNDING FOR NIOSHTIC (CAN 097) AND HAZARDOUS EXHIBIT PROGRAMS (CAN 098).

FY 1988 PLANNED LEVEL OF ACCOMPLISHMENT:
APPROXIMATELY 4,500 CITATIONS WILL BE INPUT TO NIOSHTIC. TWO HAZARDOUS WASTE EXHIBITS WILL BE UNDERTAKEN TO DISTRIBUTE HAZARDOUS WASTE PUBLICATIONS.

NIOSH
Projects
By
Division

*** DIVISION OF BIOMEDICAL AND BEHAVIORAL SCIENCE ***

*** DIVISION OF BIOMEDICAL AND BEHAVIORAL SCIENCE (continued) ***

*** DIVISION OF BIOMEDICAL AND BEHAVIORAL SCIENCE (continued) ***

*** DIVISION OF BIOMEDICAL AND BEHAVIORAL SCIENCE (continued) ***

*** DIVISION OF PHYSICAL SCIENCES AND ENGINEERING ***

OCCUPATIONAL LUNG DISEASES

*** DIVISION OF RESPIRATORY DISEASE STUDIES ***

OCCUPATIONAL LUNG DISEASES

*** DIVISION OF RESPIRATORY DISEASE STUDIES (continued) ***

*** DIVISION OF RESPIRATORY DISEASE STUDIES (continued) ***

*** DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS, AND FIELD STUDIES ***

OCCUPATIONAL LUNG DISEASES

MUSCULOSKELETAL INJURIES

*** DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS, AND FIELD STUDIES (continued) ***

*** DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS, AND FIELD STUDIES (continued) ***

*** DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS, AND FIELD STUDIES (continued) ***

*** DIVISION OF SAFETY RESEARCH ***

*** DIVISION OF SAFETY RESEARCH (continued) ***

SEVERE OCCUPATIONAL TRAUMATIC INJURIES

*** DIVISION OF SAFETY RESEARCH (continued) ***

DERMATOLOGICAL CONDITIONS

*** DIVISION OF SAFETY RESEARCH (continued) ***

*** DIVISION OF STANDARDS DEVELOPMENT AND TECHNOLOGY TRANSFER ***

*** DIVISION OF STANDARDS DEVELOPMENT AND TECHNOLOGY TRANSFER (continued) ***

*** DIVISION OF TRAINING AND MANPOWER DEVELOPMENT ***

*** DIVISION OF TRAINING AND MANPOWER DEVELOPMENT (continued) ***

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