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Author

Corporate Author

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Description Notes There are two versions of the supporting statement included. Eighteen numbered attachments include; Report reviewing OMB's review of CDC studies, NIOSH Occupational Health Study questionnaires, participation consent forms, Prototype Introduction to Worker, Introduction script, NIOSH Occupational Health Study Fact Sheet (two copies), second USPHS-NIOSH Health Study Fact Sheet, Letter and script for wives in study, NIOSH Occupational Health Study Exam Forms, Manual for Electrophysiological and Quantitative Sensory Testing Procedures, Optacon Tactile Tester-Operating Manual and Testing documents

PHASE II
Supporting Statement

NIOSH Study of Morbidity in Workers Exposed to Chemical-Herbicide
Production and Community Residents of Unknown Exposure Status

A. Justification

1. Background

The extreme toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) has been recognized for several decades. An unwanted contaminant of several chemical processes, TCDD causes death and diverse morbidity in multiple animal species. In humans, occupational exposures to TCDD-contaminated production processes cause chloracne and are suspected of causing liver and lipid metabolism dysfunction, neurologic, endocrine, immunologic, and hematopoietic dysfunction, as well as psychological and reproductive dysfunction, and cancer.

TCDD was a contaminant of Agent Orange, a defoliant used in Vietnam, a fact which has generated intense interest among veterans and which has resulted in the federal government undertaking several major epidemiologic studies of veterans. In addition to the concern felt by Vietnam veterans over the health effects of exposure to Agent Orange, workers and residents in the community at large have expressed increasing worry about their health with the discovery of widespread environmental contamination with TCDD in Missouri, and worksite and neighborhood contamination in New Jersey. Workers from two plants in particular--one in Missouri, whose wastes were responsible for the

environmental contamination in the state, and one in New Jersey, whose processes were presumed responsible for some of the worksite and neighborhood TCDD contamination--have sought assistance from the CDC and NIOSH in evaluating their health status. In response to this public health concern, and in view of the opportunity to provide answers to questions of major scientific importance, NIOSH has proposed to conduct of an epidemiologic medical study of these Missouri and New Jersey workers and a suitable comparison group.

Research in occupational health is authorized by Section 20 (a) (1) of the Occupational Safety and Health Act of 1970 (attachment #1). Under the Act, the National Institute for Occupational Safety and Health (NIOSH) has been given the authority to conduct and to publish epidemiologic studies of the medical effects of exposure to toxic occupational exposures.

2. Use of Data

Because TCDD is a toxic substance suspected of affecting multiple organ systems--including the soft tissues (soft tissue sarcoma), the nervous system, the cardiovascular system, skin, and human psychological response--the proposed study will involve research into five of NIOSH's Top Ten work-related diseases. Although occupational groups have been studied to determine both the prevalence and persistence of morbidity in workers exposed to TCDD-contaminated processes, every existing study to date has been plagued by problems which impair the validity of the results. Convincing answers to

questions about the persistence of morbidity associated with exposure to TCDD have not been forthcoming. Without a careful epidemiological study in which health outcomes are related to exposure, there is little hope of answering the existing questions about the health effects of dioxins in humans.

In addition to workers, Vietnam veterans and community residents in contaminated areas are suspected of having some exposure to dioxins. However, since production workers as a group have almost certainly had the highest exposures to TCDD, important health effects would be more likely to show up in such a group than in any other. Because the exposure information on industrial workers is far better and more detailed than, for example, can be obtained from Vietnam veterans, this piece of research will provide a major resource in the federal decision-making process with respect to recommendations regarding the dioxin problem. Thus, the results of this study will be valuable to both OSHA and the EPA for future judgements regarding exposures to workers and the community. The study results will also assist with developing intervention strategies for workers and community residents exposed to TCDD-contaminated materials, and prevention strategies for the ten leading work-related diseases and injuries, specifically occupational cancers, neurotoxic disorders, dermatologic disorders, psychological disorders, and reproductive disorders.

Since March 5, 1987, NIOSH has been conducting a study of a sample of 80 workers (and their referents and wives) who were employed in the production of chemicals contaminated with 2,3,7,8-TCDD (Phase I of the study, approved on January 7, 1986 by OMB).

NIOSH proposes to conduct Phase II of the study to investigate the health status of the remaining surviving and locatable workers from the New Jersey plant and all of the workers from the Missouri plant, and to study the health status of individuals who are similar to the living workers (with respect to age, sex, and race) and who live in the same neighborhood as the workers. In addition, next-of-kin of deceased workers will be interviewed for health and exposure information, and the wives of the workers will be interviewed to obtain reproductive history information.

Since there are 448 living workers total in the two cohorts, 358 from the New Jersey facility and 90 from the Missouri facility, and since 80 of the New Jersey group were included in Phase I of this study, Phase II will be composed of 278 New Jersey workers and 90 Missouri workers (368), as well as their referents and wives. Detailed information about occupational exposures to dioxin-contaminated processes will be constructed from plant records and from the detailed interviews with workers.

Workers and neighborhood comparisons (who will be referred to as referents in the remainder of this document) will be interviewed in their homes by trained interviewers. The estimated response time for the in-home occupational interview will be one and one-half hour. An additional one-half hour will be utilized for a medical history interview at the examination site. Wives will be interviewed by telephone, and the estimated duration of the interview will be average forty five minutes. After the in-home interview, workers and their matched neighborhood referents will be scheduled for a medical examination at the Lovelace Medical Foundation in Albuquerque, New Mexico. The examination requires one and one-half days. Subjects will incur no expense, since travel, lodging, and subsistence will be paid for by NIOSH.

3. Information Technology

The use of the "computer assisted personal interview" (CAPI) system for the wives' reproductive interviews is being considered. The quality control advantages of CAPI are those of any computerized, electronic system. However, the final decision about the telephone interviews will be determined by the Phase II contract award. The longer interview being administered to the worker subjects and their referents warrants a face-to-face interview technique.

4. Identification of Duplication

Although there have been a number of published papers describing health effects in occupational groups exposed to TCDD-contaminated materials, none of them has been a study of an entire cohort of workers, none has had a convincing comparison population (most have been case series and have had no real comparison group), and none has had adequate characterization of exposure to TCDD-contaminated materials. This study will remedy all of those deficiencies and will thus provide a uniquely valid study design. As already noted, no existing or planned study has information which adequately characterizes the level of occupational exposure to TCDD-contaminated materials. Industrial cohorts are certainly the most heavily exposed of all groups, and it is possible to recreate a detailed work history for each worker, using plant records and interview data. Recent information about a few of the workers from the Missouri plant indicates that although the workers were exposed to TCDD-contaminated materials for less than two years, their TCDD body burden exceeded the background levels by several orders of magnitude. Additional information from serum TCDD levels will validate the

predictive exposure estimates obtained from historical records and interview information. There has been no comparable work in the field of occupational dioxin research. The Centers for Disease Control (CDC) and the Air Force are currently conducting studies to analyze levels of TCDD in the bodies of veterans. Our study results of TCDD levels in workers will provide a context for interpreting levels of exposure in Vietnam veterans.

5. Use of Existing Data

Existing data are insufficient to address the question of whether workers occupationally exposed in the past to TCDD-contaminated processes have more health problems than persons who are similar to them but who have not worked with TCDD-contaminated materials. Nor do existing data fully define the nature of those health problems. The Czechoslovakian work by Jirasek (1974) and Pazderova-Vijlupkova (1981), and the American work by Suskind, Moses, and Bond provide suggestions, but the results require validation (Moses 1984, Suskind 1984, Bond 1983) .

Jirasek I, Kalensky K, et al.: Chronic poisoning by 2,3,7,8-tetrachlorodibenzo-p-dioxin. *Cesk Dermatol* 1974;49:145 - 157.

Pazderova-Vijlupkova J, Nemcova M, et al.: The development and prognosis of chronic intoxication by tetrachlorodibenzo-p-dioxin in men. *Arch Environ Health* 1981;36:5 - 11.

Bond GG, Ott MG, Brenner FE, Cook RR: Medical and morbidity surveillance findings among employees exposed to TCDD. *Br J Ind Med* 1983;40:318 - 324.

Moses M, Lillis R, Crow KD, Thornton J, Fischbein A, Anderson HA, Selikoff IJ: Health status of workers with past exposure to 2,3,7,8-Tetrachlorodibenzo-p-dioxin in the manufacture of 2,4,5-Trichlorophenoxyacetic acid. *Am J Ind Med* 1984;5:161 - 182.

Suskind RR, Hertzberg VS: Human health effects of 2,4,5-T and its toxic contaminants. *JAMA* 1984;251:2372 - 2380.

Similarly, existing data have been insufficiently valid or powerful to assess reproductive outcomes such as spontaneous abortion in TCDD-exposed production workers. Vietnam veterans, if exposed to dioxins in Agent Orange, are likely to have had much lower exposures than the production workers. Thus the studies of Vietnam veterans, such as the Ranch Hand study and the Vietnam Experience Study, involve inadequately detailed exposure characterization as well as probably low level exposures. Similarly, although the Centers for Disease Control has just completed a case-control birth defects study examining risk associated with Vietnam veteran status and Agent Orange exposure, the population is too different and the exposure information too imprecise to serve as an adequate substitute for the reproductive effects portion of the present study.

6. Small Business

The data collection effort will not involve small businesses or similar entities.

7. Consequences of a Less-Frequent Collection

The data collection will be one time only. No other studies are planned at this time.

8. 5 CFR 1320.6

Compensation will be provided to the participants undergoing the medical examinations, since the examination will require one and one-half days, with travel on the preceding and succeeding days of the examination.

Participation rates have been shown to increase with compensation, and a high rate of participation is essential for a valid study. The Air Force Ranch Hand Study recompensed its subjects at the rate of \$100/day, and the Centers for Disease Control provides \$300 per day. The Ranch Hand study achieved an excellent participation rate for the medical examination portion of the study (average 82%), which was necessary for its fixed cohort size. The CDC also achieved a high rate of participation in their examination phase of the study (approximately 70%). To avoid problems of participation bias or low participation rates, NIOSH is compensating each participant who completes the examination \$300.00.

9. Consultation

In developing this project, NIOSH has had a great number of consultations with various experts within and outside of the government. These have included principally scientific reviews. The NIOSH "blue ribbon" Dioxin Peer Review Panel met in November 1983 in its first review of the project, and has reviewed subsequent changes in study design in 1984 and 1985. The Science Panel of the White House Agent Orange Working Group also reviewed the protocol in August, 1984 and in May, 1987.

The following is a list of scientific advisors with whom NIOSH has worked:

a)Peer Reviewers Outside the Federal Government

1. Brian MacMahon, M.D.

Chairman, Department of Epidemiology

Harvard School of Public Health

677 Huntington Ave.

Boston, MA 02115

617-732-1050

2. Philip Enterline, Ph.D.

Director, Center for Environmental Epidemiology

130 DeSota Street

Pittsburgh, PA 15261

412-624-3032

3. Thomas Smith, Ph.D.

Associate Professor of Environmental Science

Department of Environmental Health

Harvard School of Public Health

677 Huntington Ave.

Boston, MA 02115

617-732-1165

4. William Russell, M.D.

Department of Pathology
North Ridge General Hospital
5757 N. Dixie Highway
Ft. Lauderdale, FL 33334
305-776-6000

5. Clark Heath, Jr., M.D.

Director, Bureau of Preventive Health Services
South Carolina Department of Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

b) Other Special Scientific Reviewers

1. Raymond Slavin, M.D.

Department of Allergy and Immunology
St. Louis University Hospital
1402 Grand Street
St. Louis, MO 63104
314-664-9800 x 456

2. Douglas Linz, MD

4879 LeBlond Ave.
Cincinnati, Ohio 45226
4879 LeBlond Av.
(513) 871-0774

3. Herbert Schaumberg, MD, Chairman

Department of Neurology
Albert Einstein College of Medicine
1300 Morris Park Ave.
Bronx, New York 10461
212-430-2833

4. Stanley A. Schwartz, MD
University of Michigan
School of Public Health
109 S. Observatory
Ann Arbor, MI 48109
5. Gary Liss, MD
400 University Av.
Toronto, Ontario M7A 1T7
(416) 965-6375
(313) 763-0051
6. Margit Bleecker, MD
Chief, Dept. of Neurology
Room 122-B
Frances Scott Key Medical Center
4940 Eastern Av.
Baltimore, MD 21224
(301) 955-0592
7. Edward A. Emmett, MD
Division of Occupational Medicine
Johns Hopkins School of Hygiene &
Public Health
Center for Occupational and
Environmental Health
3100 Wyman Park Dr., Bldg. #6
Baltimore, MD 21211
8. Charles Glueck, MD
General Clinical Research Center
University of Cincinnati, ML 767
234 Goodman St.
Cincinnati, Ohio 45267
(513) 872-4904
9. Joseph C. Arrezzo, PhD
Associate Professor, Department of
Neuroscience and Neurology
Albert Einstein College of Medicine
of Yeshiva University
1300 Morris Park Ave.
Bronx, New York 10461
212-430-2468

c) Government Scientific Reviewers

1. Edward Baker, M.D., M.P.H.

Acting Deputy Director

NIOSH, OD

Bldg 1, Room 3007

1600 Clifton Road

Atlanta, GA 30333

2. W. Kent Anger, PhD

Chief, Neurobehavioural Research Section

DBBS, NIOSH

513-533-8383

3. Howard Ory, MD

Deputy Director for Research, EPO, CDC

404-329-3583

4. Renate Kimbrough, MD

Medical Officer, CDD, CEH, CDC

404-454-4323

5. Richard Hornung, PhD

Statistician, Support Services Branch, DSHEFS

NIOSH

513-684-4211

6. Jack Morrison, PhD, Chairman
Statistical Peer Review Group, NIOSH
513-684-4353

d) Members of the 1984 Science Panel

Dr. Carl Keller, Epidemiologist
National Institute of Environmental
Health Sciences
Room 2855, Building 31
National Institute of Health
Bethesda, Maryland 20205
301-496-3511

Dr. Renata Kimbrough
Research Medical Officer
Centers for Disease Control
1600 Clifton Road, N.E.
Atlanta, Georgia 30333
404-454-4323

Dr. Lawrence B. Hobson (102)

Deputy Director

Agent Orange Projects Office

Veterans Administration

Shoreham Bldg. - Suite 308

15th & H Streets, N.W.

Washington, D.C. 20005

202-389-5411

Maj. Alvin L. Young, USAF

Senior Policy Analyst

Office of Science Technology Policy

Room 5005

New Executive Office Building

Washington, D.C. 20500

202-395-3125

Col. Richard Hodder, M.D. M.P.H.

Deputy Director

Division of Medicine

Walter Reed Army Institute of Research

Washington, D.C. 20307

202-576-1418

Dr. Donald Barnes
Environmental Scientist
Office of the Asst. Admin. for
Pesticides & Toxic Substances
Environmental Protection Agency
401 M St., S.W. - RM. 635E
Washington, D.C. 20460
202-382-2897

Dr. Marilyn Fingerhut
Industrial Studies Branch
NIOSH
4676 Columbia Parkway (R-15)
Cincinnati, Ohio 45226
513-684-4411

Dr. Miriam Davis
Office of the Asst. Secretary
for Health
HHH Bldg. - Rm. 7406
Washington, D.C. 20201
202-245-6301

Dr. Han Kang (10A7B)
Chief, Research Section
Department of Medicine and Surgery
Washington, D.C. 20420
202-389-5534

Dr. Michael Gough
Senior Analyst
U.S. Congress
Office of the Technology Assessment
600 Pennsylvania Avenue, S.E.
Washington, D.C. 20003
202-226-2070

e) Members of the 1987 Science Panel

Dr. Carl Keller
Agent Orange Working Group
Epidemiologist, NIEHS
Room 2B55, Building 31
National Institutes of Health
Bethesda, MD 20205

Dr. Peter Greenwald
Director
Division of Cancer Prevention and Control
National Cancer Institutes, NIH
Building 31, Room 4432
Bethesda, MD 20892-3100

Dr. Vernon Houk
Director, Center for Environmental Health
Centers for Disease Control
1600 Clifton Road, N.E.
Chamblee, Building 27
Atlanta, GA 30333

Dr. David Rall
Director, National Institute of
Environmental Health Sciences
P.O. Box 12233
Research Triangle Park, NC 27709

Dr. Alvin Young
Senior Policy Analyst
Office of Science Technology Policy
New Executive Office Building
Room 5005
Washington, D.C. 20500

Dr. Phillip Kearney
Chief, Pesticide Degradation Lab
U.S. Department of Agriculture
BARC - West
Building 050 - Room 100
Beltsville, MD 20705

Dr. James S. Dickson, III
Senior Advisor for Environmental Affairs
Office of the Assistant Secretary for Health
Department of Health and Human Services
200 Independence Avenue, S.W.
Room 701-H, HHH Building
Washington, D.C. 20201

Dr. Robert W. Miller
Chair, Advisory Committee
Clinical Epidemiology Branch
National Cancer Institute - NIH
Room 8C41, Landow Building
Bethesda, MD 20817

Dr. Donald Barnes
Senior Science Advisor to the
Assistant Administration for
Pesticides and Toxic Substances
U.S. Environmental Protection Agency
401 M Street, S.W., (TS788)
Washington, D.C. 20460

Mr. Stephen Mallinger
Deputy Director for the Director
of Technical Support
U.S. Department of Labor, OSHA
200 Constitution Avenue, S.W.
Room N-3651, FPB
Washington, D.C. 20210

Ms. Helen Gelband
Analyst
Office of Technology Assessment
United States Congress
Washington, D.C. 20510

Dr. Barclay Shepard
Director, Agent Orange Projects Office
Veterans Administration
Suite 215 - Cafritz Building
810 Vermont Avenue, N.W.
Washington, D.C. 20240

Colonel George Stebbing, M.D.
OASD/HA/PA & QA
The Pentagon, Room 3D372
Washington, D.C. 20301-1200

Dr. Charles E. Brodine
Assistant Medical Director for Environmental
Health and Preventive Medicine
Office of Medical Services, M/MED
Department of State, Room 4253
Washington, D.C. 20520

Dr. Peter E.M. Beach
Executive Secretary
Division of Veterans Affairs
Office of the Under Secretary
Room 632-P, HHH Building
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dr. Julianne Byrne
Clinical Epidemiology Branch
National Cancer Institute - NIH
Room 8C41, Landow Building
Bethesda, MD 20817

Dr. Han Kang
Director
Office of Environmental Epidemiology (10X2B)
AFIP
Washington, D.C. 20306-6000

Dr. Ronald W. Hart
Acting Chair, Science Panel
Director, National Center
for Toxicological Research
Jefferson, AR 72079

Dr. John F. Young
Executive Secretary, Science Panel
Director, Division of Reproductive
and Developmental Toxicology
National Center for
Toxicological Research
Jefferson, AR 72079

Dr. Marilyn Fingerhut
Section Chief
NIOSH - EPI I
4676 Columbia Parkway
Mail Stop R-15
Cincinnati, OH 45226

There were no major problems that could not be resolved during the consultation and review process.

All NIOSH Dioxin peer review meetings were open to the public for attendance, discussion, and comment. No other public meetings devoted specifically to the proposed project are planned.

10. Confidentiality Assurance

The information collected will be protected by the Privacy Act of 1974. The final disposition of the data will be all questionnaire data in its original form, all laboratory results in their original form, and unedited and edited computer tapes maintained in accordance with regular NIOSH policies of handling sensitive data. The method of handling the data complies with the Freedom of Information Act and the Privacy Act of 1974.

11. Sensitive Data

Much of the data to be collected in this study can be considered sensitive. Questions will be asked regarding race, income, alcohol and drug use, social security number, religion, and fertility problems. Race is a matching factor, but race must in addition be identified since certain factors under study (cancer, pulmonary function) are not distributed randomly in the population. Income must be considered because it is a corollary of socioeconomic status, which is itself a determinant of disease prevalence. Thus income must be analyzed to assess whether the socioeconomic status of workers and referents is comparable. Alcohol and drugs are important confounders of a number of the conditions under consideration (liver disease, neurological impairment,

neuropsychological status), and so information must be collected for epidemiological analysis. NIOSH already has social security numbers for most of the workers, and numbers will be requested from the remaining workers in order to provide complete identifying data to the NIOSH Dioxin Registry, of which these two plants are a part, and upon which a mortality study is being conducted. Mortality studies require social security numbers for complete follow-up of vital status. Social security numbers are not required of the referents. Religion is asked because certain religions (e.g. Seventh Day Adventist) have restrictions on dietary and alcohol consumption. This information will be utilized in analyzing for confounding exposures. Finally, information about fertility is central to the reproductive portion of the study.

12. Cost of the Study

Conduct of Phase II will involve both "in-house" and contract expenses slightly in excess of \$4,607,666 over a period of three years. Costs will be borne by the Environmental Protection Agency Superfund.

a.) Cost to the Federal Government

	FY'87 (3 months)	FY'88 (12 months)	FY'89 (12 months)
In-house			
(travel, statistical services, data analysis, consultants, equipment & supplies)	\$212,950	\$533,050	\$64,000
Contract			
(Interviews, medical exami- nations)	\$2,972,228	\$100,000	\$ -0-
Administrative			
Cost to GDC	\$163,459	\$ 42,678	\$ 14,776
Personnel	\$ <u>52,500</u>	\$ <u>220,500</u>	\$ <u>231,525</u>
TOTAL	\$3,401,137	\$896,228	\$310,301

No direct costs will accrue to the study participants. Interviews will be scheduled at times that do not conflict with the particular respondent's work, and participants in the medical examination component of the study will have no out-of-pocket expenses for travel, lodging, subsistence, or incidentals associated with the examination. The examination itself will, of course, be free to participants. Cost burden is estimated to the general public at the rate of \$10.00 per hour. It is estimated based on calculations of burden hours (see section A.13.) that the cost to the public assuming a \$10 per hour rate will be the following:

b.) Cost to the Public

1987	1988
(3 months)	(10 months)
\$3680	\$12,265

The above cost to the public was calculated using a total of 1553.6 burden hours from successful interviews, 40.9 burden hours from refusals, multiplying the sum by \$10, and dividing this between the two years in which interviewing will be accomplished. (Interviews are not conducted during the third year of the study, which is devoted to analysis.)

13. Respondent Burden

The proposed Phase II NIOSH study will involve an anticipated maximum of 1362 persons: 736 workers and referents, and 85% of the surviving wives of the male workers and referents (626). These estimates are based on the probable maximum number of participants, using information presently available about the

location of cohort members. The burden is calculated based on an 80% response rate and an average interview time of 2 hours for workers and referents (1 1/2 hour in-home interview and 1/2 hour interview at examination site); 0.75 hours for the wives reproductive interview, and .15 hours for administering the refusants questionnaire. The interview times are based on use of the questionnaires used during Phase I of the study. The majority of the cohort members are male, and based on our Phase I experience, it is expected that the number of current and former wives of male workers will be approximately one wife or former wife for each male worker and referent. Current and former wives will be interviewed concerning their reproductive outcomes, if they can be located and are willing to participate.

<u>Questionnaire</u>	No. of Respondents	No. of Responses	Hrs. per Response	Total Burden
Health and exposure questionnaire of chemical-herbicide workers and community residents (Attachment 2)	589 (80%) (workers & referents)	1	2	1178
Refusant Questionnaire (Attachment 7)	147 (20%) (workers & referents)	1	.15	22.1
Reproductive Questionnaire (Attachment 3)	501 (80%) (wives)	1	.75	375.6
Refusant Questionnaire	125 (20%) (wives)	1	.15	18.8
Total Burden				1,594.5

The annualized burden is estimated to be 368 hours during FY'87 and 1226 hours during FY'88, when interviewing may take place.

14. Changes in Burden

At this time there is no cause to expect changes in the estimate of respondent burden.

15. Project Schedule

Phase II of the NIOSH study will begin as soon as OMB approval has been received. The following time table is proposed, assuming that OMB approval is received by June 21, 1987. If a two month downtime is necessary, the schedule will be delayed by a similar amount of time at the cost of \$100,000 per month delay.

June, 1987-August 1988

Location and interviewing of Phase II workers, referents and wives

Medical examination of Phase II workers and referents

September, 1988-December, 1988

Outstanding data to NIOSH

January, 1989-January, 1990

Data analysis; preparation of reports and publications

B. Collection of Information Employing Statistical Methods

1. Respondent Universe

The potential respondent universe for Phase II of the NIOSH study is the population of two plants totaling 368 workers (90 from the Missouri plant and 278 remaining workers from the New Jersey plant). The potential universe of referents is not readily calculable, since it is the population of individuals of similar age, race, and sex currently living in the neighborhood or community of surviving workers. In addition, based on the results of our experience in Phase I, we estimate that each participant will have approximately one current or former wife.

2. Data Collection Procedures

NIOSH has already conducted extensive follow-up on the members of the two worker cohorts. The vital status and whereabouts of 100% of the Missouri group and 95% of the New Jersey cohort are known. In addition to vital status and address, NIOSH has some work history information on cohort members from the NIOSH Dioxin Registry. More complete job history information will be collected during the interview portion of the study, from both workers and referents. Information collected during the interview portion of the study and information from plant records will be used to evaluate exposure within the worker cohort. Questionnaire information will be used assess exposures of the referents.

Data collection in general will proceed as follows: The contractor who is conducting the interview portion of the study will receive from NIOSH the "content" questionnaire (Attachments 2 & 3: worker/referent/next-of-kin questionnaire, and wives questionnaire). NIOSH will provide the contractor with a list of names and addresses and phone numbers for the study participants. When the interview instrument is ready, the contractor will begin contacting workers. Each surviving worker will be contacted in person by a field representative of the contractor (Attachment 5: Introduction script for exposed persons). If the cohort member agrees to participate in the study, the contractor representative will then seek a matched referent for that worker in the same neighborhood. The interviewer identifies 6 referents matched for age (\pm 5 years), race and sex, and living in the same census block of the worker. The 6 persons are randomly assigned numbers from 1 to 6 by the home office, and the interviewer approaches the potential referents beginning with the first number in the random sequence, until one person agrees to participate. Like the exposed workers, referents will be contacted in person at home and approached for participation in the study (Attachment #6: introduction script for comparison persons.) Eligible subjects in both the worker and referent group who decline to participate will be asked to complete a brief questionnaire asking for limited demographic, health, and occupational information and the reason for refusal (Attachment #7: Refusant questionnaire). If a worker is deceased or incapacitated, a proxy interview will be administered to the next-of-kin of the worker. If a worker refuses to participate in the study or if the worker is deceased or incapacitated, no neighborhood referent will be sought. The contractor representative will explain the extent of the study, the risks and the benefits, and will arrange a convenient time for the interview during the initial visit, and will also confirm the current telephone number, or will attempt to obtain a telephone

number at which the participant can be reached (Attachment #8 is Study Information--an explanation of the study to be used as information guidance for the contract interviewer--, and Attachment #9 is the Fact Sheet--to be left with the study subject after the introductory visit).

At the time of the actual interview, the contractor will ascertain when the study subject will be able to undergo the medical examination (Attachment #2--worker/referent/next-of-kin questionnaire). During the interview, the contractor will also arrange for the future administration of the current wife's telephone interview, and will obtain as much locating information as possible in preparation for the telephone interview of any former wives (Attachment #10 --Introductory letter and telephone script for wives; Attachment #3--Wives Reproductive Questionnaire).

When the worker or referent interview is complete, the subject can then be scheduled for his (her) examination, which will be done at the subject's convenience, during the examination period. This scheduling will obviously not apply to proxy respondents. The contractor will make all arrangements for travel, lodging, and subsistence required during the examination.

The medical examination, as noted, will involve a general physical examination (Attachment #11), a special skin examination (Attachment #12), a special neurological examination (Attachment #13), nerve conduction testing (Attachment #14), quantitative sensory testing (Attachments #15 and 16), and the collection of blood and urine samples (Attachment #17). In addition,

pulmonary function testing will be done (this is a very standard procedure, and the contractor will provide the protocol for approval during contract negotiations) and neurobehavioural and psychological testing (Attachment #18).

3. Sample Size Considerations

Power calculations for this study were conducted for outcomes which imply major morbidity, and which have been suggested in other studies of occupational groups, notably those by Moses, and by Suskind, both of which were performed on chemical workers from a production plant in Nitro, West Virginia. Both the Suskind and Moses studies were too epidemiologically flawed to consider them valid, but the outcomes noted by them are the best available for use in sample size calculations.

The conditions for which power calculations were performed (see Table I) include 1) ulcer disease, 2) abnormal pulmonary function (PFT) in exposed workers who are current smokers, 3) heart disease, 4) neuropathy, and 5) decreased libido. Chloracne was so frequently found in exposed workers, and its association with TCDD exposure is so well established, that no attempt was made to calculate the power of the NIOSH study to detect chloracne. In addition, in the Moses and Suskind studies, chloracne was often used as a surrogate for exposure.

The power calculations were made using both the Missouri and New Jersey plant populations for Phases I and II. We assumed that 80% of the group (N = 716, workers and referents) will participate, that 35% of the group is a current smoker (N = 251) and that 20% of the group is under 50 years old (N = 143). When the background prevalence of a condition appeared to be 0%, 1% was substituted to allow utilization of the Rothman-Boice program for the Hewlett Packard calculator. The alpha level chosen is .05 (one tail test).

Table I: Power Calculations for Morbidity Study

<u>Outcome</u>	<u>Prevalence</u> <u>in "unexposed"</u>	<u>PRR*</u>	<u>Power</u>	
			<u>N**</u>	<u>Power</u>
Ulcer	5.5%	4	716	99%
Abnormal PFT in current smokers	6.7%	4	251	96%
Heart disease (angina, age less than 50 years)	1.0%	6	143	28%
Decreased libido (age less than 50 years)	5.0%	4	143	67%
Neuropathy	0%	18	716	100%

*PRR=prevalence rate ratio; **N=the number of workers and referents for Phases I and II.

It can be seen from the previous table that the study overall has excellent power to detect ulcer disease, abnormal pulmonary function, diminished libido, and sensory neuropathy, if approximately the same conditions prevail in this group as in the Nitro, West Virginia group. However, in contrast to the Nitro studies, which used self-reporting of illness, the NIOSH study will use medical record verification of major illnesses. Thus we may find that the actual prevalence of disease as confirmed by medical records is lower in our group, since self-reporting may overestimate disease.

It should be added that the power of this study will also be excellent for detecting differences between the exposed and unexposed groups with respect to most so-called continuous outcomes (e.g., liver function tests, nerve conduction tests, immunologic assays, etc.).

4. Participation Rates

We expect overall participation to be at least 75% - 80%. The participants who will undergo the medical exam will be offered compensation for their travel, their lodging and meals, and their time, an arrangement which will increase response rates. Based on our experience in Phase I, we may obtain participation rates as high as 95% in the in-home interview and 85% in the medical examination. However, we have based our calculations in this document on a participation rate of 80%.

5. Pretests and Pilots

The questionnaires for the workers, referents, and wives have just been pretested by use in Phase I of this study (OMB Clearance 0920-0183). The information has been used in estimating response burden for Phase II.

6. Statistical Analysis

Because of the nature of this study, the statistical analyses will be complex. We will examine crude associations, conduct stratified analyses on major confounding variables, conduct tests for dose response, and can also anticipate using multivariate analyses including both general linear regression and multiple logistic regression.

NIOSH's statistical consultant is Richard Hornung, a member of the NIOSH Statistical Peer Review Group (telephone 513-684-4211).

Supporting Statement
Dioxin Morbidity and Reproductive Study
of U.S. Chemical Workers

A. Justification

1. Background

The extreme toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) has been recognized for several decades. An unwanted contaminant of several chemical processes, TCDD causes death and diverse morbidity in multiple animal species. In humans, occupational exposures to TCDD-contaminated production processes cause chloracne and are suspected of causing derangements in liver function and lipid metabolism, endocrine and hematopoietic function, in neurologic, psychological, and reproductive function, and cancer. TCDD was also a contaminant of Agent Orange, a defoliant used in Vietnam, a fact which has generated intense interest among veterans and which has resulted in the federal government undertaking several major epidemiologic studies of veterans. In addition to the concern felt by Vietnam veterans over the health effects of exposure to Agent Orange, workers and residents in the community at large have expressed increasing worry about their health with the discovery of widespread environmental contamination with TCDD in Missouri, and worksite and neighborhood contamination in New Jersey. Workers from two plants in particular--one in Missouri whose wastes were responsible for the environmental contamination in the state, and one in New Jersey whose processes were presumed responsible for some of the worksite and neighborhood TCDD contamination--have sought assistance from the CDC and NIOSH in evaluating their health status. In response to this public health concern, and in view of the opportunity to provide answers to questions of major

scientific importance, NIOSH and the CDC have proposed the conduct of an epidemiological medical study of these Missouri and New Jersey workers and a suitable comparison group.

Research in occupational health is authorized by Section 20 (a) (1) of the Occupational Safety and Health Act of 1970 (attachment #1). Under the Act, the National Institute for Occupational Safety and Health (NIOSH) has been given the authority to conduct and to publish epidemiologic studies of the medical effects of exposure to toxic occupational exposures.

2. Use of Data

Because TCDD is a toxic substance suspected of affecting multiple organ systems--including the soft tissues (soft tissue sarcoma), the nervous system, the cardiovascular system, skin, and human psychological response--the proposed study will involve research into five of NIOSH's Top Ten work-related diseases. Although occupational groups have been frequently studied in an effort to determine both the prevalence and persistence of morbidity in workers exposed to TCDD-contaminated processes, every existing study to date has been plagued by problems which impair the validity of the results. (See below)

Convincing answers to questions about the persistence of morbidity associated with exposure to TCDD have not been forthcoming. Without a careful epidemiological study in which health outcomes are related to exposure, there is little hope of answering the existing questions about the health effects of dioxins in humans. In addition to workers, Viet Nam veterans and various

community residents in contaminated areas are suspected of having some exposure to dioxins. However, since production workers as a group have almost certainly had the highest exposures to TCDD, important health effects would be more likely to show up in such a group than in any other. Because the exposure information on industrial workers is far better and more detailed than, for example, can be obtained from Viet Nam veterans, this piece of research will provide a major resource in the federal decision-making process with respect to recommendations regarding the dioxin problem. Thus, the results of this study will be valuable to both OSHA and the EPA for future decisions regarding exposures to workers and the community. The study results will also assist with developing intervention strategies for workers and community residents exposed to TCDD and prevention strategies for the ten leading work-related diseases and injuries, specifically occupational cancers, neurotoxic disorders, dermatologic disorders, psychological disorders, and reproductive disorders.

NIOSH proposes to study the health status of surviving workers from the two plants mentioned above, and to study the health status of individuals who are similar to the living workers (with respect to age, sex, and race) and who live in the same neighborhood as the workers. In addition, the current and former wives of the workers will be interviewed to obtain reproductive history information. There are 576 workers total in the two cohorts, of whom 85 are currently known to be deceased. Detailed information about exposures will be constructed from existing plant records by NIOSH staff and from the detailed interviews.

Workers, and the neighborhood comparison population (which will be referred to as referents in the remainder of this document) will be interviewed whenever possible in their homes by trained interviewers. The estimated response time for the interview will be one and one-half hours. ~~Wives will be interviewed by telephone, and the estimated duration of the interview will be forty five minutes.~~ At a later time, ~~workers and neighborhood referents will be scheduled for a medical examination.~~ ~~Medical examination subjects will be brought to a medical center.~~ ~~The examination is expected to require one and one-half days.~~ Subjects will incur no expense, since travel, lodging, and subsistence will be paid for.

3. Information Technology

The use of the "computer assisted telephone interview" (CATI) system for the wives' reproductive interviews is being considered. The quality control advantages of CATI are those of any computerized, electronic system. However, we will make the final decision about the telephone interviews in consultation with the contractor. The longer interview being administered to the worker subjects and their referents warrants a face-to-face interview technique.

4. Identification of Duplication

Although there have been a number of published papers describing health effects in occupational groups exposed to ~~TCDD-contaminated materials,~~ ~~none of them has been a study of an entire cohort of workers, none has had a convincing comparison population (most have been case series and have had no~~

real comparison group), and none has had adequate characterization of exposure. This study will remedy all of those deficiencies and will thus provide a uniquely valid study design. To our knowledge, no existing or planned study has adequate exposure information. Industrial cohorts are certainly the most heavily exposed of all groups, and it is furthermore possible to recreate a detailed work history for each worker, using existing plant records and interview data. There has been no comparable work in the field of occupational dioxin research.

5. Use of Existing Data

Existing data is not adequate to address the question of whether workers occupationally exposed in the past to TCDD-contaminated processes have more health problems than persons who are similar to them but who have not worked with TCDD-contaminated materials. Nor does existing data define adequately what the nature of those health problems might be (the Czechoslovakian work by Jirasek and Pazderova-Vijlupkova, and the American work by Suskind and by Moses provide suggestions but they require validation). Similarly, existing data (Moses 1984, Suskind 1984) have been insufficiently valid or powerful to assess reproductive outcomes such as spontaneous abortion in TCDD-exposed production workers. Vietnam veterans, if exposed to dioxins in Agent Orange, are likely to have had much lower exposures than the production workers. Thus the Ranch Hand study involved inadequately detailed exposure characterization and as well as probably low level exposures. Similarly, although the Centers for Disease Control has just completed a case-control birth defects study examining risk associated with Vietnam veteran status and Agent Orange

exposure, the population is too different and the exposure information too imprecise to serve as an adequate substitute for the reproductive effects portion of the present study.

6. Small Business

The data collection effort will not involve small businesses or similar entities.

7. Consequences of a Less-Frequent Collection

The data collection will be one time only. No other studies are planned at this time.

8. 5 CFR 1320.6

Compensation will be provided to the participants undergoing the medical examinations, since the examination will require one and one-half days, with travel on the preceding day and during the afternoon after the examination is completed.

The time involved makes it infeasible to attempt to conduct all examinations on weekends, and many subjects will have work which will not provide them with paid "time off" for purposes such as these. The only reasonable option which prevents participation in the study from becoming financially prohibitive (especially to the less affluent members of the group, which would itself

almost certainly produce a biased sample) is to provide adequate compensation for each medical examination participant.

In addition, participation rates have been shown to increase with compensation, and a high rate of participation is essential for a valid study. The Air Force Ranch Hand Study recompensed its subjects at the rate of \$100/day, and the Centers for Disease Control will provide the same level of compensation. The Ranch Hand study achieved an excellent participation rate, for the medical examination portion of the study (average 82%), which was necessary for its fixed cohort size. If NIOSH hopes to avoid problems of participation bias or low participation rates, a similar plan of compensation would seem advisable.

9. Consultation

In developing this project, NIOSH has had a number of "outside" consultations with various experts. These have included principally scientific reviews. The NIOSH "blue ribbon" Dioxin Peer Review Panel met in November 1983 in its first review of the project, and has reviewed subsequent changes in study design in 1984 and 1985. The Science Panel of the White House Agent Orange Working Group also reviewed the protocol in August 1984.

The following is a list of scientific advisors with whom NIOSH has worked:

a) Outside Peer Reviewers

1. Brian MacMahon, M.D.

Chairman, Department of Epidemiology

Harvard School of Public Health

677 Huntington Ave.

Boston, MA 02115

617-732-1050

2. Philip Enterline, Ph.D.

Director, Center for Environmental Epidemiology

130 DeSota Street

Pittsburgh, PA 15261

412-624-3032

3. Thomas Smith, Ph.D.

Associate Professor of Environmental Science

Department of Environmental Health

Harvard School of Public Health

677 Huntington Ave.

Boston, MA 02115

617-732-1165

4. William Russell, M.D.

Department of Pathology

North Ridge General Hospital

5757 N. Dixie Highway

Ft. Lauderdale, FL 33334

305-776-6000

b) Other Special Scientific Reviewers

1. Edward Baker, M.D., M.P.H.

Associate Professor, Department of Occupational Health

Harvard School of Public Health

677 Huntington Ave.

Boston, MA 02115

617-732-1260

2. Raymond Slavin, M.D.

Department of Allergy and Immunology

St. Louis University Hospital

1402 Grand Street

St. Louis, MO 63104

314-664-9800 x 456

c) Government Scientific Reviewers

1. W. Kent Anger, Ph.D.

Chief, Neurobehavioural Research Section

DBBS, NIOSH

513-684-8383

2. Howard Ory, M.D.

Deputy Director for Research, EPO, CDC

404-329-3583

3. Renate Kimbrough, M.D.

Medical Officer, CDD, CEH, CDC

404-454-4323

4. Clark Heath, Jr., M.D.

Director, M.P.H. Program

Emory University School of Medicine

1518 Clifton Rd., NE

Atlanta, GA 30322

404-329-7806

5. Richard Hornung

Statistician, Support Services Branch, DSHEPS

NIOSH

513-684-4211

6. Jack Morrison, Ph.D., Chairman

Statistical Peer Review Group, NIOSH

513-684-4353

7. Members of the Science Panel

White House Agent Orange Working Group

Dr. Vernon Houk, Director

Center for Environmental Health

Centers for Disease Control

1600 Clifton Road, N.E.

Atlanta, Georgia 30333

404-454-4111

Dr. Carl Keller, Epidemiologist

National Institute of Environmental

Health Sciences

Room 2855, Building 31

National Institute of Health

Bethesda, Maryland 20205

301-496-3511

Dr. Renata Kimbrough
Research Medical Officer
Centers for Disease Control
1600 Clifton Road, N.E.
Atlanta, Georgia 30333

Dr. Lawrence B. Hobson (102)
Deputy Director
Agent Orange Projects Office
Veterans Administration
Shoreham Bldg. -- Suite 308
15th & H Streets, N.W.
Washington, D.C. 20005
202-389-5411

Maj. Alvin L. Young, USAF
Senior Policy Analyst
Office of Science Technology Policy
Room 5005
New Executive Office Building
Washington, D.C. 20500
202-395-3125

Col. Richard Hodder, M.D. M.P.H.

Deputy Director

Division of Medicine

Walter Reed Army Institute of Research

Washington, D.C. 20307

202-576-1418

Dr. Donald Barnes

Environmental Scientist

Office of the Asst. Admin. for

Pesticides & Toxic Substances

Environmental Protection Agency

401 M St., S.W. - RM. 635E

Washington, D.C. 20460

202-382-2897

Dr. Marilyn Fingerhut

Industrial Studies Branch

NIOSH

4676 Columbia Parkway (R-15)

Cincinnati, Ohio 45226

513-684-4411

Dr. Miriam Davis
Office of the Asst. Secretary
for Health

HHH Bldg. - Rm. 7406
Washington, D.C. 20201
202-245-6301

Dr. Han Kang (10A7B)
Chief, Research Section
Department of Medicine and Surgery
Washington, D.C. 20420
202-389-5534

Dr. Michael Gough
Senior Analyst
U.S. Congress
Office of the Technology Assessment
600 Pennsylvania Avenue, S.E.
Washington, D.C. 20003
202-226-2070

There were no major problems that could not be resolved during the
consultation and review process.

The NIOSH Dioxin peer review meeting in November 1983 was open to the public for attendance, discussion, and comment. No other public meetings devoted specifically to the proposed project are planned.

10. Confidentiality Assurance

The information collected will be protected by the Privacy Act of 1974. The final disposition of the data will be all questionnaire data in its original form, all laboratory results in their original form, and unedited and edited computer tapes maintained in accordance with regular NIOSH policies of handling sensitive data. The method of handling the data complies with the Freedom of Information Act and the Privacy Act of 1974.

11. Sensitive Data

Much of the data to be collected in this study can be considered sensitive. Questions will be asked regarding race, income, alcohol and drug use, social security number, and fertility problems. Race is a matching factor, but race must in addition be identified since certain factors under study (cancer, pulmonary function) are not distributed randomly in the population. Income must be considered because it is a corollary of socioeconomic status, which is itself a determinant of disease prevalence. Thus income must be analyzed to assess whether the socioeconomic status of workers and referents is comparable. Alcohol and drugs are important confounders of a number of the conditions under consideration (liver disease, neurological impairment, neuropsychological status), and so information must be collected for

epidemiological analysis. NIOSH already has social security numbers for most of the workers, and numbers will be requested from the remaining workers in order to provide complete identifying data to the NIOSH Dioxin Registry, of which these two plants are a part, and upon which a mortality study is being conducted. Mortality studies require social security numbers for complete follow-up of vital status. Social security numbers are not required of the referents. Finally, information about fertility is central to the reproductive portion of the study. Questions on religion are included as part of the reproductive questionnaire (Attachment 3) because of the relationship between religious preference and reproductive practices.

12. Cost of the Study

Conduct of this study will involve both "in-house" and contract expenses borne by the Environmental Protection Agency-Superfund.

a.) Cost to the Federal Government - N/A

No direct costs will accrue to the study participants. Interviews will be scheduled at times that do not conflict with the particular respondent's work, and participants in the medical examination component of the study will have no out-of-pocket expenses for travel, lodging, subsistence, or incidentals associated with the examination. The examination itself will, of course, be free to participants. Cost burden for respondents is estimated at the rate of \$10.00 per hour. It is estimated based on calculations of burden hours (see

section A.13.) that the cost to respondents assuming a \$10 per hour rate will be the following:

b.) Cost to Respondents

1985	1986	1987
\$4,913	\$4,913	\$4,913

The above cost to respondents was calculated by multiplying the annual burden of 491.3 hours by \$10.

13. Respondent Burden

The proposed NIOSH studies will involve an anticipated maximum of 1584 persons: 442 workers, 350 referents, and 792 wives of the male workers and referents. These estimates are based on the probable maximum number of participants using information presently available about the location of cohort members. There are 576 workers in the cohort, 85 are verified deceased and for 49 the vital status is unknown. The burden is calculated based on an 80% response rate; an average interview time of 1.5 hours for workers and referents; 0.75 hours for the wives reproduction section, and .15 hours for refusants. The interview times are based on informal administration with 9 people of the current questionnaires. The majority of the cohort members are male and based on the Ranch Hand Study experience it is expected that the number of current and former wives will be the same as the live cohort members

and referents. Current and former wives will be interviewed if they can be located and are willing to participate.

<u>Questionnaire</u>	<u>No. of Respondents</u>	<u>No. of Responses</u>	<u>Hrs. per Response</u>	<u>Total Burden</u>
Health and exposure questionnaire of chemical-herbicide workers and community residents (Attachment 2)	634 (80%)	1	1.5	951
Refusant Questionnaire (Attachment 7)	158 (20%) (workers & referents)	1	.15	23.7
Reproductive Questionnaire (Attachment 3)	634 (80%) (wives)	1	.75	475.5
Refusant Questionnaire (Attachment 7)	158 (20%) (wives)	1	.15	23.7
Total Burden				1,473.9

The annualized burden is estimated to be 491.3 hours per year over the three years that the interviews will take place.

MAD MAN NO DUCKS

14. Changes in Burden

This study is in the FY 1985 ICB at 3200 hours. However, the annualized burden is considerably less. At this time there is no cause to expect changes in this estimate of respondent burden.

15. Project Schedule

The study will begin only after OMB approval and award of contract. At present, the following timetable is proposed for the three study phases:

September 1985-January 1986

Contract awarded

Finalize and test

questionnaire format,

Missouri subject contact,

referent selection, interview all

Missouri related individuals,

perform medical examinations on

all participating Missouri subjects

Begin wife interviews

February 1986-December 1986

New Jersey subject contact,

referent selection, interviews of

all New Jersey-related

individuals, perform medical

examinations on all participating

New Jersey subjects. Complete wife

interviews from Missouri and N.J.

January 1987-April 1987

Outstanding data delivered to

NIOSH.

May 1987-April 1988

Data analysis conducted and

reports and publications prepared

B. Collection of Information Employing Statistical Methods

1. Respondent Universe

The potential respondent universe for the proposed NIOSH study is the population of two plants totalling 576 workers. The potential universe of referents is not readily calculable, since it is the population of individuals of similar age, race, and sex ^{income} currently living in the neighborhood or community of surviving workers. In addition, based on a maximum anticipated participation of 792 workers and referents, and on the results of the Air Force Ranch Hand study, we estimate that the male members of this group will have an approximately equal number of current and former wives, or 792 wives.

2. Data Collection Procedures

NIOSH has already conducted extensive follow-up on the members of the two worker cohorts. The vital status and whereabouts of 100% of the Missouri group and 90% of the New Jersey cohort are known. In addition to vital status and address, NIOSH has some work history information from existing company records on cohort members. More complete job history information will be collected during the interview portion of the study, from both workers and referents. Information collected during the interview portion of the study and information from plant records will be used to evaluate exposure within the worker cohort. Questionnaire information alone will be used to assess exposures of the referents.

Data collection in general will proceed as follows: The contractor who is conducting the interview portion of the study will receive from NIOSH "content" questionnaire (~~Attachment 2: worker/referent questionnaire, wives questionnaire, Attachment 3 and Consent form for workers and referents, Attachment 4~~) which the contractor will then finalize, format, and field test on ~~9 or less~~ volunteers. Although the questions will remain the same, the contractor may reformat for consistency and logic. NIOSH will provide the contractor with a list of names and addresses and phone numbers for the cohorts. ~~The two companies involved have allowed NIOSH access to existing company records to extract the necessary locating information.~~ The workers will not be sent a letter or phoned for an interview appointment because the referents can not be determined until the cohort member is interviewed. It is ~~important for comparability to contact the cohort members and referents in the same manner.~~ When the interview instrument is ready, the contractor will begin contacting workers. Each surviving worker will be contacted in person by a field representative of the contractor (Attachment 5: Introduction script for exposed persons). If the cohort member agrees to participate in the study, ~~the contractor representative will then seek a matched referent for that worker in the same neighborhood, using an algorithm (to be determined by contractor and reviewed by NIOSH for soundness) which is appropriate for the population density in that area and matched by age, sex, and race.~~ Like the exposed workers, referents will be contacted in person at home and approached for participation in the study (Attachment #6: introduction script for comparison persons.) Eligible refusants in both the worker and referent group will be asked to complete a brief questionnaire asking for limited demographic, health, and occupational information and the reason for refusal

(Attachment #7: Refusant questionnaire). If a worker refuses to participate in the study, no neighborhood referent will be sought. The contractor representative will explain the extent of the study, the risks and the benefits, and will arrange a convenient time for the interview during the initial visit, and will also confirm the current telephone number or will attempt to obtain a telephone number at which the participant can be reached. (Attachment #8 is Study Information--an explanation of the study to be used as information guidance for the contract interviewer--, and Attachment #9 is the Fact Sheet--to be left with the study subject after the introductory visit).

At the time of the actual interview, the contractor will ascertain when the study subject will be able to undergo the medical examination (Attachment #2--worker/referent questionnaire). During the interview, the contractor will also arrange to conduct the current wife's telephone interview, and will obtain as much locating information as possible in preparation for the telephone interview of any former wives (Attachment #10 --Letter, Consent Form, and Introductory Telephone Script for Wives; Attachment #3--wives reproductive interview). The consent form contains a medical records release form so the information provided on the questionnaire can be verified.

When the worker or referent interview is complete, the subject can then be scheduled for his (her) examination, which will be done at his convenience but as soon after the interview as is feasible. The contractor will make all arrangements for travel, lodging, and subsistence required during the examination. After the interviews are complete or scheduled for the workers and their referents still living in the state or immediate geographic area,

the contractor will then make contact with workers living outside the state. The current plan is to interview and bring in to the examination site those workers living out of state.

Interview and examination procedures for Missouri and New Jersey will be essentially the same, although medical examinations will be conducted at different fixed sites.

The medical examination, as noted, will involve a general physical examination (Attachment #11), a special skin examination (Attachment #12), a special neurological examination (Attachment #13), nerve conduction testing (Attachment #14), quantitative sensory testing (Attachments #15 and 16), and the collection of blood and urine samples (Attachment #17). In addition, pulmonary function testing will be done (this is a very standard procedure, and the contractor will provide the protocol for approval during contract negotiations) and neurobehavioural and psychological testing (Attachment #18).

3. Sample Size Considerations

Minor ~~exp~~ improve

Power calculations for this study were conducted for outcomes which imply major morbidity, and which have been suggested in other studies of occupational groups, notably those by Moses, and by Suskind, both of which were performed on chemical workers from a production plant in Nitro, West Virginia. Both the Suskind and Moses studies were too epidemiologically flawed to consider them valid, but the outcomes noted by them are the best available for use in sample size calculations.

The conditions for which power calculations were performed (see Table I) include 1) ulcer disease, 2) abnormal pulmonary function (PFT) in exposed workers who are current smokers, 3) heart disease, 4) neuropathy, and 5) decreased libido. Chloracne was so frequently found in exposed workers, and its association with TCDD exposure is so well established, that no attempt was made to calculate the power of the NIOSH study to detect chloracne. In addition, in the Moses and Suskind studies, chloracne was often used as a surrogate for exposure.

The power calculations were made using only the New Jersey cohort. We assumed that 50% of the New Jersey plant is alive and still living in New Jersey, and that 80% of that group will participate (overall n=190). When the background prevalence of a condition appeared to be 0%, 1% was substituted to allow utilization of the Rothman-Boice program for the Hewlett-Packard calculator. The alpha level chosen is .05 (one tail test).

Table I: Power Calculations for Morbidity Study

<u>Outcome</u>	<u>Prevalence</u>		<u>PRR*</u>	<u>N**</u>	<u>Power</u>
	<u>in "unexposed"</u>	<u>in exposed</u>			
Ulcer	6%	18%	3	190	99%
Abnormal PFT in current smokers	6.7%	26%	3.9	65	96%
Heart disease (angina, age less than 50 years)	1%	6%	6	60	40%
Decreased libido (age less than 50 years)	2%	8%	4	60	83%
Neuropathy	0%	18%	18	190	100%

*PRR=prevalence rate ratio; **N=the number available in this cohort

It can be seen from the previous table that the study overall has excellent power to detect ulcer disease, abnormal pulmonary function, diminished libido, and sensory neuropathy, if approximately the same conditions prevail in this group as in the Nitro. West Virginia group. However, in contrast to the Nitro studies, which used self-reporting of illness, the NIOSH study will use medical record verification of major illnesses. Thus we may find that the actual prevalence of disease as confirmed by medical records is lower in our group, since self-reporting may overestimate disease.

It should be added that the power of this study will also be excellent for detecting differences between the exposed and unexposed groups with respect to most so-called continuous outcomes (e.g., liver function tests, nerve conduction tests, immunologic assays, etc.).

4. Participation Rates

We expect participation to range between 75% and 80%. The participants who will be undergoing the medical exam will be offered compensation for their travel and lodging, and time, etc., which will increase response rates based on the experience of the Air Force Ranch Hand Study.

5. Pretests and Pilots

The questionnaire for the cohort and referents, will be pretested with 9 or fewer persons by the contractor. The reproductive questionnaire (Attachment 3) for the wives has been used in other NIOSH studies (OMB#092-0037).

6. Statistical analysis

Because of the nature of this study, the statistical analyses will be complex. We will examine crude associations, conduct stratified analyses on major confounding variables, conduct tests for dose response, and can also anticipate using multivariate analyses including both multiple linear regression and multiple logistic regression.

NIOSH's statistical consultant is Richard Hornung, a member of the NIOSH Statistical Peer Review Group (telephone 513-684-4211).

CONTENTS

	PAGE
EXECUTIVE SUMMARY.....	1
INTRODUCTION.....	4
OMB REVIEW PROCESS UNDER THE PAPERWORK REDUCTION ACT.....	5
THE PEER REVIEW PROCESS.....	6
CASE REVIEWS.....	8
OMB PATTERNS OF APPROVAL AND DISAPPROVAL.....	14
Methods and Data.....	14
Statistical Evaluation.....	16
Findings.....	18
APPENDIX OF CASE STUDIES.....	21
Study of Dioxin Worker's Morbidity and Reproductive Effects.....	22
NIOSH Reproductive Study of Female Video Display Terminal Operators.....	26
NIOSH Investigation of Workers Exposed to MBOCA.....	31
Epidemiologic Study of Ladder Fall Injuries.....	33
Health Risks of Information Processing.....	35
Centers for Disease Control Reproductive Outcome Survey.....	36

EXECUTIVE SUMMARY

In 1980, Congress enacted the Paperwork Reduction Act with the intended goal of reducing the burden of government paperwork on the general public. For the purpose of implementing the Act, review of all government information collection was consolidated into the Office of Information and Regulatory Affairs (OIRA) within the President's Office of Management and Budget (OMB). At the time of passage of the Act, Congress expressed concern that this consolidation of review power within OMB might be subject to abuse. Because of this concern, language was included in the Act specifically stating that the OMB review was not to interfere with the substantive programs and policies of agencies.

OMB is required by the Act to clear all information collection requests by Federal agencies. This requirement includes the power to review scientific and medical information collection by agencies such as the Centers for Disease Control (CDC). OMB's review is for paperwork reduction purposes only. This review should be distinguished from the extensive scientific peer review which involves numerous experts in the evaluation of CDC studies.

Given the initial legislative concern about the potential for OMB abuse of its Paperwork Reduction Act authorities, we reviewed the OMB clearance process as it has actually affected CDC studies during the period from January, 1984, to March, 1986. During this period, six major peer review studies from CDC were either significantly delayed, seriously altered in scientific design, or disapproved entirely by OMB.

We evaluated the six studies systematically; all had received a thorough and appropriate review from panels of nationally recognized experts, and all were approved by the respective peer review group.

The OMB review, which was superimposed on the peer review process, generally relied on single consultants rather than a panel of experts. The process was poorly documented and often demonstrated a dismaying ignorance of the fundamentals of science and public decisionmaking.

Three major studies (on the health effects of dioxin, video display terminals, and MBOCA) were initially disapproved and then subsequently approved by OMB following Congressional inquiries. We present a summary of each of these cases here:

- (1) Dioxin - Concern about dioxin is broad-based with the public and relevant to several Federal agencies. Human exposures have occurred at work sites in various communities and among Vietnam veterans exposed to Agent Orange. Those concerned with government policy decisions on

dioxin exposure have argued that a clear study relating human doses to clinical outcomes is needed to evaluate the relationship of dioxin exposure and outcomes, such as birth defects, metabolic disorders, and cancer.

The White House Agent Orange Working Group and a panel of NIOSH peer reviewers agreed that the NIOSH study of dioxin-exposed workers in Newark, New Jersey and Verona, Missouri, would provide this important exposure-effect data. Notwithstanding the impressive array of scientific panels that articulated the importance of this study and who approved its design, OMB disapproved the study. Following a Senate directive that the study should go forward, OMB approved a pretest of the study methodology; the full study has not yet been approved.

Conditions imposed by OMB during its paperwork review of the dioxin study have delayed the initiation of the study substantially, have increased contracting costs by at least \$270,000, and may even totally block the completion of this important study.

- (2) Video Display Terminals - Twelve reported clusters of abnormal birth outcomes in women working with video display terminals have caused considerable public alarm. Industry, labor, and public health professionals all agreed on the need for a definitive study on this issue by the National Institute for Occupational Safety and Health. OMB initially disapproved the study. Following two Congressional hearings which addressed the specific need for this particular study, OMB finally gave the study partial approval, but required the removal of important questions related to fertility and stress. Numerous experts agree that OMB's tampering with the study design has significantly weakened the study to the extent that the results will be less credible.
- (3) MBOCA - A CDC study of 500 workers in Adrian, Michigan, exposed to this carcinogenic chemical, was initially disapproved by OMB. A more limited study was finally allowed to go forward following an inquiry from the office of Congressman John D. Dingell. OMB's paperwork review resulted in a 6-month delay in undertaking important cancer screening in a large population at risk and may have weakened the proposed study design.

Three other studies, relating to ladder falls, hazards of information processing, and reproductive outcomes of CDC workers, were totally blocked by OMB. The alteration or cancellation by OMB of approved peer reviewed CDC research is of concern. A redirection of research by an agency without public health competence has occurred in each of these six cases.

Because of our concern, we reviewed all fifty-one research projects submitted by CDC to OMB from January, 1984

to March, 1986. We assessed whether OMB's rejections fell differentially on certain types of studies. Statistically reviewing the pattern of OMB rejections, we found that OMB was seven times more likely to reject studies with an environmental or occupational health focus than to reject studies that focused on issues such as infectious diseases or other conventional diseases. Studies with a reproductive focus, such as birth defects or venereal disease, also were more likely to be rejected by OMB.

quality of studies?

Our analysis indicated a demonstrable bias in the application of the Paperwork Reduction Act clearance process as administered by OMB's Office of Information and Regulatory Affairs. The health policy implications are serious; OMB is clearly interfering with the substance of CDC research. OMB has delayed, impeded, and thwarted governmental research efforts designed to answer public demands for information on serious public health questions. Rather than minimizing the costs of information collection, the paperwork review process has resulted in a diversion of tax dollars from productive health research into paperwork clearance activities and unnecessary contracting costs.

Reviewing the actual functioning of the Paperwork Reduction Act as administered by OMB, we find evidence that the initial legislative concern, that the administration of the Act might be subject to abuse, was indeed warranted.

INTRODUCTION

When government agencies are mandated to engage in scientific research, questions arise concerning the scientific review process. How is the quality and the appropriateness of a study to be assessed? Who should review and monitor the study? Are those who are reviewing trained and capable of understanding the product they are reviewing? Is their review one that is constructive, improves the projected research, and assures that it is carried out in the most beneficial way?

These issues have become particularly salient as we have seen the delay, alteration, or cancellation of various research projects by the President's Office of Management and Budget (OMB). While OMB is not a scientific agency, it does have certain powers of review provided under the Paperwork Reduction Act of 1980. Recently, critics of OMB have argued that the agency has been using its role as a paperwork reviewer to interfere with research proposals initiated by the Centers for Disease Control (CDC). OMB's role in such review may have gone beyond the role mandated by the Paperwork Reduction Act. Critics have claimed that it has used its power of review to redirect the focus of CDC's scientific research.

A White House office with the effective power to review, alter, approve, or disapprove research by another agency is in a strong position to determine the direction that research will take. Such a process of review could affect health policy significantly. If research on particular topics is blocked, information is unavailable for informed decision-making in the public health sector. The regulatory process is thwarted because there is no data to justify regulation. Thus, the blockage of research can prevent informed action to protect the public health.

We have analyzed the process by which CDC studies are reviewed by OMB under the Paperwork Reduction Act. Our goal was to evaluate how the review was affecting the research process and to assess whether the benefits of the review justify the financial and public health costs.

There are four sections of analysis:

1. A summary of the Paperwork Reduction Act, focusing on the provisions for review of scientific research under the Act.
2. A review of the traditional scientific peer review process as it occurs at CDC and a comparison with the mandated OMB review process.
3. Case histories of CDC studies disapproved or conditionally approved by OMB to determine whether the OMB review process was appropriate and beneficial.

4. Statistical analysis to evaluate whether the patterns of OMB disapproval are systematic and imply an imposed health policy bias.

THE OMB REVIEW PROCESS UNDER THE PAPERWORK REDUCTION ACT

Under the Paperwork Reduction Act, OMB has broad authority to control the collection of information by Federal agencies. The Act applies to any "collection of information," which is defined as "the obtaining or soliciting of facts or opinions by an agency through the use of written report forms, application forms, schedules, questionnaires, reporting or recordkeeping requirements, or other similar methods...."¹

The Act requires agencies to obtain approval of all information collection requests from OMB's Office of Information and Regulatory Affairs (OIRA). The Act imposes a duty on OMB to "determine whether the collection of information by an agency is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility."²

OMB regulations implementing the Act essentially require each agency to demonstrate to OMB that its proposed information collection requests are: (a) "the least burdensome necessary for the proper performance of the agency's functions to comply with legal requirements and achieve program objectives;" (b) "not duplicative of information otherwise accessible to the agency;" and (c) of "practical utility." As defined in the Act, the term "practical utility" means "the ability of an agency to use information it collects, particularly the capability to process such information in a timely and useful fashion."³ If OMB does not approve, the agency may not collect the requested information.

Under the provisions of the Act, OMB must either deny or approve an agency's information collection request within 90 days. However, OMB's regulations do provide for reconsideration of a disapproval if the agency provides "significant new or additional information relevant to the original decision."⁴

From the legislative history of the Paperwork Reduction Act, it is clear that Congress intended that information collection requests included in epidemiological studies would be subject to OMB review.⁵ However, it is equally clear from the Act itself and its legislative history that Congress did not intend to increase OMB's power over the substantive policies and programs of the agencies. In fact, the Act contains a provision which states:

Nothing in this chapter shall be interpreted as

increasing or decreasing the authority of the President, the Office of Management and Budget or the Director thereof, under the laws of the United States, with respect to the substantive policies and programs of departments, agencies and offices....⁶

The late Senator Jacob Javits of New York elaborated on the distinction between OMB's paperwork review authorities and the substantive policies and programs of the agencies during the Senate debate on the Act, as follows:

I have been concerned that the method used to accomplish this worthwhile goal -- particularly the provision that all agency recordkeeping requirements be cleared by OMB -- could be used to undermine substantive programs. For without adequate information on which to base its decisions, an agency cannot function. The sponsors of this legislation have made very clear that nothing in the bill in any way affects OMB's authority over substantive policies and programs.... However, the line between substance and procedure is not always entirely clear. While I do not believe OMB's authority over any program, whether it is worker safety or pure food and drugs, should be, or is, increased by this legislation I will be watching its implementation very carefully.⁷

Finally, section 3504(a) of the Act specifies that the authority of OMB must be exercised in ways that are consistent with applicable law. However, the Senate Committee acknowledged that these protections might not be adequate stating:

These provisions will hopefully provide adequate protection from potential abuse or political interference. But this situation merits close attention in the future.⁸

THE PEER REVIEW PROCESS

The review of scientific studies done by OMB for the purposes of the Paperwork Reduction Act differs from the extensive internal "peer review" to which CDC subjects its major studies. The tradition of scientific peer review is well established in scientific circles. This process involves trained scientists from related fields in the assessment of scientific research projects. Such a review is a prerequisite for funding of research in academic institutions and for publication in major scientific and medical journals. A peer review panel will be convened for a

proposed study to evaluate the effectiveness of the proposal and to improve the research design.

At CDC this scientific tradition of peer review is long-standing. For major studies, peer review panels include independent experts from various fields of science related to the study at hand; panel members evaluate each study proposal, and the proposal is then reworked by the CDC scientists based on the comments of the reviewers.

For example, a proposed study to evaluate the possibility of birth defects resulting from a given toxic exposure could be reviewed by a panel of experts from several areas. The panel might include an epidemiologist with expertise in reproductive outcomes, a toxicologist, a pathologist with expertise in the area of laboratory tests that are proposed for medical evaluation, and a statistician. If the study were controversial, more than one expert per area of study might be called. Copies of the study proposal would be sent to all team members. They would review the proposal and then meet with the researchers for a full discussion of possible changes in study design. Written comments would be sent to the CDC investigators.

The peer review process is not rigidly defined nor does it guarantee a perfect outcome but it does have a structure that has traditionally provided for better science for the following reasons:

1. There are several independent reviewers. This means that the individual prejudices of a single scientist cannot govern the approval or disapproval of a study. The scientific tradition of finding a better truth out of free debate is maintained.
2. The reviewers come from several different areas of expertise. Thus, different aspects of the study will be reviewed by experts from that particular area.
3. The team that reviews a study functions independently and without conflicts of interest.

Four broad criteria have been proposed for evaluating peer review: adequacy, value, effectiveness, and legitimacy.⁹ The criteria of adequacy involves the reliability of the data, the study design, and statistical methods. Value relates to the importance of the problem addressed; in other words, low marks would be given for a patently trivial proposal. Effectiveness suggests that a study will move scientific research forward by providing needed answers in a current area of controversy. Legitimacy means that the study design is consistent with recognized traditions of scientific thought.

The traditional scientific peer review process that is used at CDC thus involves a team of independent experts from

various fields related to a particular study who evaluate that study for its adequacy, value, effectiveness, and legitimacy. While scientific consensus is hardly guaranteed by the peer review process, this process enhances the likelihood that the research product that emerges will be consistent with current scientific standards.

The traditional scientific peer review is a thorough review involving various experts who focus their discussions on the quality of the science presented. This review contrasts with the review that is mandated under the Paperwork Reduction Act, which is intended to focus on paperwork burden and practical utility rather than on scientific substance.

X

CASE REVIEWS

The Paperwork Reduction Act was passed in 1980; the final rule governing its implementation has been in place more than three years. There is now a body of information available to evaluate whether the OMB clearance process has functioned in a manner that is consistent with Congressional intent.

In our analysis, we conducted an in-depth evaluation of the OMB review process as it applied to six CDC studies that were either disapproved or only conditionally approved by OMB following endorsement by scientific peer review panels. These six studies comprised all of the peer reviewed research projects rejected by OMB since January, 1984 on which we had full documentation of the peer review process. Three of these studies were major studies that received only conditional acceptance. Three were fully rejected by OMB notwithstanding acceptance by the peer review panel. The review process was examined to determine whether it interfered with the substantive programs and policies of the scientific research agencies. We have focused on four areas of interest:

6 out of 51
checked
rejected

1. What were the issues raised in the initial CDC study design? What was the nature of the public health issue addressed?
2. What peer review occurred? Was it adequate and appropriate?
3. What was the nature of the OMB review? What was the final outcome?
4. What was the effect of the OMB review on the timing, quality, and costs of the final product?

Analysis of each of the studies involved a review of a substantial body of agency documents. We traced each CDC study from the primary proposal through the various stages of peer review. The issues raised during the peer review were scrutinized, and the subsequent proposals were reviewed to

determine whether these issues were addressed adequately in the final product.

Then, we evaluated the OMB review and compared OMB's review process and findings with those of the scientific peer review panel. Finally, we reviewed the end product to assess the impact of the superimposed OMB review on the CDC study.

The analysis for each study is rather lengthy so for the purposes of this report, a summary of the six studies is included in Table 1. The full discussion of each case is included in the appendix.

TABLE 1

Summary of Case Reviews

	Dioxin	VDTs	MBOCA	Ladder Falls	Information Processing	CDC Reproductive Outcomes
PURPOSE	Study intended to provide dose related data on morbidity & reproductive effects not previously researched in humans	Study would provide definitive data on the reproductive hazards of video display terminals	Study was designed to screen 500 workers exposed to potent animal carcinogen for bladder cancer	Study was first scientific project to provide controlled data on this major occupational safety problem & was designed to assist regulatory & non-regulatory safety initiatives	Study designed as <u>initial</u> information-gathering step to assess relationship between repetitive mental tasks and physiologic changes	Study intended to provide important <u>baseline</u> data for numerous <u>epidemiological</u> reproductive studies
ISSUES	<ul style="list-style-type: none"> *Major animal toxin causing tumors & birth defects *Public health issues, including exposures at work sites, Superfund sites, Vietnam veterans *Lack of dose related data on morbidity & birth defects 	<ul style="list-style-type: none"> *12 reported clusters of abnormal reproductive outcomes *Serious public concern for large number of women exposed *No existing controls 	<ul style="list-style-type: none"> *Potent animal carcinogen *Exposure of 500 workers in Adrian, MI *Serious community concern *No existing regulatory controls 	<ul style="list-style-type: none"> *Persistent & severe industrial accident *No scientific data with control population *Some current OSHA regulations under revision 	<ul style="list-style-type: none"> *Initial investigation of relationship between the stress of repetitive mental tasks & physiologic changes 	<ul style="list-style-type: none"> *Cluster of abnormal birth outcomes in laboratory workers at CDC *Chance for ideal reproductive survey data in an informed population *Important baseline data for many other reproductive studies

	Dioxin	VDTs	MBOCA	Ladder Falls	Information Processing	CDC Reproductive Outcomes
STUDY DESIGN	*Interviews & medical screening of 460 dioxin exposed workers at two sites and community controls	*Interview data & survey of medical records collecting retrospective data on 2000 female VDT users & 2000 controls	*Interviews & medical screening of 500 workers	*Interview data from cases & matched controls	*Interview data & physiologic measures	*Surveillance of CDC employees
PEER REVIEW	*NIOSH 12-member panel --Approved-- *White House Agent Orange Working Group Science Panel --Approved--	*5-member panel --Approved--	*4-member panel --Approved--	*18 consultants --Approved--	*7 peer reviewers --Approved--	*Broad committee of all sections of CDC --Approved--
OMB REVIEW	*--Disapproved-- (11/85) (enough studies on dioxin) *Approved with conditions following appeal & Senate directive (3/86) *Pretest of methodology approved-- full study not yet approved	*--Disapproved-- (12/85) ("design flaws") *Approved with conditions following Congressional inquiry (6/86) *Removal of questions related to stress and fertility	*--Disapproved-- (5/85) ("design flaws") *Approved with condition following Congressional inquiry (8/85)	*--Disapproved-- (9/84) ("no practical utility")	*--Disapproved-- (2/85) (insufficient evidence of health & safety problem)	*--Disapproved-- (3/86) Appealed by CDC *--Disapproved-- (6/86)

	Dioxin	VDTs	MBOCA	Ladder Falls	Information Processing	CDC Reproductive Outcomes
EFFECTS OF OMB REVIEW	<ul style="list-style-type: none"> *Study could have been blocked *No full study yet approved *If study does go forward, costs will be increased \$270,000 	<ul style="list-style-type: none"> *Study could have been blocked *Many experts feel study is significantly weakened by removal of stress & fertility questions *Costs increased \$53,000 	<ul style="list-style-type: none"> *Study could have been blocked *Delay of cancer screening for six months *Weakening of study design 	<ul style="list-style-type: none"> *Study on major industrial safety issue cancelled 	<ul style="list-style-type: none"> *Study on stress-related disease cancelled 	<ul style="list-style-type: none"> *Study that would provide important reproductive baseline data in an ideal population cancelled



Our review of six studies which were rejected by OMB reveals several significant patterns. All six studies were designed to address legitimate scientific and public health questions. At least three of the studies (relating to dioxin, the reproductive hazards of video display terminals, and the carcinogenic potential of MBOCA) addressed major public health issues about which citizens had expressed profound concern.

All six studies were subjected to extensive peer review. Protocol revisions based on the peer reviewers comments ranged from minor adjustments to substantial changes in study design but all study protocols eventually were redesigned and approved by the peer review panels.

The results of the OMB review fell into two general categories. OMB initially disapproved all six studies but the stated reasons for disapproval varied. In the case of the dioxin, VDT, and MBOCA studies, OMB's initial rejection was based on the budget office's assessment of the scientific value or quality of each study. The disapprovals were not based on a finding of burdensome or duplicative paperwork. For example, OMB rejected the dioxin study on the grounds that it was "unnecessary" in view of previous dioxin research. OMB vetoed the initial information collection requests for the VDT and MBOCA studies based on its assessment that these studies had major design flaws.

In all three of these cases, OMB relied heavily on outside consultants, who were either unprepared or were unfavorably disposed to the study they were to evaluate and who raised questions which already had been discussed by the agency peer review panels. In all of these cases, a critique requested by OMB from a single consultant or provided to OMB from industry consultants overrode the scientific judgment of a multi-discipline peer review panel, which had approved the study.

The inappropriate scientific nature of OMB's review is a pattern that is confirmed in further review of these three studies. In all of these studies, following agency appeals and expressions of Congressional and public concern, OMB conditioned its ultimate approval on the redesign of the scientific protocol. In addition, in all three cases, the redesign that occurred appears to have weakened the studies.

In the other three cases, the OMB disapproval was premised on the conclusion that the studies lacked "practical utility." OMB disapproved the epidemiologic study of ladder falls on the grounds that OSHA had initiated rulemaking in this area and therefore new information was not needed. Yet, OMB's conclusion disregarded the assertions of both OSHA and NIOSH that the proposed study would not only benefit efforts to revise or eliminate OSHA's regulations but also would greatly assist voluntary safety efforts.

The studies on the health hazards of information

processing and reproductive outcomes of CDC employees were disapproved because OMB concluded that there was insufficient evidence of existing health problems. Both of these studies were designed to investigate possible public health risks in areas that had not been previously evaluated epidemiologically. The reasoning applied by OMB is only justified if the hazard is already understood. Thus, if OMB's reasoning were consistently applied, research into any new area would be blocked.

Reviewing the effect of OMB's paperwork review, we find that OMB, an agency without public health expertise, has used its authority under the Paperwork Reduction Act to alter the direction of public health research proposed by public health agencies. OMB's review in these cases had several effects, all of which were deleterious. Studies were delayed, weakened, increased in cost, or blocked altogether. When studies are blocked or diminished in quality, certain research findings will be unavailable for informed decisionmaking on public health issues. In these cases, the quality of public health information and the public health decisions based on that information will be undercut. In addition, productive research resources have been diverted into nonproductive paperwork review activities and unnecessary contracting costs.

OMB PATTERNS OF APPROVAL AND DISAPPROVAL

Our review of the six cases demonstrated a pattern of rejection that might be interpreted as interference with the substance of CDC research. It was possible that the patterns seen in our review of the cases were simply an example of poor bureaucratic management, rather than systematic bias. If this were so, it would have been likely that disapprovals would have occurred randomly across all types of studies done at CDC. In order to determine whether the Office of Information and Regulatory Affairs was conducting its reviews in a manner that fell selectively on certain types of studies, we made a statistical evaluation of the patterns of OMB acceptances and rejections of CDC research studies.

Methods and Data

Our methodology involved a review of all CDC submissions made to OMB for clearance during the period January 1984 to March 1986. CDC submissions were selected as the sample for review because CDC is an agency that does a large segment of Federally funded epidemiologic research and because CDC is not a regulatory agency (and thus the submissions are of a purely research nature).

We chose to review submissions starting in 1984 because

OMB's final rules on paperwork management reduction became effective during 1983. During the time period reviewed, there were 61 submissions to OMB from CDC; of these submissions, 51 involved the collection of information from individuals for the purpose of scientific research. Ten submissions were non-research in nature (*i.e.*, routine approval forms) and were excluded from the analysis.

Research submissions were categorized by content area, into three categories:

Environmental or occupational studies were those that involved work-related diseases or exposure to environmental pollutants. These studies came from the offices of NIOSH or the Center for Environmental Health. Of the case studies we reviewed, the projects on MBOCA, VDTs, dioxin, ladder falls, and health risks of information processing would all fall into this category.

Reproductive studies involved questions of reproductive health as their primary focus. Study topics in this category ranged from venereal disease studies to birth defect analysis. The study on reproductive outcomes of CDC employees from the CDC Birth Defects Section was included in this grouping because the focus of the study was to provide baseline reproductive statistics.

Studies that related to all other disease processes constituted the final category. A broad range of topics were involved, including studies on childhood immunization, hepatitis in renal dialysis patients, malaria in foreign travelers, sudden infant death syndrome, lower respiratory disease in day care centers, and Reye's Syndrome.

The outcome measure was the final result of OMB classification that was known to have occurred during the study period (*i.e.*, acceptance, rejection, conditional acceptance). It was determined that conditional acceptances would be analyzed in the same category as rejections. We adopted this approach for two reasons. First, case review indicated that significant efforts had to be made by parties outside OMB (usually Congress) to overturn an initial OMB rejection of a study and to obtain a conditional acceptance. It was doubtful that the upgrade would have occurred under routine circumstances. Second, our review indicated that implementation of the study had been delayed or the substance of the study had been altered in the cases involving conditional acceptances.

We considered whether our categorization might be a measure that was confounded by other issues. Two possible confounders were considered and rejected. First, it was

considered that our categorization by topic might actually be a measure of studies coming from one particular office. Thus, it might be argued that a high rejection rate was occurring because one particular office produced particularly poor research proposals. Reviewing our categories, we found that the environmental/occupational category included studies from two NIOSH offices in Morgantown, West Virginia, one NIOSH office in Cincinnati, Ohio, and from the Center for Environmental Health in Atlanta. Reproductive studies also came from several different offices within CDC. Thus, the single office theory was rejected. Second, we considered the possibility that studies were rejected on the basis of undue cost. Cost data were unavailable for all of the studies but an analysis of the rejected studies showed a wide range of projected costs, making this confounding explanation less likely.

Statistical Evaluation

To analyze the pattern of OMB rejections, we performed a statistical analysis measuring whether the pattern of rejection occurred randomly across the different content categories. A Fisher's Exact Test was used to measure statistical significance.

When we compared the environmental/occupational category with the other (non-reproductive) category, we found that there was a strong pattern of OMB rejection of these studies (see, table 2). OMB's Office of Information and Regulatory Affairs was found to be seven times more likely to reject an environmental or occupational study than to reject a CDC study on other topics, which were less likely to have potential regulatory significance. The strength of this association was highly significant, with the likelihood of these results occurring by chance of 2 in 1000.

The pattern of rejection of reproductive studies was analyzed in a similar fashion. The numbers involved in this analysis were extremely small. With such small numbers, effective measurement of statistically significant findings is difficult. Nevertheless, the pattern of rejection of these studies suggests that reproductive studies also were rejected more frequently than other studies of a non-environmental/non-occupational nature.

TABLE 2

Rejection of CDC Submissions to OMB
Comparison of Environmental
vs
Other (Non-reproductive) Studies

AMAZING EXAMPLE
OF SPURIOUS
CORRELATION

Study Type	Conditional/ Reject	Accept	% Reject
Environmental/ Occupational	7	14	33.0%
Other/ Nonreproductive	1	21	4.5%

p=.002
odds ratio 10.4

TABLE 3

Rejection of CDC Submissions to OMB
Reproductive Submissions
vs
Other (Non-environmental) Studies

Study Type	Conditional/ Reject	Accept	% Reject
Reproductive	2	6	25.0%
Other	1	21	4.5%

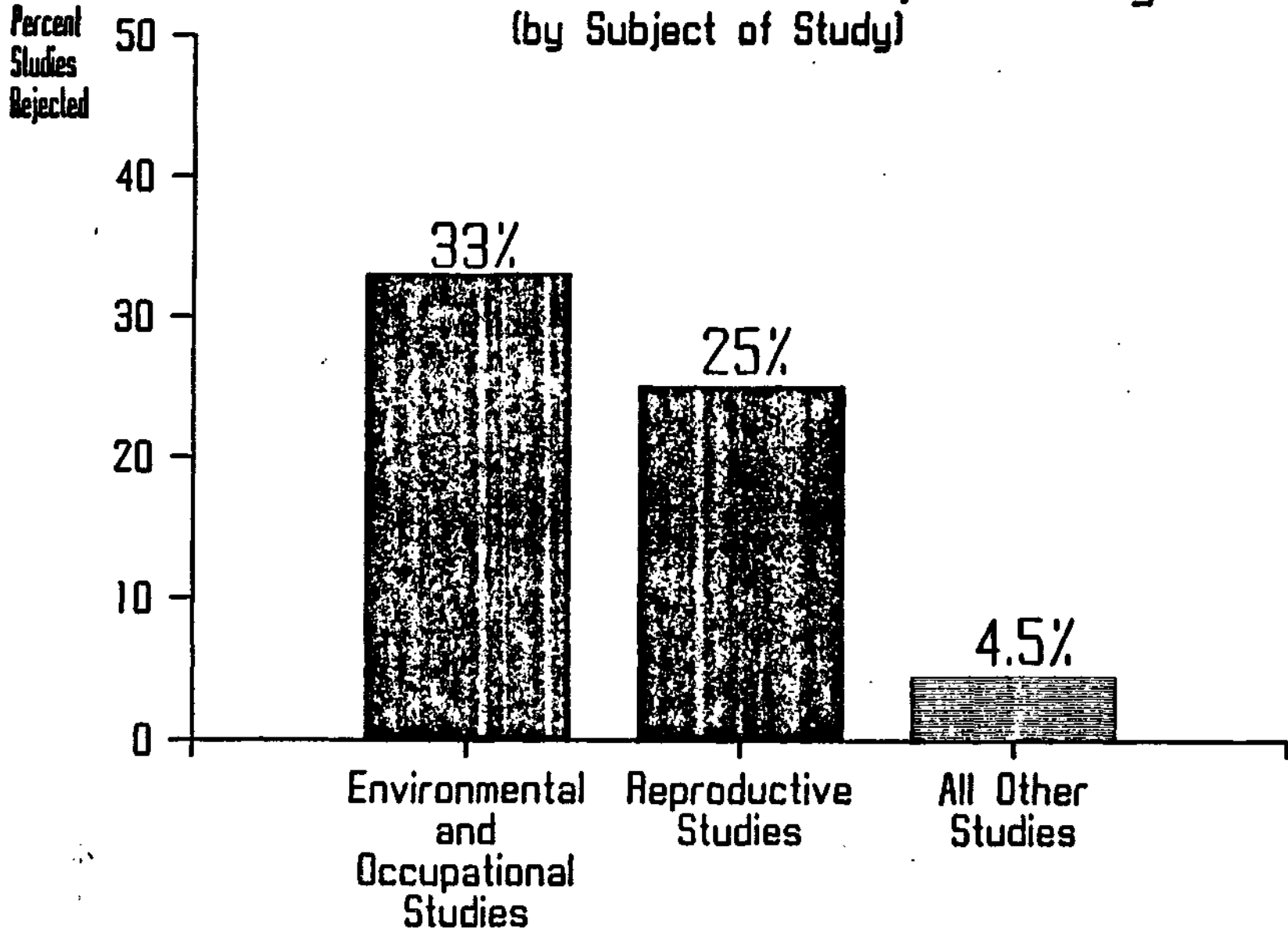
Findings

The patterns show, in our evaluation, that environmental and occupational studies were particularly subject to rejection during the OMB review procedure and that reproductive studies may have a comparable vulnerability. The rejection rates for both of these types of studies are markedly higher than the rejection rate for other studies.

[INSERT GRAPH 1]

Graph 1

Percent of C.D.C. Studies Rejected by OMB (by Subject of Study)



While the intent of the OMB reviewers cannot be inferred from statistical measures, the differing pattern of review among studies that should presumably receive similar treatment raises serious concerns. *

We previously have discussed two possible confounders which might have accounted for our findings; office of origin of the study and cost of the study. However, we have concluded that both of these confounders are unlikely to explain the analytical results, for reasons previously cited.

Therefore, we have considered three other possible explanations of the selective rejection rate. First, it is possible that OMB found that CDC's peer review process for environmental, occupational, or reproductive studies contained flaws which were not apparent in other types of studies. Thus, OMB may be especially likely to reject studies on these topics, because the peer review was particularly flawed.

In our view, this explanation is unlikely. The peer review of all the studies rejected by OMB involved a competent, thorough examination of the study design by a group of recognized experts in the appropriate field.

Second, it is possible that the etiology of the OMB bias against environmental, occupational, and reproductive studies related to the complexity of these studies. It is generally conceded that studies relating to environmental and occupational health or reproductive outcome involve difficult issues of study design when compared to more conventional epidemiologic studies. It is possible that OMB reviewers were more likely to reject a study where the design was controversial, hence increasing the rejection rate in those areas.

While we find this explanation plausible, it raises serious public health concerns. The science involved in addressing environmental and occupational health effects and reproductive outcomes is difficult but this does not mean that they should not be studied. Decisions on the commitment of resources to public health research should involve a considered weighing of the importance of the public health issue as well as the quality of the information to be obtained. It is inappropriate to block research in important areas because the study design is not simple and straightforward. This is particularly true in epidemiological research where scientists must rely on conditions of human exposure as they find them in the real world. Difficult areas of research often require new and controversial approaches but minor imperfections perceived in the study design are no reason to abandon the research if the issue is an important public health problem.

OMB reviewers, unlike CDC reviewers, are not public health professionals. Thus, they are less likely to value the public health importance of information as highly as

public health workers. Failure to appreciate the public health importance of environmental, occupational, and reproductive problems may have contributed to OMB's finding of "no practical utility" in some of the rejected cases.

Third, it is possible that OMB's bias represents an intentional effort to block occupational, environmental, or reproductive studies that ultimately might lead to additional Federal regulation. Although the Paperwork Reduction Act does not vest OMB with the authority to interfere with proposed research on policy grounds, the increased rejection rates for occupational, environmental, and reproductive studies raises the possibility that such political interference has occurred.

APPENDIX
OF
CASE STUDIES

Study of Dioxin Worker's Morbidity and Reproductive Effects

The extreme toxicity of 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD) has been recognized for several decades. Diverse adverse health effects (morbidity), including tumorigenic and teratogenic effects have been shown in multiple animal studies. In humans, occupational exposure to TCDD-contaminated production is known to cause a skin disorder called chloracne. Human exposure also has been associated with derangements in liver metabolism, in endocrine and hematopoietic function, and in neurologic, psychological, and reproductive function.

Human exposure to dioxin has occurred in a variety of circumstances, including worksite and environmental contamination. Questions of contamination have been raised with reference to certain Superfund sites and with reference to by-products from incineration. TCDD was a contaminant of Agent Orange, a defoliant used in Vietnam, a fact which has generated interest among veterans. The concern about dioxin is broad-based with the public and is relevant to multiple Federal agencies. The White House Agent Orange Working Group (AOWG) currently functions to coordinate efforts on these issues.

Though the scientific literature contains many publications related to dioxin, the literature leaves major gaps in knowledge that limit our ability to assess its effect in significant clinical situations. Human studies related to many of the systemic effects are considered to be suggestive but not definitive. The literature is particularly lacking in data that relates human doses to clinical outcome. Data that relates human exposure to the more serious types of morbidity outcomes, such as birth defects and cancer, is considered by some to be insufficient to justify regulation or compensation. Dose-related information on morbidity incidence would be the basis of informed regulation, clinical assessment, and protective policy. Multiple Federal agencies (i.e., OSHA, EPA, the Veteran's Administration) would use this type of information in developing dioxin-related policies.

To establish and evaluate dose-related morbidity incidence in a human study, it is necessary to evaluate a well delineated population with quantifiable exposures. Exposure data in most of the exposed populations, such as agricultural workers and Vietnam veterans, is extremely imprecise. Worker populations have high, long-term exposure, and exposure information on these groups is far better and more detailed.

In response to the need for dose-related morbidity data, NIOSH proposed to evaluate two groups of workers exposed to chemicals contaminated with 2,3,7,8-TCDD. The proposal involved the evaluation of 360 individuals employed at the

Diamond Shamrock Plant in Newark, New Jersey and 80 individuals employed at the NEPACCO, Hoffman Taff/Syntex plant in Verona, Missouri. Interviews and medical testing were proposed. There were to be matched controls from the surrounding neighborhoods. Because this study would address the important question of dioxin dose-related morbidity, the White House Agent Orange Working Group determined that this study was one of 11 essential studies to be completed by 1990.

The peer review to which this study was subjected must be described as extensive. Outside review started in 1983 with scrutiny by a 12-person dioxin peer review panel. There were subsequent panel reviews in 1984 and 1985. Additionally, the protocol was reviewed by the AOWG Science Panel in 1984. The AOWG panel meeting of September 25, 1984 reported:

The Science Panel finds that both...the Morbidity Study [and a related Mortality Study] are well designed and carefully considered and should provide useful information on the possible long term health effects of industrial exposure to dioxin contaminated products. The Science Panel recommends that both studies proceed [sic] as soon as appropriate resources can be allocated.¹⁰

With regard to the adequacy of peer review of this study, the situation was well summarized in December 1984 by one of the NIOSH peer reviewers who stated:

This study is in danger of being reviewed to death -- if in fact that has not already occurred. Surely, review by both the peer review panel of NIOSH and the Science Panel of AOWG -- not once, but several times -- is superfluous and inefficient. The money spent would be better put into the conduct of the study itself.¹¹

The study was submitted to OMB pursuant to the Paperwork Reduction Act in July 1985. OMB responded to the proposal by raising extensive questions about the utility of the study and the study design, including the choice of the control population, the methods of quantifying exposure, and the power of the study to measure exposure effects. All of these questions about study design had been previously discussed in great detail by the various peer review panels, and the panels had concluded that these issues had been addressed adequately. Nevertheless, OMB raised these questions again, and NIOSH provided the requested information.

Notwithstanding NIOSH's attempts to satisfy OMB's concerns, OMB disapproved the study on November 17, 1985,

stating:

... [t]his study is unnecessary in view of the fact that workers proposed for examination are already included in NIOSH's dioxin registry study of dioxin-exposed chemical workers, and since numerous dioxin exposure in the workplace studies have been conducted, to which the proposed study would add little if any, further intelligence.¹²

The OMB conclusions run counter to the findings of the various expert panels in several significant ways. First, OMB's conclusions show little awareness of the nature of the scientific literature on dioxin and specifically of the need for the exposure-related data that would be provided by this study. Second, OMB's assertion that the dioxin registry data should be adequate indicates a failure to understand the difference between morbidity (disease-related) and mortality (death-related). The dioxin registry information is limited to mortality data and simply could not answer questions about the incidence of non-fatal diseases in the population nor the occurrence of birth defects in offspring of exposed individuals. These gross misconstructions of the basic science involved in the study suggest serious deficiencies in the OMB review process.

NIOSH internal documents indicate that OMB had discussions prior to the disapproval with Colonel Alvin Young, Ph.D., Senior Policy Analyst for the White House Office of Science and Technology Policy (OSTP). NIOSH documents state that Colonel Young "indicated his view that the Dow and Monsanto studies might have been enough. He said that he had not been able to justify the expenditure when compared with the need to fund radon studies."¹³ These opinions clearly run counter to the approval expressed by the NIOSH review panel and by the Science Panel of AOWG of which Colonel Young is a member. OMB gave great weight to the opinions of a dissenting member of the Science Panel rather than following the recommendations of the full group.

Both NIOSH and the involved communities elected to appeal the disapproval and presented their appeals to OMB for reconsideration through several channels. On December 6, 1985, at the behest of Senator Frank R. Lautenberg of New Jersey, the Senate Committee on Appropriations included language in its continuing appropriations measure expressing strong concern about OMB interference in the dioxin study. The report emphasized:

The Committee is most concerned about a recent action by the Office of Management and Budget blocking further gathering of statistics on the Morbidity Study of Persistent Health Effects in Chemical Herbicide

Workers and Community Residents being conducted by the National Institute of Occupational Safety and Health (NIOSH). The Committee believes that the study should go forward without further interference from OMB.¹⁴

On December 11, 1985, the Department of Health and Human Services (HHS) submitted an appeal of OMB's disapproval to Dr. Wendy Lee Gramm, Administrator of OMB's Office of Information and Regulatory Affairs. The appeal emphasized the importance of the study to the Public Health Service "as well as to other Federal agencies (e.g., Science Panel, a subgroup of the White House Agent Orange Working Group; the Environmental Protection Agency, which is providing funds for this project; the Veterans Administration, etc.)." The HHS appeal also included letters of support from the New Jersey Department of Health.

On December 16, NIOSH officials met with Alvin Young of OSTP and with Mark Winer of the Statistical Policy Branch of OIRA. This meeting had been arranged at the suggestion of Colonel Young shortly after the Senate report directed that the dioxin study should go forward. Dr. Fingerhut, the NIOSH Project Officer, and Colonel Young had further discussions the following day. From these discussions emerged Colonel Young's suggestion for a two-phase approach to the study, which would allow the termination of the project after the first phase.¹⁵

On January 7, 1986, Robert Bedell, Deputy Administrator of OMB's Office of Information and Regulatory Affairs, wrote to John J. O'Shaughnessy of the Department of Health and Human Services and agreed "to approve a portion" of the dioxin study. According to this letter, this partial study was to include a sample size which "shall not exceed 80 and shall be drawn exclusively from the New Jersey site." The partial study only would evaluate the methodology proposed for the full study. The sample size of this pretest is far too small to provide useful information about dioxin.

Moreover, Mr. Bedell's letter underscored the conditional nature of OMB's approval. He stressed that:

we continue to have reservations regarding the degree to which there will be adequate variation in exposure levels, appropriate selection of the control cases and the practical utility of study results.... Future consideration of the remainder of the study will be dependent on the demonstration that the objectives of the full study can be reasonably met.... Once the technical concerns are resolved, the practical utility of the study must be demonstrated.¹⁶

Notwithstanding OMB's approval of a portion of the dioxin study on January 7, 1986, further delays ensued. NIOSH did

not receive official notice of OMB's approval of the pilot study until March 24, 1986. At this point, the pretest has not yet started. OMB will not make a determination on the full study until the pretest is complete.

The history of the dioxin study is highly instructive in evaluating the effects of the paperwork review process in the research arena. In this case, the impact of OMB's interference has been substantial. OMB's activities have not only delayed the development of important public health information; they also have diverted Federal dollars from productive research. According to official estimates, the two-stage study methodology imposed by OMB will increase contracting costs for the dioxin study by at least \$270,000. 17

In addition, concerns have been raised that the conditions imposed by OMB may in fact weaken the study design. Pretesting among part of a population may confound results from the study of the whole group.

The public health implications of the OMB review process should be considered. Under the Paperwork Reduction Act, OMB is supposed to assess whether data has practical utility to the agency requesting the collection. In the case of the dioxin study, OMB did not find utility where numerous other scientists did. OMB's analysis ran counter to the findings of the NIOSH peer review panel and the Science Panel of the White House Agent Orange Working Group. Under the current version of the Act, the OMB determination takes precedence and the study is blocked, notwithstanding strong indications of the public health value of this study.

More than nine months after the Senate Appropriations Committee directed OMB to cease its interference in the NIOSH dioxin study, approval has been given only for a pretest. OMB's letter of January 7, 1986, makes clear that final approval is by no means assured. It is still possible that OMB will thwart the scientific recommendations of the professional staff of NIOSH, of the agency's peer review panel, the White House Agent Orange Working Group, and the Congress itself.

NIOSH Reproductive Study of Female Video Display Terminal Operators

A study of reproductive outcome in video display terminal (VDT) operators was initially proposed by NIOSH because various user groups were concerned about widely publicized reports that clusters of women VDT operators suffered high rates of spontaneous abortion, birth defects among their children, and other reproductive problems of pregnancy. Because these clusters of affected users were too small and the reproductive problems too varied, it was not possible to draw any scientifically valid conclusions.

NIOSH estimates that there are currently 7 million VDT

users in the United States. The agency was concerned that given the large number of women users of reproductive age, even a small increase in birth defects or spontaneous abortion rates caused by VDTs would mean a large increase in the absolute number of those suffering these effects.

There are 12 widely reported clusters of abnormal birth outcomes related to VDT use. Interpretation of these clusters is a matter of epidemiologic controversy. There is a strong likelihood of such clusters occurring by chance alone, in a large population. Nevertheless, there is serious concern among VDT users, and industry, labor, and public health officials all agree on the need for a strong definitive study that would give a solid assessment of this problem.

In general, reproductive studies are more difficult to design than other epidemiologic studies because medical records on miscarriages and birth defects are not as reliable or consistent as those related to death or disease. Often these records are not included in company personnel records. Because of these factors, NIOSH chose to design a study based on worker interviews rather than on medical record surveys. For this design to be effective, it was necessary for NIOSH to find a group of VDT-exposed workers and a group of non-exposed controls for comparison.

The proposed study was designed to take advantage of a "natural experiment," a situation where two very similar groups of women at Bell South Corporation had very similar jobs with the exception that only one group was using VDTs. According to its proposal, NIOSH planned to compare pregnancy outcomes of women workers using VDTs (directory assistance operators) and those who were not (long distance operators) at the Bell South Corporation.

Peer review of this study involved three reproductive epidemiologists, as well as an expert in stress and ergonomics, and a statistical reviewer. The questions raised were those that are usually controversial in retrospective reproductive studies. The most important of these concerned the issues of recall bias and measurement of pregnancy outcome. "Recall bias" raises the issue that women who know they are exposed to possible hazards may be more likely to report a bad birth outcome, thus biasing results. Measurement problems involve difficulties in establishing specific definitions of birth defects or spontaneous abortions.

Multiple recommendations were made by the peer reviewers to improve the methodology. These recommendations were incorporated into the revised proposal. The general assessment of the final proposal by the peer review panel was that the study was well designed, was necessary, and should be done.¹⁸

The study was submitted to OMB in September, 1985. In

November, 1985, representatives of the Bell South Corporation wrote directly to Wendy L. Gramm, the Administrator of OMB's Office of Information and Regulatory Affairs, stating that:

We share the goal of resolving scientifically whether video display terminals cause adverse pregnancy outcomes. We are concerned, however, that the proposed study as currently designed will not provide reliable and useful scientific information.¹⁹

The Bell South representatives noted that their concerns already had been expressed to the scientific staff at NIOSH. Bell South also notified OMB that two academic epidemiologists had been retained to review the study protocol for Bell South. This review was subsequently mailed to OMB.

In December, OMB disapproved the VDT study citing major design flaws and a large number of irrelevant questions as reasons for its action.²⁰ The criticisms that OMB used in its disapproval notice to NIOSH represent an abbreviated version of the critique commissioned by Bell South.

Questions similar to those raised by the Bell South report were discussed by NIOSH peer reviewers though the solutions raised were different. The nature of academic differences over study design is not the issue. The process is the focus of concern. The review by Bell South's consultants is presented directly to OMB. OMB then uses this particular consultants' report to disapprove the study.

Disapproval of the study was of significant concern to NIOSH and to representatives of VDT users. NIOSH appealed OMB's decision in March, 1986. Congressional hearings on April 14, 1986 and June 4, 1986, addressed OMB's interference in the proposed research effort. On June 6, 1986, OMB finally approved the VDT study.

However, OMB's June 6 approval involved several major conditions, including a requirement to substantiate miscarriages by examining medical records and the elimination of questions related to stress and fertility because they are "intrusive" and "irrelevant."

Removal of the questions relating to stress and fertility involved a rather subtle, but extremely important, controversy. In all epidemiologic studies, the issue of "confounding variables" arises. Confounding occurs when something that is not the primary issue in a study is related to outcome. For example, stress may be associated with poor pregnancy outcome. If the study group (those who used VDTs) also faced more stress than the control group (those who did not use VDTs), it could be possible that any bad pregnancy outcomes found in the study group would be due to stress, not VDTs. Similarly, if the group using VDTs simply through random selection included more women who had impaired fertility (for example due to use of birth control or

previous hysterectomy), abnormal study results would occur unless these were corrected. The need to measure confounders is an important one but it must be weighed against the detrimental effects of measuring too much and measuring imprecisely. In the VDT study, OMB and Bell South's consultants argued against measuring too many variables and against measuring variables that were subject to bias because of imprecise "recall" by patients. Based on these arguments, questions focusing on fertility-related issues, such as use of contraception, previous hysterectomy, alcohol and tobacco use, and stress were removed.

Removal of these questions sparked debate. Many felt that collection of the data on fertility and stress was necessary to establish the presence or absence of important confounders in the study. It was believed that these questions were necessary to maintain a highly credible study. Teresa Schnorr, the NIOSH VDT project director, has stated: "My feeling is that those questions (on stress and fertility) were important to the study. Without them the study will be less credible."²¹

At the request of Congressman Ted Weiss, Chairman of the Subcommittee on Intergovernmental Relations and Human Resources of the House Committee on Government Operations, the staff of the Office of Technology Assessment (OTA) and a highly regarded group of scientists reviewed the fertility and stress questions deleted by OMB from the VDT study. The scientific reviewers included Zena Stein, M.D., Richard Neaye, M.D., Donald Mattison, M.D., Irving Selikoff, M.D., and William Butler, Ph.D. The overwhelming majority concluded that the deletion of the fertility questions weakened the proposed study significantly.

The OTA staff analysis concluded that:

The OMB excluded questions would have provided valuable information for a study of the possible adverse reproductive effects of radiation exposure from work.... Due to the high visibility of this study and the likely use of the conclusions by a wide variety of individuals, it is important that its conclusions be as clear as possible. The questions deleted by OMB were intended to provide important and useful information that would reduce the potential for alternative explanations of the study results. While the wording of specific questions and the order of the questionnaire might be reexamined and improved, complete deletion of questions on fertility and stress will limit the conclusions that can be drawn from this study.²²

The comments of William J. Butler, Ph.D., illustrate the concern of various academic experts about OMB's deletion of

the stress and fertility questions. In a July 16, 1986 letter to Congressman Weiss, Dr. Butler stated that:

NIOSH has been given permission by OMB to conduct their study only if six changes are made in the protocol. OMB claims that these changes are needed "to correct methodological deficiencies and improve the validity of the study results." My concerns are focused on two of the changes required by OMB.

One of these changes requires the deletion of approximately sixty questions on psychological stress. OMB reasons that "(t)here is insufficient evidence relating these items to hypotheses concerning VDT exposure and adverse pregnancy outcomes." I agree that the evidence associating stress with pregnancy outcome is inconsistent. However, occupational stress is one of the leading suspected causes of the reported association between VDT exposure and pregnancy outcome. Therefore, collecting information on stress is crucial for the thorough investigation of this occupational health issue. Additional studies will be necessary if the stress questions are not included in the NIOSH protocol so it is a waste of resources not to include them.

Another of OMB's changes requires the deletion of eight questions on fertility. OMB reasons that "(m)asuring the effect of VDT exposure on fertility is not the purpose of the study." This is categorically wrong. The purpose of the study is to investigate the association between VDT exposure and adverse reproductive outcomes, including spontaneous abortions. Early spontaneous abortions are often not recognized. An increased frequency of early spontaneous abortion could thus be expressed in the form of decreased fertility. Failure to include questions on fertility will result in the inability to examine the association between VDT exposure and early pregnancy loss.

These two changes required by OMB, though it is claimed they correct deficiencies and improve validity, severely restrict the range of scientific inquiry of the study. These restrictions will result in the study providing inconclusive results and almost guarantee that additional, equally expensive studies will need to be conducted. The protocol submitted by NIOSH to OMB had already benefited from reviews by researchers in the government and academia and was scientifically and methodologically sound.²³

Evaluating the review process as it applies to the VDT study, we find that the need for a study on this issue was

well-established. NIOSH, the NIOSH review panel, and many scientific experts, all felt that the study would fill an important need. Labor and industry agreed that a well-documented NIOSH study would assist informed decisionmaking on issues related to pregnant workers and VDT exposure. A panel of 5 peer reviewers discussed the design extensively, revisions were made, and the study was approved.

Following approval by the peer review panel, OMB used the Bell South consultants' report as a second scientific review to override the NIOSH panel, and disapprove the study. Subsequently, following Congressional inquiry, OMB approved the study with the condition that certain fertility and stress questions be removed.

However, the OMB review process diverted substantial resources from productive research into paperwork clearance activities. Because NIOSH believed that the study should go forward, the agency made a commitment to seeing the study through the review process. In the VDT case, NIOSH spent \$53,451 in personnel costs for paperwork review.²⁴ Thus, we see that a substantial commitment of time, effort and tax dollars had to be made to gain approval of a study that was considered necessary and appropriate by NIOSH. These resources were diverted from actual research to manipulation of the review process.

Had the clearance process at OMB resulted in an improved product, it might be argued that the final product justified the costs. However, a large number of experts believe that the OMB review resulted in a weaker study design. The original intent of the NIOSH study was to establish an extremely credible study that would allow labor and industry to formulate policy confidently. These experts contend that this function of the study has been undermined by OMB's removal of the fertility and stress questions. Thus, we have a case where OMB's Office of Information and Regulatory Affairs engaged in a clearance process that duplicated the function of the peer review panel, increased costs, and may have lowered the quality of the final product.

NIOSH Investigation of Workers Exposed to MBOCA

This study by the National Institute for Occupational Safety and Health (NIOSH) was designed to evaluate the carcinogenic risk to humans due to exposure to 4,4' methylenebis 2-chloroaniline (MBOCA). The chemical has been found to be carcinogenic in three species of mammals and is similar in chemical structure to known human bladder carcinogens. The issue of MBOCA exposure evaluation became an important public health issue in 1979, in Adrian, Michigan, when state and local health officials had to close a plant and attempt a community cleanup following MBOCA contamination. The Michigan Department of Public Health

requested CDC's assistance in evaluating cancer incidence among MBOCA manufacturing workers formerly employed by the Anderson Development Company in Adrian.

Moreover, health officials have expressed concern about MBOCA exposure because it has been estimated that 1,300 to 33,000 U.S. workers have been exposed to MBOCA.²⁵ Current exposures are continuing without any regulatory controls.

The NIOSH study was designed to evaluate the 533 workers at the Adrian facility for incidence of bladder cancer and other malignant neoplasms. The study design involved the collection of relevant epidemiological information by interviews and by medical screening for possible bladder cancer. The study was scrutinized by four peer reviewers. The reviewers determined that MBOCA exposure in worker populations in general and the exposure in Adrian, Michigan in particular was a serious public health issue and warranted investigation by NIOSH.

Although the peer reviewers expressed some concern about the small size of the sample and the short latency period from the time of initial exposure, they determined that the study design offset these weaknesses in two ways. First, it sought to minimize problems posed by the small sample size by measuring the incidence of disease (*i.e.*, findings of bladder tumors in living workers) rather than measuring mortality (which would only count the occurrence of death from bladder tumors). Second, if a significant number of cases of disease were found during the medical screening stage of the study, NIOSH proposed to conduct an in-depth comparison of these cases and a matched group of controls to evaluate differences in exposure (a "nested" case control study). In addition, the Anderson Development workers represented the largest group of MBOCA workers, and thus, there was no better single group to study. Thus, overall, the peer reviewers felt that study should go forward.

NIOSH submitted its request for review to OMB in February, 1985. In May, 1985, OMB disapproved the study stating that "the design of this study is sufficiently flawed so that the resulting data would not satisfactorily resolve the question of whether MBOCA exposure is related to bladder cancer or other types of cancer."²⁶ OMB's disapproval was apparently based on the evaluating comments of Dr. Joseph Guestworth, a statistical consultant for OMB's Office of Information and Regulatory Affairs.

Internal NIOSH documents reveal that Dr. Guestworth "had perceived his role as essentially that of a scientific peer reviewer for OMB," even though "he had received only a brief summary of the study." Moreover, Dr. Guestworth "was unaware that the full protocol had already been scrutinized at length by a peer review committee. He also was unaware of the strength of the toxicologic information implicating MBOCA as an animal carcinogen or of the chemical similarity between

MBOCA and ... known carcinogens to the human bladder."²⁷

Following their initial receipt of Dr. Guestworth's review in early April, 1985, NIOSH officials responded in detail to each of his concerns. Internal documents indicate that NIOSH was willing to discuss the scientific points more extensively with Dr. Guestworth and OMB but such discussion did not take place at this point. On May 8, 1985, NIOSH received official notice from OMB disapproving the MBOCA study.

At this point, NIOSH and other supporters of the MBOCA study intensified their efforts to gain OMB approval. On July 3, 1985, NIOSH resubmitted its proposal, supplementing it with a detailed response to the issues raised by Dr. Guestworth. On July 26, 1985, Congressman John D. Dingell of Michigan wrote to OMB Director David Stockman concerning the study. On August 23, 1985, OMB approved the study with the condition that the nested case control element be withdrawn.

At this time, the MBOCA study is finally in progress although medical screening of the worker population has not been completed. Among those already screened, NIOSH has detected a group with urinary abnormalities that will require additional medical evaluation. Moreover, a 29-year old male, who is part of the cohort in the study, has been independently diagnosed as suffering from a papillary bladder tumor.²⁸ The occurrence of such a tumor in a young worker is unusual. These incomplete findings are not scientifically conclusive but they do raise cause for concern.

In summary, the MBOCA case suggests major inadequacies in the OMB review process. In this case, an important study, which had been endorsed by a research agency and reviewed and approved by a four-member peer review panel, was delayed for more than 6 months. In addition, it appears that the study might have been cancelled altogether were it not for agency concern and community and Congressional action.

Evaluating the OMB review, we see that a second scientific review by a single consultant selected by OMB was superimposed on a study that previously had been adequately peer reviewed. The OMB officials and their technical consultant appeared to lack basic familiarity with the occupational medicine and public health issues addressed by the study. This second OMB review added nothing to the quality of the scientific product; in fact, the removal of the nested case control study weakened the overall design. Further, the OMB review resulted in a six-month delay in the medical cancer screening of several hundred individuals.

Epidemiologic Study of Ladder Fall Injuries

On June 27, 1984, NIOSH submitted its proposed epidemiological study of ladder fall injuries to OMB for approval. As explained by NIOSH in its supporting statement,

the underlying purpose of the study was to test the hypothesis that epidemiological methods, which had been successfully applied to the study of disease, could be useful in the study of traumatic injuries.

Falls from ladders were chosen by NIOSH as an accident type to test the application of epidemiological methods since: (1) it is a persistent type of accident (accounting for 1.4% of all workers' compensation cases; (2) it often results in severe injury; and (3) NIOSH had targeted occupational falls as industry's number one safety problem.

The application of epidemiological methods as proposed by NIOSH would permit a rare comparison of those suffering traumatic injuries with others taking similar risks who do not suffer such injuries. To date, epidemiological methods have seldom been used in studying traumatic injuries and never used in analyzing ladder fall injuries.

In developing the study, NIOSH consulted with eighteen outside experts in the fields of safety, data collection, and epidemiology. In addition, NIOSH conducted a public meeting to discuss the concept of epidemiology applied to traumatic injury in general and the specific protocol developed by NIOSH for use in the study of ladder falls.

On September 26, 1984, OMB disapproved the study. In its explanation, OMB stated:

OSHA, the primary federal user of the data resulting from this collection, is in the process of revising existing regulations designed to reduce accidents from falls from ladders. Since OSHA has decided to pursue a regulatory solution to this problem, it is not necessary to undertake an epidemiological investigation at this time.²⁹

OMB offered no response to NIOSH's explanation of the underlying purpose and utility of its proposed study.

On May 3, 1985, the Assistant Secretary for Management and Budget of the Department of Health and Human Services forwarded an appeal of OMB's decision from the Director of NIOSH. The appeal was accompanied by an endorsement by the Acting Assistant Secretary for Health and a memorandum of support for the NIOSH study from the Director of OSHA's Directorate of Standards Development.

The NIOSH appeal and the OSHA memorandum strongly rebutted OMB's assertion that the proposed study was not needed by OSHA. They explained that OSHA's current regulatory initiative to modify or revoke requirements of its ladder standards was in the earliest stages of development and that "OSHA needs as good a data base as it can obtain to make clear intelligent decisions on which standard's requirements should be proposed for revision and which ones should be proposed for revocation."³⁰ In addition, the NIOSH

appeal emphasized that the ongoing OSHA rulemaking only applied to the construction industry and that the results of its study would be useful to OSHA in modifying its general industry and maritime regulations.

The OSHA memorandum also underscored the importance of the NIOSH study in voluntary safety efforts. It noted that the study "will also be very useful" to the various public and private programs concerned with ladder safety.

Finally, the appeal stressed the importance of the study as a model for other occupational safety research. The OSHA document noted that "[t]his study and the development of such a model is very important to OSHA and to the occupational safety field as a whole."³¹

On July 12, 1985, OMB rejected the appeal, reiterating its conclusion that the information collection was unnecessary. OMB's letter stated that: "... in the case of falls from ladders, we are not convinced that the study proposed is necessary for OSHA rulemaking, and therefore conclude that it has no practical utility."³²

In this case, OMB has ignored the language of the Paperwork Reduction Act, which defines "practical utility" as the "ability of an agency to use information it collects, particularly the capability to process such information in a timely and useful manner." Here, NIOSH clearly demonstrated that the proposed information collection request would serve a variety of regulatory and non-regulatory purposes.

Health Risks of Information Processing

NIOSH estimates that more than half the U. S. workforce is engaged in what psychologists term information processing tasks on the job. Information processing within this NIOSH study was defined as repetitive mental tasks (i.e., looking up telephone numbers).

The health risk of ladder falls are easily evident to the lay reader and are fairly easily measured; the hazards of stress from repetitive tasks are less evident and have not been extensively evaluated. This proposed NIOSH study was intended to relate these types of tasks with measurements of physiologic changes (i.e., heart rate) which may be associated with the onset of so-called stress-related diseases, such as heart disease.

During any research process, there must be a first step; the question initially has to be asked "is there a problem?" This study was designed to break new ground by evaluating the relationship between the stress of repetitive mental tasks and physiologic changes. Given the large population involved in such tasks, the establishment of such a relationship could have important public health implications. The research might lead to evaluations of the workplace setting that could decrease the incidence of stress-related disorders.

The NIOSH study was favorably reviewed by all seven peer reviewers and the information collection request was submitted to OMB for approval in December 1984. On February 15, 1985, OMB disapproved the study. OMB's reason for the disapproval was that: "HHS had not provided sufficient evidence of existing health and safety problems."³³

The purpose of the Paperwork Reduction Act has been turned on its head in this case. The Act was intended to avoid duplicative and unnecessary research. However, OMB could not reject the study on this basis; instead it rejected the proposed study on the grounds that HHS did not have sufficient evidence of existing health and safety problems. Consistent application of this sort of policy by OMB would eliminate research in any new areas of investigation.

Centers for Disease Control Reproductive Outcome Survey

The purpose of this study by the CDC Birth Defects Division was to monitor the reproductive outcome of CDC employees and their spouses. The term "reproductive outcome" includes a wide variety of results affecting reproductive health, including sterility, spontaneous abortion, miscarriage, stillbirth, and congenital defects. The initial indication of the need for the study was a cluster of abnormal birth outcomes occurring among some groups of CDC laboratory workers. Subsequent CDC review of their lab exposures indicated the presence of substances that are either mutagenic, teratogenic, or embryotoxic.

As noted in the review of the VDT study, the epidemiology of reproductive studies is usually controversial. The design of this study was therefore significant in two important respects. First, the population to be studied consisted exclusively of CDC employees, expected to have a high awareness of medical issues because of the nature of their employment. In view of this fact, it was expected that there would be a high participation rate. Second, since the study involved a population that was aware of epidemiologic research issues, NIOSH expected that participants also would remain involved in the study over time; thus, a strong prospective design was possible.

A strong prospective reproductive study with a high participation rate had far-reaching significance. Such a study would have provided an invaluable model of a surveillance program and important baseline data on rates of spontaneous abortion and other fertility variables. Such data also would have provided the foundation needed for other studies on reproductive issues. It should be noted that baseline data from this study would have been very useful in addressing some of the questions that were raised by OMB in the VDT study.

Peer review of this CDC study was extensive. Because of

the unique nature of the study, reviewers from all sections of CDC participated in analyzing the study design.

The proposal was submitted to OMB on June 16, 1985. On August 27, 1985, CDC's information collection request was denied by OMB on the grounds that the study would "establish a large scale surveillance system for a problem that apparently does not exist nor has ever been proven to exist. In the absence of clear evidence that a health problem exists or is likely to exist, OMB considers the proposed surveillance system to be unnecessarily burdensome, intrusive and costly."³⁴ The proposal was resubmitted to OMB on March 3, 1986 and disapproved again on June 27, 1986.

Once again, it appears that OMB officials have misconstrued the intent of the Paperwork Reduction Act. Surely, if CDC employees are seeking answers to health matters of concern, their attempts to resolve such concerns should not be blocked on the grounds that they are unnecessarily burdensome and intrusive. If CDC has sufficient funds in its budget available to conduct the proposed study and the information to be derived would be valuable to the agency, the Paperwork Reduction Act does not appear to vest OIRA with authority to second-guess the agency based on cost considerations. Such action would appear to constitute the very type of substantive interference with the public health activities of CDC prohibited by the Act.

FOOTNOTES

1. 44 U.S.C. § 3502 (1980).
2. 44 U.S.C. § 3508 (1980).
3. 5 C.F.R. § 1320.4 (1986).
4. 5 C.F.R. § 1320.11 (1986).
5. S. REP. NO. 930, 96th Cong., 2d Sess. (1980).
6. 44 U.S.C. § 3518 (1980).
7. 126 CONG. REC. 30192 (1980).
8. S. REP. NO. 930, 96th Cong., 2d Sess. (1980).
9. Clark, William C., and Majone, G., "The Critical Appraisal of Scientific Inquiries with Policy Implications," Science, Technology and Human Values, Vol. 10, Issue 3 (Summer, 1985).
10. Dioxin-Document 6 (all documents listed hereinafter are summarized in the bibliography and are on file with the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce, U.S. House of Representatives).
11. Dioxin-Document 2.
12. Dioxin-Document 5.
13. Dioxin-Document 9.
14. Dioxin-Document 10.
15. Dioxin-Document 9.
16. Dioxin-Document 16.
17. CDC Summary-Document 2.
18. VDTs-Document 2.
19. VDTs-Document 4.
20. VDTs-Document 5.
21. VDTs-Document 11.
22. VDTs-Document 10.
23. VDTs-Document 12.
24. CDC Summary-Document 2.
25. MBOCA-Document 3.
26. MBOCA-Document 5.
27. MBOCA-Document 6.
28. MBOCA-Document 9.
29. Ladder Falls-Document 6.
30. Ladder Falls-Document 6.
31. Ladder Falls-Document 6.
32. Ladder Falls-Document 7.
33. Information Processing-Document 3.
34. Reproductive Outcomes-Document 5.

BIBLIOGRAPHY AND LIST OF KEY DOCUMENTS REVIEWED

OMB Review Process

1. 44 U.S.C. § 3501 et seq. (1980).
2. 5 C.F.R. § 1320 (1986).
3. S. REP. No. 930, 96th Cong., 2d Sess. (1980).

Peer Review Process

1. Clark, William C., and Majone, G., "The Critical Appraisal of Scientific Inquiries with Policy Implications," Science, Technology and Human Values, Vol. 10, Issue 3 (Summer, 1985).
2. Soskolne, Colin L., "Epidemiological Research, Interest Groups and the Review Process," Journal of Public Health Policy, June 1985.

Key Document Requests by the Subcommittee on Oversight and Investigations for CDC Information

1. Letter of request from John D. Dingell, Chairman, Subcommittee on Oversight and Investigations, to Dr. James D. Mason, Director, Centers for Disease Control (March 7, 1986).
2. Letter of request from John D. Dingell, Chairman, Subcommittee on Oversight and Investigations, to Donald J. Millar, M.D., Director, National Institute for Occupational Safety and Health (March 25, 1986).

CDC Summary Documents

- 1.* Description of submissions by the Centers for Disease Control to the Office of Management and Budget under the Paperwork Reduction Act, January 1, 1984 to March, 1986.
2. Letter from Donald J. Millar, M.D., Director, National Institute for Occupational Safety and Health, to John D. Dingell, Chairman, Subcommittee on Oversight and Investigations, regarding increased costs resulting from OMB review (September 16, 1986).

Key Documents Related to Dioxin Study

- 1.* Chronology of events for Dioxin Morbidity and Reproductive Study.
- 2.** Study protocol and peer review documents, including letter from Brian MacMahon, M.D., regarding peer review (December 28, 1984).
- 3.* Supporting statement for application for information collection for Dioxin Study.
- 4.* NIOSH answers to OMB questions for information (October 15, 1985).
- 5.* OMB notice of refusal of information collection for Dioxin Study (October 17, 1985).

- 6.* Request for appeal of proposal for Dioxin Morbidity and Reproductive Study and supporting documents (November 26, 1985), including:
- Minutes of AOWG Science Panel from September 25, 1984.
 - Letter of concern from New Jersey Department of Health.
 - Response to OMB's request for statistical power calculations.
- 7.* Letter from Robert P. Bedell, Deputy Administrator, OMB's Office of Information and Regulatory Affairs, detailing conditions for approval of Dioxin Study (January 7, 1986).
- 8.* OMB notification of conditional approval of Dioxin Study (March 6, 1986).
- 9.** Notes of meetings, discussions, and telephone conversations related to OMB review process on Dioxin Study.
10. S. REP. No. 210, 99th Cong., 1st Sess. 32 (1985).

Key Documents Related to VDT Study

- 1.* Chronology of events in review process of VDT Study.
- 2.** Proposal for Video Display Terminal Operators Study, drafts 1 and 2 and peer review documents.
- 3.* Supporting statement for application for information collection for VDT Study (September 30, 1985).
- 4.* Letter from Michael R. Taylor, Esq., King & Spalding, attorneys for Bell South Corporation, to Faye Iudicello, Office of Management and Budget (September 12, 1985), including report of Brian MacMahon, M.D., and Sally Zierler, Ph.D., reviewing protocol for the VDT Study.
- 5.* OMB notice of refusal of information collection for VDT Study (December 13, 1985).
- 6.* Supporting statements and documents for appeal of OMB decision on the VDT Study (March, 1986).
- 7.* Project Officer's summary of telephone conversations related to peer review process.
- 8.* Letter to Mark Winer, Statistical Policy Division, Office of Management and Budget, detailing NIOSH responses to report by MacMahon and Zierler (January 22, 1986).
9. "OMB Approves Revised VDT Pregnancy Study," Eye on Paperwork, OMB Watch, Volume 2, No. 7, July 25, 1986, p. 19.
10. "Review of Questions Deleted from a NIOSH Study of Video Display Terminal Users," staff paper prepared by the Special Projects Office of the Health Program, Office of Technology Assessment, U.S. Congress, August, 1986, p. 8.

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12. Letter from William J. Butler, Ph.D., Assistant Professor, University of Michigan School of Public Health, to Ted Weiss, Chairman, Subcommittee on Intergovernmental Relations and Human Resources, House Committee on Government Operations, July 16, 1986.

Key Documents Related to MBOCA Study

- 1.* Chronology of events in review process of MBOCA Study.
- 2.** Proposal for study of MBOCA and peer review documents.
- 3.* Supporting statement for application for information collection for MBOCA Study (February 11, 1985).
- 4.* Response of Elizabeth Ward, NIOSH Project Officer, to the OMB statistical reviewer (April 12, 1985).
- 5.* OMB notice of disapproval of information collection on MBOCA (May 8, 1985).
- 6.* Notes of teleconference with Dr. Joseph Guestworth, Ph.D. (June 14, 1985).
- 7.* Addendum to Paperwork Reduction Act packet on MBOCA detailing request of Michigan Health Department for assistance (August 9, 1985).
- 8.* Notice of OMB approval of MBOCA Study with conditions (August 23, 1985).
9. Letter from Donald J. Millar, M.D., Director, National Institute for Occupational Safety and Health, to John Pendergrass, Assistant Secretary for Occupational Safety and Health, U.S. Department of Labor (August 7, 1986).

5720-0125

Key Documents Related to Ladder Falls Study

- 1.* Chronology of events in OMB review process related to Ladder Falls Study.
- 2.** Proposal for study of ladder falls and peer review documents.
- 3.* Supporting statement for application for information collection for Ladder Falls Study (June 27, 1984).
- 4.* NIOSH response to OMB reviewers telephone questions (August 16, 1984 and August 22, 1984).
- 5.* OMB notice of disapproval of information collection for Ladder Falls Study (September 26, 1984).
- 6.* Supporting statement and documents for appeal of OMB decision on the Ladder Falls Study (May 3, 1985), including supporting memorandum from OSHA.
- 7.* Notice of OMB disapproval of appeal on Ladder Falls Study (July 12, 1985).

Key Documents Related to Hazards of Information Collection Study

- 1.* Chronology of events in OMB review of Information Processing Study.

- 2.** Proposal for study of Hazards of Information Processing and peer review documents.
- 3.* Notice of OMB disapproval of information collection on Hazards of Information Processing (February 26, 1985).

Key Documents Related to Study of Centers for Disease Control Reproductive Outcomes

- 1.* Chronology of events in OMB Review process related to CDC Reproductive Outcomes Study.
- 2.** Proposal for CDC Reproductive Outcomes Study and peer review documents.
- 3.* Supporting statement for application for information collection for CDC Reproductive Outcomes Study (June 13, 1985).
- 4.* CDC responses to OMB questions (July 16, 1985 and July 19, 1985).
- 5.* OMB Notice of Disapproval of Information Collection for CDC Reproductive Outcomes Study (August 27, 1985).
- 6.* Supporting statement and documents for appeal of OMB decision on CDC Reproductive Outcomes Study (November 4, 1985).
7. "OMB Kills Miscarriage Study of CDC Workers," Eye on Paperwork, OMB Watch, July 25, 1986, p. 8.

* Document obtained in response to letter from John D. Dingell, Chairman, Subcommittee on Oversight and Investigations, to Dr. James D. Mason, Director, Centers for Disease Control (March 7, 1985).

** Document obtained in response to letter from John D. Dingell, Chairman, Subcommittee on Oversight and Investigations, to Donald J. Millar, M.D., Director, National Institute for Occupational Safety and Health (March 25, 1986).

ATTACHMENT 2

OMB NO.: 0920-0183 EXPIRES 12/31/87
NIOSH OCCUPATIONAL HEALTH STUDY
3/24/87

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

NIOSH OCCUPATIONAL HEALTH STUDY

MEDICAL HISTORY QUESTIONNAIRE

PARTICIPANT ID # _____

PARTICIPANT NAME: _____

PARTICIPANT AGE: _____

DATE: _____

TIME STARTED: _____

INTERVIEWER ID # _____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

Medical History Questionnaire:

Hello, my name is _____. For the next one hour or so, I am going to be asking you some questions about medical conditions you may have had at some time in your life. The first section (A) concerns any hospitalizations that you may have had since your interview with RTI.

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION A

1. Who is your primary physician? _____

Address: _____

City/State/Zip: _____/_____/_____

2. Have you been hospitalized overnight or longer since your interview with RTI? _____

IF NO: GO TO SECTION B
IF YES:

3. How many times were you hospitalized? _____

HOSPITALIZATION 01

Starting with the first hospitalization:

4. What month (and year) were you hospitalized? _____
19|_|_|

5. Why were you hospitalized? (Or for what condition were you hospitalized?)
Reason: _____

6. What was the name of the doctor who treated you?
Doctor _____

7. What was the name and address of the hospital where you were treated?
Hospital Name: _____
Hospital Address: _____
City/State/Zip: _____/_____/_____

HOSPITALIZATION 02

8. What month (and year) were you hospitalized? _____
19|_|_|

9. Why were you hospitalized? (Or for what condition were you hospitalized?)
Reason _____

10. What was the name of the doctor who treated you?
Doctor _____

11. What was the name and address of the hospital where you were treated?
Hospital Name: _____
Hospital Address: _____
City/State/Zip: _____/_____/_____

HOSPITALIZATION 03

12. What month (and year) were you hospitalized? _____
19|_|_|

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

Section B concerns medical conditions you may have had in the recent past or anytime in your life. Some of the conditions that I am going to ask you about are rare and you may not have heard of them, unless a doctor has specifically mentioned the condition to you.

Interviewer: Ask question "A" for every condition. Ask "B-E1" if answer to "A" is yes. Ask D2 & E2 only for questions with **. Ask indented subset questions if previous question is positive (indentation indicates a skip pattern).

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year? What was his name?	Are you currently being treated by a doctor for ___? What was his name?

CARDIOVASCULAR

**1. A heart attack

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**2. Angina

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Arrhythmia (palpations or irregular heart beat that cause you problems)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

4. Hypertension (high blood pressure)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

5. Other heart condition

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

6. Do you remember what kind of heart disease it was?

<input type="checkbox"/>

6a. Describe:

PULMONARY

7. Asthma

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8. Chronic bronchitis

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

9. Emphysema

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

10. Pneumonia

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

10a. How many times have you had pneumonia diagnosed by a doctor?

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

11. Tuberculosis

12. Did you ever have a positive TB skin test?

12a. When? 19__

13. Work related lung condition? (dust on lungs, silicosis, pneumoconioses)

14. Asbestosis

15. Other lung condition?

15a. Do you remember what type of lung condition it was?

IF YES: Describe: _____

16. Have you ever had an abnormal chest x-ray?

16a. When did you have this abnormal chest x-ray? 19__

GASTROINTESTINAL

17. Gall bladder disease or problems

17a. Have you had surgery to remove your gall bladder?

18. Ulcerative colitis

19. Crohn's disease or Regional Enteritis

20. Irritable bowel or spastic colon

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year? D2 What was his name?	Are you currently being treated by a doctor for ___? E2 What was his name?

**21. Yellow jaundice (yellow skin or eyes)
D2 _____
E2 _____

**22. Hepatitis
D2 _____
E2 _____

22a. What type of hepatitis
1. Serum hepatitis or B _____
2. Infectious hepatitis or A _____
3. Other hepatitis _____
4. Chronic hepatitis _____
5. Combination, please specify _____

**23. Cirrhosis of the liver (scarring of the liver)
D2 _____
E2 _____

**24. Enlarged liver
D2 _____
E2 _____

**25. Fatty liver
D2 _____
E2 _____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

**26. Liver disease other than hepatitis or cirrhosis?

D2 _____

E2 _____

26a. Tell me what kind of liver disease it was | _____

**27. Porphyria (PCT)

D2 _____

E2 _____

28. Ulcer disease (stomach or duodenal)

29. Pancreatitis

30. Gastritis

31. Hiatal hernia

32. Diverticulitis

33. Appendicitis

33a. Was your appendix removed?

34. Any other stomach problems?

34a. Can you tell me what kind of stomach problem it was? | _____

GENITOURINARY Males Only 35-39. Skip to 40 if female.

**35. Peyronie's disease (scarring of the inside of the penis)

D2 _____

E2 _____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

**65. Lymphoma

D2 _____
E2 _____

**66. Hodgkin's disease

D2 _____
E2 _____

**67. Leukemia

D2 _____
E2 _____

**68. Liver cancer

D2 _____
E2 _____

**69. Sarcoma

D2 _____
E2 _____

70. Were you ever told by a doctor that you had any other kind of cancer?

IF NO TO ANY OF ABOVE (59-70): SKIP TO 81
IF YES, GO TO 71.

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

71. What kind of cancer was it?

INTERVIEWER: HAND RESPONDENT CARD #1A OR 1B, DEPENDING ON SEX.
NOTE CHANGE IN QUESTION ORDER.

**Bladder cancer - 01

D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Bone cancer - 02

D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Bowel/colon cancer - 03

D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Breast cancer - 04

D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Cervical cancer - 05

D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Lung cancer - 06

D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

**Pancreatic cancer - 07

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

**Prostate cancer - 08

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

**Rectal cancer - 09

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

**Soft tissue sarcoma - 10

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

**Stomach cancer - 11

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

**Throat cancer (laryngeal cancer) - 12

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

**Testicular cancer - 13

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2				
E2				

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

**Endometrial/uterine - 14

□	□	□	□	□																						
D2																										
E2																										

**Oral or mouth cancer - 15

□	□	□	□	□																						
D2																										
E2																										

** 72. Other cancer - 16

□	□	□	□	□																						
D2																										
E2																										

IF YES:
 Specify: _____

INTERVIEWER: TREATMENTS ARE TO BE RECORDED IN QUESTIONS 73-80.

CANCER THERAPY

- 73. Did you have surgery for your cancer?
- 73a. What year did this surgery occur?
- 73b. What did the doctors do during the surgery? (e.g., remove lung, lymph nodes, lump) _____
- 74. During the past 6 months, have you received any type of therapy, other than surgery, for your cancer?

IF NO: GO TO QUESTION 81
 IF YES:

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

92a. Did you have a bad reaction to this blood transfusion?

NERVOUS SYSTEM

93. Epilepsy (seizure, convulsions or fits)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
94. Stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
95. Parkinson's disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
**96. Nervous breakdown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	D2 <input type="checkbox"/>				
	E2 <input type="checkbox"/>				

96a. How many times have you had a nervous breakdown? times

97. Severe headaches (must lie down and take medication before headache goes away)

IF NO: GO TO QUESTION 100

98. Are your headaches migraine headaches

98a. Do you take medication for your migraines?

98b. What medication have you taken?

98c. How long have you taken this medication? (D,W,M,Y)

99. Can you tell me what your headaches are from?

99a. Specify

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

100. Head injury with loss of consciousness (blacked out)

100a. Did you have any long lasting effects from this head injury?

100b. Explain to me what effects you had

101. Multiple sclerosis

**102. Problems with the nerves in your hands or feet (such as peripheral neuropathy, or numbness or tingling in hands or feet)

D2 _____

E2 _____

102a. Was the problem in your hands, feet, or both?

1. Hands
 2. Feet
 3. Both

102b. Did the doctor tell you what caused this problem?

102c. Specify

103. Other problems with the nerves in your hands, feet, back and other parts of your body?

103a. Can you describe what problem it was?

EARS, EYES, NOSE

104. Are you considered legally blind?

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had __?	Have you had __ in the past two weeks?	Have you had __ in the last six months?	Did a doctor ever tell you that you had __? If yes, what year?	Are you currently being treated by a doctor for __?

D2
What was his
name?

E2
What was his
name?

105. Cataracts

106. Severe eye infection, conjunctivitis,
 or sties

107. Blepharitis (eye infection of the
 eyelids)

108. Hearing loss

109. Sinus problems

110. More than one middle ear infection

111. Perforated eardrum

112. Vertigo (labyrinthitis)

113. Eye injuries due to foreign
 bodies, chemical burns or
 trauma (accidents)

114. Other problems with your
 eye, ear, or nose

114a. Can you tell me what the
 problems were?

MUSCULOSKELETAL

115. Rheumatoid arthritis

116. Osteoarthritis or degenerative arthritis

117. Other arthritis

117a. Can you tell me what problem it
 was? Specify

118. Slipped disc in back

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

119. Surgery on spine

119a. Was it your
1. Neck
2. Back
3. Both

120. Carpal tunnel syndrome

120a. Was it on your
1. Right hand
2. Left hand
3. Both

121. Sciatica

122. Broken bones
(Record information on 1st broken bone)

INTERVIEWER: RECORD EACH EPISODE OF BROKEN BONES, E.G., BONE BROKEN AND YEAR OF BREAK.

122a. What bones were broken?

Bone #1 | | | | | | | | | | | | | | | | | | | | | | | 19 | |
Bone #2 | | | | | | | | | | | | | | | | | | | | | | | 19 | |
Bone #3 | | | | | | | | | | | | | | | | | | | | | | | 19 | |
Bone #4 | | | | | | | | | | | | | | | | | | | | | | | 19 | |
Bone #5 | | | | | | | | | | | | | | | | | | | | | | | 19 | |

123. Other problems with your bones?

123a. Can you tell me what the problem was? Specify | | | | | | | | | | | | | | | | | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | |

**124. Injuries to your nerves, e.g., in an accident, trauma, etc.

D2 | | | | | | | | | | | | | | | | | | | | | | |
E2 | | | | | | | | | | | | | | | | | | | | | | |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A Have you ever had __? B Have you had __ in the past two weeks? C Have you had __ in the last six months? D1 Did a doctor ever tell you that you had __? If yes, what year? D2 What was his name? E1 Are you currently being treated by a doctor for __? E2 What was his name?

INTERVIEWER: RECORD EACH INCIDENT OF NERVE INJURY, E.G., NERVE INJURED AND DATE OF INJURY.

124a. What nerves were injured?

Nerve #1 | | | | | | | | | | | | | | | | | | | | | 19 | |
Nerve #2 | | | | | | | | | | | | | | | | | | | | | 19 | |
Nerve #3 | | | | | | | | | | | | | | | | | | | | | 19 | |
Nerve #4 | | | | | | | | | | | | | | | | | | | | | 19 | |
Nerve #5 | | | | | | | | | | | | | | | | | | | | | 19 | |

**125. Other problems with your nerves due to illness (other than from injury)? (include from medications) D2 | | | | | | | | | | | | | | | | | | | | |
E2 | | | | | | | | | | | | | | | | | | | | |

125a. Can you tell me what the problem was? Specify | | | | | | | | | | | | | | | | | | | | |

GENERAL AND METABOLIC

126. Diabetes | | | | | | | | | | | |

126a. What type is it? | |
1. Type I or Juvenile Diabetes |
2. Type II or Adult Onset
3. Other

126b. Is it controlled by | |
1. Diet |
2. Insulin
3. Medication other than insulin | | | | | | | | | | | | | | | |
(Record name of medication) | | | | | | | | | | | | | | | |
4. Combination of diet and medication

126c. Is your diabetes not treated? | |

127. Abnormal "diabetes test" or glucose tolerance test? | | 19 | | |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?

D2	E2
What was his name?	What was his name?

- 128. Gout
- 129. Systemic lupus erythematosus (or lupus)
- 130. Ankylosing spondylitis
- 131. Are you on thyroid medication?
- 132. Goiter, thyroid problems, or Graves disease
- 133. Have you had surgery on your thyroid?

**134. A high cholesterol level in your blood

D2 _____

E2 _____

- 135. Poor immunity
- 136. Hypogammaglobulinemia

SKIN

**137. Chloracne

IF NO: GO TO QUESTION 142
IF YES:

D2 _____

E2 _____

- 138. Did you have chloracne on your
 - Face
 - Neck
 - Chest
 - Back
 - Arms
 - Legs
 - Buttocks
 - Scrotum and testicles
 - Other, Specify _____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A Have you ever had ___?	B Have you had ___ in the past two weeks?	C Have you had ___ in the last six months?	D1 Did a doctor ever tell you that you had ___? If yes, what year? D2 What was his name?	E1 Are you currently being treated by a doctor for ___? E2 What was his name?
--------------------------------	--	---	--	---

139. Were you working at the time the chloracne developed?

139a. For what company were you working? _____

139b. What was your job?
(Please describe your title and duties.) _____

139c. In what department were you working? _____

140. Did the chloracne clear up?

140a. In what year was this? 19____

141. Did you have chloracne more than once?

141a. How many times did you have chloracne (new flare ups)? _____times

141b. Did you receive treatment?

IF NO: GO TO QUESTION 142
IF YES:

141c. Did you receive any of the following treatments?
 Injections
 Facial cream
 Oral medication
 X-ray
 Other, _____
specify _____

142. A skin condition other than chloracne

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had ___?	Have you had ___ in the past two weeks?	Have you had ___ in the last six months?	Did a doctor ever tell you that you had ___? If yes, what year?	Are you currently being treated by a doctor for ___?
			D2	E2
			What was his name?	What was his name?

IF NO: GO TO QUESTION 170

IF YES: WHICH ONE OF THE FOLLOWING SKIN CONDITION(S) HAS A DOCTOR TOLD YOU THAT YOU HAD?

- | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 143. Psoriasis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 144. Eczema or dermatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 145. Actinic keratosis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 146. Scleroderma | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 147. Dermatomyositis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 148. Herpes of the skin | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 149. Athlete's foot, ringworm or other type of skin fungus infection (jock itch for males) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 150. Acne (other than chloracne) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 151. Erythema multiforme | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 152. Erythema nodosum | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 153. Discoid lupus erythematosus | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 154. Alopecia areata | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 155. Vitiligo | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 156. Dermatitis herpetiformis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 157. Bullous pemphigoid pemphigus | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 158. Lichen planus | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 159. Sarcoidosis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 160. Granuloma annulare | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A	B	C	D1	E1
Have you ever had _?	Have you had _ in the past two weeks?	Have you had _ in the last six months?	Did a doctor ever tell you that you had _? If yes, what year?	Are you currently being treated by a doctor for _?
			D2	E2
			What was his name?	What was his name?

- | | | | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 161. Seborrheic dermatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 162. Atopic dermatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 163. Dyshidrotic eczema | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 164. Nummular eczema | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 165. Xerosis/asteatic eczema | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 166. Stasis dermatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 167. Photosensitivity (rash caused by sunlight) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 168. Solar elastosis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 169. Contact dermatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

169a. Have any of the following substances caused rashes or blisters on your skin?

- Jewelry
- Cosmetics
- Moisturizers
- Perfumes, colognes or aftershaves
- Soaps, detergents
- Deodorants
- Hair dyes/colorings
- Gloves
- Shoes
- Clothing
- Glues, adhesives
- Topical medications
- Poison ivy
- Other

170. Other types of skin conditions

170a. Can you tell me what type of skin condition it was? Specify

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

<p>A Have you ever had ___?</p>	<p>B Have you had ___ in the past two weeks?</p>	<p>C Have you had ___ in the last six months?</p>	<p>D1 Did a doctor ever tell you that you had ___? If yes, what year? D2 What was his name?</p>	<p>E1 Are you currently being treated by a doctor for ___? E2 What was his name?</p>
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****171.** Have you ever had abnormal growth of hair at your temples (the area of your face above your cheek bones and just next to your eyes)

D2 _____
E2 _____

IF NO: GO TO QUESTION 177
IF YES:

171a. Did this hair ever disappear?

172. About how long did it last? D W M Y

173. Were you working at the time you developed this hair at your temples?

174. For what company were you working? _____

175. What was your job? (please describe your duties and job title) _____

176. In what department were you working shortly before or during the time you developed this hair? _____

****177.** Have you ever had a darkening of the skin other than from a suntan?

D2 _____
E2 _____

177a. When did you first notice this? 19 ___

****178.** Was there ever a time when your skin blistered after exposure to the sun, and, at the same time, you had dark reddish urine?

D2 _____
E2 _____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A Have you ever had ___?	B Have you had ___ in the past two weeks?	C Have you had ___ in the last six months?	D1 Did a doctor ever tell you that you had ___? If yes, what year? D2 What was his name?	E1 Are you currently being treated by a doctor for ___? E2 What was his name?
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179b. Did you have them on your

- Face
- Neck
- Chest
- Back
- Arms
- Legs
- Buttocks
- Scrotum and testicles
- Other, specify _____

179c. Did they clear up?

179d. How old were you when they cleared up? years

180. Did you have pimples or blackheads that started after age 20?

D2 _____

E2 _____

180a. How old were you when you first noticed them? years

180b. Approximately how many pimples or blackheads did you have after age 20?

1. <10
2. 10-50
3. 50-100
4. 100-1000
5. >1000

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION B

A Have you ever had ___?	B Have you had ___ in the past two weeks?	C Have you had ___ in the last six months?	D1 Did a doctor ever tell you that you had ___? If yes, what year? D2 What was his name?	E1 Are you currently being treated by a doctor for ___? E2 What was his name?
------------------------------------	---	--	---	--

180c. Did you have them on your

- Face
 - Neck
 - Chest
 - Back
 - Arms
 - Legs
 - Buttocks
 - Scrotum and testicles
 - Other
- specify _____

180d. Did they clear up?

IF YES:

180e. How long did they take to clear up? _____ D W M Y

181. Were you working at the time the pimples and blackheads developed?

IF YES:

181a. At what company were you working at the time? _____

181b. What was your job title and duties at the time? _____

181c. In what department were you working shortly before or during the time you developed these pimples? _____

(FREE TEXT TO ELABORATE ON ANY SPECIFIC QUESTIONS IN SECTION B:)

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

I would like to ask you about certain health symptoms you may have now, or had in the past. Symptoms are things you may have noticed or felt, but for which you have not necessarily seen a doctor.

Interviewer: Ask parts "A" and "B" for each question; ask "C" and "D" for each person who answers yes to question "B".

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had ___?	Have you had ___ in the past month?	In what year did you first have ___?	When was the most recent episode of ___? Month/year

EYES, EARS, NOSE

- | | A | B | C | D |
|---|--------------------------|--------------------------|-----------------------------|---|
| 21. A sudden partial or complete loss of vision | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 22. Experience of seeing double | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 23. Extreme pain when you look at a bright light | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 24. Constant ringing, pulsating, roaring, or buzzing sound in one or both ears which interfered with your daily routine | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 25. Severe spinning sensation (when not under the influence of alcohol or drugs) | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 26. A nose bleed that you could not stop | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 27. Difficulty hearing or understanding what someone says because you cannot hear | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 28. Pimples or cysts on your eyelids | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 29. Problems with blurry vision | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 30. Do you wear contact lenses? | <input type="checkbox"/> | | | |
| 31. Recurrent mouth sores, cold sores, or fever blisters (more than one time per month) | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

RESPIRATORY

- | | A | B | C | D |
|--|--------------------------|--------------------------|-----------------------------|---|
| 32. Shortness of breath while at rest (other than just after exercise) | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

	A Have you ever had ___?	B Have you had ___ in the past month?	C In what year did you first have ___?	D When was the most recent episode of ___? Month/year
33. A persistent cough for 3 months or longer	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
33a. Did you bring up phlegm with the cough for 3 months or longer	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
34. A coughing spell brought on by exercise or cold air	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
35. Trouble breathing brought on by exercise or cold	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
36. Shortness of breath while walking up stairs at your own pace	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
36a. How many stairs will cause this shortness of breath?			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> stairs (14 steps = 1 flight)	
37. Have you ever had shortness of breath when walking at your own pace on level ground?	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
37a. How many blocks can you walk without stopping to catch your breath while walking at your own pace on level ground?			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> blocks	
38. Shortness of breath or coughing when exposed to smoke, irritants, odors or dust	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
39. Sneezing spells	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
40. Sudden attacks of wheezing	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
41. An episode of coughing up blood	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had ___?	Have you had ___ in the past month?	In what year did you first have ___?	When was the most recent episode of ___? Month/year

CARDIOVASCULAR

42. Pain or pressure in your chest when you walked fast or walked up a hill with exertion 19 /
 M M Y Y

IF NO: GO TO QUESTION 44

42a. Does this happen every time you walk fast or walk up a hill with exertion?

42b. How long does it take for the pain/pressure to go away? /
 M M H H

43. Have you ever used nitroglycerin?

43a. Does it help?

43b. How long after you take the nitroglycerin does the pain/pressure go away? /
 M M H H

44. Unexplained episodes of your heart beating rapidly or pounding in your chest 19 /
 M M Y Y

45. An episode of fainting or losing consciousness 19 /
 M M Y Y

46. Awakening in the middle of the night because of difficulty breathing 19 /
 M M Y Y

47. Severe pain or cramping in 1 or both calf muscles brought on by walking and relieved by rest 19 /
 M M Y Y

47a. How far do you walk before getting the pain or cramping in your calf muscles? blocks stairs

47b. Do you get the pain or cramping in your calf muscles every time you take a walk or climb the stairs?

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had __?	Have you had __ in the past month?	In what year did you first have __?	When was the most recent episode of __? Month/year

GENITOURINARY (Males and Females)

- | | | | | |
|--|--------------------------|--------------------------|-----------------------------|--|
| 48. Unexplained frequent urination | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 49. Repeated loss of bladder control | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 50. The need to urinate more than once a night | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 51. Difficulty starting to urinate | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 52. A weak, dribbling urinary stream | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 53. A burning or painful urination | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 54. A full bladder but were unable to urinate (requiring a catheter) | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 55. Blood in your urine | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |

(Males Only, Questions 56-62)

- | | | | | |
|--|--------------------------|--------------------------|-----------------------------|--|
| 56. A discharge from your penis | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 57. Any sores, growths, or warts on your penis | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 58. A swelling of your testicles or scrotum | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 59. Often have difficulty maintaining or getting an erection hard enough to have intercourse | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 59a. Do you have a morning erection 3 or more times per week? | <input type="checkbox"/> | | | |
| 60. Any persistent difficulty getting an ejaculation | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 61. Is your penis crooked when it is erect | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 62. Do you experience pain when you have an erection | <input type="checkbox"/> | <input type="checkbox"/> | 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had ___?	Have you had ___ in the past month?	In what year did you first have ___?	When was the most recent episode of ___? Month/year

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

(MALE AND FEMALE, QUESTIONS 63-67)

- | | | | | |
|--|--------------------------|--------------------------|------|--------------------|
| 63. Do you examine your breasts? | <input type="checkbox"/> | | | |
| 64. Have you noticed any lumps or masses
in your breasts? | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 65. A discharge from your nipples | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 66. Growths or warts on your genitals | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 67. Is intercourse painful? | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |

(FEMALES ONLY, QUESTION 68)

- | | | | | |
|--|--------------------------|--------------------------|------|--------------------|
| 68. Spotting or irregular vaginal bleeding | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
|--|--------------------------|--------------------------|------|--------------------|

HEMATOLOGY-ONCOLOGY

- | | | | | |
|---|--------------------------|--------------------------|------|--------------------|
| 69. A tendency to bleed or bruise very easily | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 70. Enlarged or swollen lymph nodes
(glands) in your underarms or groin | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 71. A sore that won't heal | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 72. Skin lesion such as a wart or mole
changing color or bleeding | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 73. A lump or thickening around your breast,
neck, or elsewhere on your body | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |
| 74. Chronic or nagging cough | <input type="checkbox"/> | <input type="checkbox"/> | 19__ | ___/___
M M Y Y |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

	A Have you ever had _?	B Have you had _ in the past month?	C In what year did you first have _?	D When was the most recent episode of _? Month/year
75. Continual hoarseness that is not related to a cold or the flu	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
76. Drenching night sweats	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
77. Recurrent fevers	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
78. Persistent change in bowel habits	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

NEUROLOGY

79. Unusually frequent or severe headaches	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
79a. Did you have nausea or vomiting with the headaches	<input type="checkbox"/>			
79b. How often does this happen?	<input type="checkbox"/>			
1. More than once a day				
2. Once a day				
3. Once a week				
4. Several times a month				
5. Less than once a month				
80. Difficulty maintaining your balance	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y
80a. How often does this happen?	<input type="checkbox"/>			
1. More than once a day				
2. Once a day				
3. Once a week				
4. Several times a month				
5. Less than once a month				
81. Paralysis involving 1 or more limbs that comes and goes?	<input type="checkbox"/>	<input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> M M Y Y

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had ___?	Have you had ___ in the past month?	In what year did you first have ___?	When was the most recent episode of ___? Month/year

INTERVIEWER: PROBE FOR "PINS AND NEEDLES" OR "PRICKLING-ASLEEP" SENSATION. RECORD "NO" IF TINGLING IS CLEARLY DUE TO EITHER SITTING OR LYING TOO LONG IN ONE POSITION AND THE SYMPTOM DISAPPEARS AFTER A FEW MINUTES. INCLUDE HANDS AS PART OF ARMS, AND FEET AS PART OF LEGS.

86a. Which limb or limbs have been affected by the tingling?

- Right leg
- Right arm
- Left leg
- Left arm
- Both arms and both legs

86b. Thinking back to the time when you first felt the tingling, which limb or limbs were affected?

1. Same as now
2. Fewer than now
3. More than now

87. Burning sensation in your arms or legs

19 /
M M Y Y

INTERVIEWER: PROBE FOR "PINS AND NEEDLES" OR "PRICKLING-ASLEEP" SENSATION. RECORD "NO" IF TINGLING IS CLEARLY DUE TO EITHER SITTING OR LYING TOO LONG IN ONE POSITION AND THE SYMPTOM DISAPPEARS AFTER A FEW MINUTES. INCLUDE HANDS AS PART OF ARMS, AND FEET AS PART OF LEGS.

87a. Which limb or limbs have been affected by the burning sensation?

- Right leg
- Right arm
- Left leg
- Left arm
- Both arms and both legs

87b. Thinking back to the time when you first felt the burning sensation, which limb or limbs were affected?

1. Same as now
2. Fewer than now
3. More than now

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had ___?	Have you had ___ in the past month?	In what year did you first have ___?	When was the most recent episode of ___? Month/year

88. Weakness such that you need help getting out of a chair or climbing stairs 19 /
 M M Y Y

INTERVIEWER: RECORD "NO" IF WEAKNESS IS CLEARLY ATTRIBUTABLE TO MUSCULOSKELETAL TRAUMA, E.G., PULLED MUSCLE, SPRAINED JOINT, OR FRACTURED BONE.

88a. Which part or parts have been affected by weakness?

- Weak all over body
- Right leg
- Right arm
- Left leg
- Left arm

89. Finger or hand weakness so that it was difficult for you to button your shirt or unscrew tops from jars 19 /
 M M Y Y

INTERVIEWER: RECORD "NO" IF WEAKNESS IS CLEARLY ATTRIBUTABLE TO MUSCULOSKELETAL TRAUMA, E.G., PULLED MUSCLE, SPRAINED JOINT, OR FRACTURED BONE.

89a. Which side of your body has been affected by your finger or hand weakness?

- 1. Right
- 2. Left
- 3. Both

90. Finger or hand numbness or loss of sensation so that it is difficult for you to button your clothes or pick up and handle small items 19 /
 M M Y Y

90a. Which hands and fingers have been affected by this numbness?

- | | |
|--|---|
| <input type="checkbox"/> Right thumb | <input type="checkbox"/> Left thumb |
| <input type="checkbox"/> Right index finger | <input type="checkbox"/> Left index finger |
| <input type="checkbox"/> Right middle finger | <input type="checkbox"/> Left middle finger |
| <input type="checkbox"/> Right ring finger | <input type="checkbox"/> Left ring finger |
| <input type="checkbox"/> Right little finger | <input type="checkbox"/> Left little finger |
| <input type="checkbox"/> Right palm | <input type="checkbox"/> Left palm |
| <input type="checkbox"/> Whole right hand | <input type="checkbox"/> Whole left hand |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

- | | A | B | C | D |
|---|---------------------------|---|---|--|
| | Have you ever
had ___? | Have you had
___ in the past
month? | In what year
did you first
have ___? | When was the
most recent
episode of ___?
Month/year |
| 91. Persistent twitching or rippling of muscles in your arms or legs while you were at rest | | | <input type="checkbox"/> <input type="checkbox"/> 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 91a. Which limb or limbs have been affected by twitching? | | | | |
| <input type="checkbox"/> Right leg | | | | |
| <input type="checkbox"/> Right arm | | | | |
| <input type="checkbox"/> Left leg | | | | |
| <input type="checkbox"/> Left arm | | | | |
| <input type="checkbox"/> Both arms and both legs | | | | |

RHEUMATOLOGY

- | | | | | |
|--|---|--------------------------------------|---|--|
| 92. Persistent pain or stiffness in your neck lasting more than 2 weeks | | | <input type="checkbox"/> <input type="checkbox"/> 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 93. Low back pain that interfered with your daily activities | | | <input type="checkbox"/> <input type="checkbox"/> 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 94. Pain, stiffness or swelling of any of your joints, other than your back or neck, lasting more than 2 weeks | | | <input type="checkbox"/> <input type="checkbox"/> 19 <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
M M Y Y |
| 94a. Which joints are affected? | | | | |
| <input type="checkbox"/> Right shoulder | <input type="checkbox"/> Right fingers and thumbs | <input type="checkbox"/> Right knee | | |
| <input type="checkbox"/> Left shoulder | <input type="checkbox"/> Left fingers and thumb | <input type="checkbox"/> Left knee | | |
| <input type="checkbox"/> Both shoulders | <input type="checkbox"/> Fingers & thumbs, both sides | <input type="checkbox"/> Both knees | | |
| <input type="checkbox"/> Right elbow | <input type="checkbox"/> Right jaw joint | <input type="checkbox"/> Right ankle | | |
| <input type="checkbox"/> Left elbow | <input type="checkbox"/> Left jaw joint | <input type="checkbox"/> Left ankle | | |
| <input type="checkbox"/> Both elbows | <input type="checkbox"/> Both jaw joints | <input type="checkbox"/> Both ankles | | |
| <input type="checkbox"/> Right wrist | <input type="checkbox"/> Right hip | <input type="checkbox"/> Right toes | | |
| <input type="checkbox"/> Left wrist | <input type="checkbox"/> Left hip | <input type="checkbox"/> Left toes | | |
| <input type="checkbox"/> Both wrists | <input type="checkbox"/> Both hips | <input type="checkbox"/> All toes | | |
| <input type="checkbox"/> Other joint | | | | |
| Specify _____ | | | | |

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A	B	C	D
Have you ever had ___?	Have you had ___ in the past month?	In what year did you first have ___?	When was the most recent episode of ___? Month/year

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

95. Pain or stiffness when getting up in the morning 19__ / M M Y Y

95a. Which joints are affected?

- | | | |
|---|---|--------------------------------------|
| <input type="checkbox"/> Right shoulder | <input type="checkbox"/> Right fingers and thumbs | <input type="checkbox"/> Right knee |
| <input type="checkbox"/> Left shoulder | <input type="checkbox"/> Left fingers and thumb | <input type="checkbox"/> Left knee |
| <input type="checkbox"/> Both shoulders | <input type="checkbox"/> Fingers & thumbs, both sides | <input type="checkbox"/> Both knees |
| <input type="checkbox"/> Right elbow | <input type="checkbox"/> Right jaw joint | <input type="checkbox"/> Right ankle |
| <input type="checkbox"/> Left elbow | <input type="checkbox"/> Left jaw joint | <input type="checkbox"/> Left ankle |
| <input type="checkbox"/> Both elbows | <input type="checkbox"/> Both jaw joints | <input type="checkbox"/> Both ankles |
| <input type="checkbox"/> Right wrist | <input type="checkbox"/> Right hip | <input type="checkbox"/> Right toes |
| <input type="checkbox"/> Left wrist | <input type="checkbox"/> Left hip | <input type="checkbox"/> Left toes |
| <input type="checkbox"/> Both wrists | <input type="checkbox"/> Both hips | <input type="checkbox"/> All toes |

Other joint
Specify _____

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION C

A Have you ever had _?	B Have you had _ in the past month?	C In what year did you first have _?	D When was the most recent episode of _? Month/year
------------------------------	--	---	---

96. This concludes the section on symptoms that you may have had. Do you have any other current symptoms or health problems I did not mention?

96a. Specify

INTERVIEWER: WRITE ANY FURTHER INFORMATION BELOW

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION D

1=NO

2=YES

7=NOT APPLICABLE

8=DON'T KNOW

9=REFUSED

SECTION D

Have any of your relatives (grandparents, aunts, uncles, parents, siblings, children) ever had ___?

1. Porphyria

2. Hypertension

3. Diabetes

- Maternal Grandmother
- Maternal Grandfather
- Maternal Aunts
- Maternal Uncles
- Paternal Grandmother
- Paternal Grandfather
- Paternal Aunts
- Paternal Uncles
- Mother
- Father
- Brothers
- Sisters
- Children

4. Stroke

5. Ulcers

6. Acne

- Maternal Grandmother
- Maternal Grandfather
- Maternal Aunts
- Maternal Uncles
- Paternal Grandmother
- Paternal Grandfather
- Paternal Aunts
- Paternal Uncles
- Mother
- Father
- Brothers
- Sisters
- Children

7. Liver disease

8. Lipid cholesterol disorders

9. Heart Disease

- Maternal Grandmother
- Maternal Grandfather
- Maternal Aunts
- Maternal Uncles
- Paternal Grandmother
- Paternal Grandfather
- Paternal Aunts
- Paternal Uncles
- Mother
- Father
- Brothers
- Sisters
- Children

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION D

Have any of your relatives (grandparents, aunts, uncles, parents, siblings, children) ever had ___?

	10. Mental Illness	11. Lung Disease
Maternal Grandmother	<input type="checkbox"/>	<input type="checkbox"/>
Maternal Grandfather	<input type="checkbox"/>	<input type="checkbox"/>
Maternal Aunts	<input type="checkbox"/>	<input type="checkbox"/>
Maternal Uncles	<input type="checkbox"/>	<input type="checkbox"/>
Paternal Grandmother	<input type="checkbox"/>	<input type="checkbox"/>
Paternal Grandfather	<input type="checkbox"/>	<input type="checkbox"/>
Paternal Aunts	<input type="checkbox"/>	<input type="checkbox"/>
Paternal Uncles	<input type="checkbox"/>	<input type="checkbox"/>
Mother	<input type="checkbox"/>	<input type="checkbox"/>
Father	<input type="checkbox"/>	<input type="checkbox"/>
Brothers	<input type="checkbox"/>	<input type="checkbox"/>
Sisters	<input type="checkbox"/>	<input type="checkbox"/>
Children	<input type="checkbox"/>	<input type="checkbox"/>

	12. Cancer	Type
Maternal Grandmother	<input type="checkbox"/>	_____
Maternal Grandfather	<input type="checkbox"/>	_____
Maternal Aunts	<input type="checkbox"/>	_____
Maternal Uncles	<input type="checkbox"/>	_____
Paternal Grandmother	<input type="checkbox"/>	_____
Paternal Grandfather	<input type="checkbox"/>	_____
Paternal Aunts	<input type="checkbox"/>	_____
Paternal Uncles	<input type="checkbox"/>	_____
Mother	<input type="checkbox"/>	_____
Father	<input type="checkbox"/>	_____
Brothers	<input type="checkbox"/>	_____
Sisters	<input type="checkbox"/>	_____
Children	<input type="checkbox"/>	_____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION E

INTERVIEWER: We are interested in determining what medications the respondent has taken during the two weeks before his/her participation in the study. We also want to know what conditions the medications were prescribed for, how long the medication has been taken, and at what dosage.

For each medication listed by respondent, ask questions "B", "C", and "D". Ask respondent if he/she has brought medications to the clinic, and if possible confirm name and dosage.

For each medication on this list, ask the respondent questions "A". If the answer to question "A" is NO, ask question "B"; if the response to "A" is YES, ask question "C". If the response to question "C" is NO, ask question "D".

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION E

1. In the past 2 weeks have you taken any medications that were prescribed or recommended by your doctor?

IF NO: GO TO SECTION F

	Medication	For what condition are you taking Med?	How much do you take each day? Total mg/day	How long have you taken it? D, W, M, Y
a.				
b.				
c.				
d.				
e.				
f.				
g.				
h.				
i.				
j.				

INTERVIEWER: WRITE ANY FURTHER INFORMATION ON NEXT PAGE!

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

MEDICATION FREE TEXT

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION F

AUTONOMIC NERVOUS SYMPTOMS

INTERVIEWER: PROBE FOR SYMPTOMS THAT OCCUR PERSISTENTLY AND/OR UNDER "UNUSUAL OR UNEXPLAINED" CONDITIONS.

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION F

At any time in the past year have you had

1. Nausea and vomiting after meals?
2. Fullness that lasts more than 2 hrs after eating?
(even after eating a small amount of food)
3. Less sweating on arms and legs than usual?
4. More sweating on your chest and stomach?
5. Sweating after most meals? (even when the room is cool)
6. Dizziness, like you are going to faint, when you stand
quickly?
7. A loss of control of your bladder?

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION G

EVALUATION REPORT

**INTERVIEWER: COMPLETE THESE QUESTIONS AFTER THE EXAMINEE DEPARTS!
ANSWER SECTION H BEFORE COMPLETING SECTION G**

1. Was the respondent's cooperation:
- 1=Very good
 - 2=Good
 - 3=Fair
 - 4=POOR
2. The quality of the interview was:
- 1=Unsatisfactory
 - 2=Questionable
 - 3=Generally reliable
 - 4=High quality
3. The main reason for the unsatisfactory or questionable quality was that the respondent:
- Was ill or disabled
 - Spoke English poorly
 - Was evasive or suspicious
 - Was bored or uninterested
 - Was upset or depressed by the topic
 - Was intoxicated
 - Had poor hearing or speech
 - Was confused by frequent interruptions
 - Was insufficiently knowledgeable
 - Was mentally disturbed
 - Something else, specify

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION H

HABITS

INTERVIEWER: ANSWERS TO QUESTIONS IN THIS SECTION ARE FOR THE USE OF STUDY DIAGNOSTICIANS ONLY. INFORM THAT WE KNOW THAT PARTICIPANT ANSWERED SIMILAR QUESTIONS DURING RFI INTERVIEW, BUT THAT THIS INFORMATION IS NOT AVAILABLE TO US HERE IN THE CLINIC. WE NEED THIS INFORMATION TO GIVE ACCURATE FEEDBACK ON MEDICAL CONDITIONS AND RESULTS.

PARTICIPANT ID # _____

PARTICIPANT NAME _____

DATE _____

INTERVIEWER ID # _____

1=NO 2=YES 7=NOT APPLICABLE 8=DON'T KNOW 9=REFUSED

SECTION H

Now I would like to ask you a few questions about the use of wine, beer or liquor-
all kinds of alcoholic beverages.

INTERVIEWER: PROBE FOR BEST ESTIMATE.

1. On the average, how many days per month do you drink beverages containing alcohol? days
- 1a. A drink is 1 can or bottle of beer, 1 glass of wine, or 1 cocktail or shot of liquor. On the days that you drink, how many drinks do you have per day on the average?
- 1b. How many times during the past 4 weeks did you have 5 or more drinks on an occasion?
- 1c. During the past 4 weeks, how many times have you driven when you've had perhaps too much to drink?

Now some questions about cigarette smoking:

2. Have you ever smoked cigarettes regularly, that is, at least one a day?

IF NO: END OF INTERVIEW

3. Do you now smoke cigarettes regularly, that is, at least one a day?
- 3a. On the average, how many cigarettes a day do you currently smoke? cigarettes
- 3b. How many years altogether have you been a regular cigarette smoker? years
4. How long has it been since you quit? D,W,M,Y
5. On the average, how many cigarettes a day did you smoke when you were a regular smoker? cigarettes
6. How many years altogether were you a regular cigarette smoker? years



OMB NO.: 0920-0183 EXPIRES 12/31/87
NIOSH OCCUPATIONAL HEALTH STUDY
03/09/87

MALE REPRODUCTION QUESTIONNAIRE

- A1. PARTICIPANT ID# _____
PARTICIPANT NAME _____
- A2. EXAM DATE _____ A3. EXAM TIME _____
- A4. INTERVIEWER ID _____
- A5. EXAM STATUS: _____ 1=COMPLETE; 2=INCOMPLETE; 9=REFUSED
- A6. FORM # _____ A7. TOTAL NUMBER OF FORMS _____

**MUST ALWAYS HAVE FORM # 1.
USE A SEPARATE FORM FOR EACH WIFE.
USE A SEPARATE FORM IF MORE THAN 3 PREGNANCIES IN A MARRIAGE.
A1-A6 MUST BE FILLED IN FOR ALL FORMS.
A7 MUST BE FILLED IN ON FORM # 1 AT END OF INTERVIEW.**

1=NO 2=YES 8=DON'T KNOW 9=REFUSED

1. HAVE YOU EVER BEEN MARRIED OR LIVED WITH A WOMAN AS IF YOU WERE MARRIED FOR AT LEAST TWO YEARS? / / /

- 1=NO (END OF INTERVIEW)
- 2=YES, MARRIED
- 3=YES, LIVED WITH WOMAN FOR 2 YEARS
- 4=BOTH 2 & 3

2. HOW MANY TIMES HAVE YOU BEEN MARRIED? / / /

(Interviewer: If person lived with someone for at least two years, ask question 3. Otherwise, go to question 4.)

3. HOW MANY TIMES HAVE YOU LIVED WITH SOMEONE (FOR AT LEAST TWO YEARS) BUT WERE NOT MARRIED? / / /

(Interviewer: Make this statement: "From now on, for the purpose of this interview, we'll refer to each person you lived with as your wife.")

4. HOW MANY TIMES ALTOGETHER HAVE YOU BEEN THE FATHER IN A PREGNANCY? PLEASE BE SURE TO INCLUDE ANY PREGNANCIES THAT ENDED IN A LIVE BIRTH, A MISCARRIAGE, A STILLBIRTH, OR AN INDUCED ABORTION. / / /

5. HAVE YOU HAD A VASECTOMY? / /

5a. WHAT YEAR WAS IT PERFORMED? (19) / / /

I would like to ask you a few questions about each of your marriages/relationships.

Thinking now about the (1st, 2nd, etc.) marriage:

6. WIFE # / / /

6a. IN WHAT MONTH AND YEAR DID YOU BEGIN LIVING TOGETHER?

 / / / MO / / / YR

7. HOW OLD WAS YOUR WIFE WHEN YOU WERE MARRIED/BEGAN LIVING TOGETHER? / / /

1=NO 2=YES 8=DON'T KNOW 9=REFUSED

14B. IF YES, LOOK AT THIS LIST AND TELL ME IF A DOCTOR TOLD YOU THAT ANY OF THESE WAS THE CAUSE OF DIFFICULTY IN GETTING PREGNANT?

- 1. LOW SPERM COUNT
- 2. IMPOTENCY (UNABLE TO GET ERECTION)
- 3. HORMONE/GLAND PROBLEM IN YOU
- 4. PROBLEM WITH YOUR MALE ORGANS
- 5. HORMONE/GLAND PROBLEM IN YOUR WIFE
- 6. PROBLEM WITH YOUR WIFE'S FEMALE ORGANS
- 7. UNKNOWN PROBLEM
- 8. NO PROBLEM
- 9. OTHER

15. DID YOUR WIFE HAVE A HYSTERECTOMY OR HAVE HER TUBES TIED?
1=HYSTERECTOMY; 2=TUBAL LIGATION; 3=NEITHER

15A. IN WHAT YEAR WAS IT PERFORMED?

If no pregnancies in the marriage, and no more marriages/relationships, END of interview.
If multiple marriages/relationships, go to next packet, ques. 6
If pregnancies in this marriage, go to question 16.

Thinking now about the pregnancies (1st, 4th, 7th, etc)

16. WIFE #

17A. PREGNANCY #

17B. DID YOUR WIFE HAVE:

- 1=A LIVE BORN CHILD
- 2=A MISCARRIAGE
- 3=A STILLBORN CHILD
- 4=AN INDUCED ABORTION
- 5=TUBAL PREGNANCY
- 6=CURRENTLY PREGNANT
- 7=OTHER (if other, specify)

(Interviewer: If multiple births, record each birth as a separate pregnancy, but keep the same pregnancy number.)

18. WHAT WAS THE MONTH AND YEAR OF THE OUTCOME? MO YR
(Interviewer: For current pregnancies, code all 9's)

2-4-82
RECEIVED

OMB NO.:0920-0183; EXPIRES 12/31/8

NIOSH OCCUPATIONAL HEALTH STUDY
DEMOGRAPHIC AND OCCUPATIONAL HISTORY QUESTIONNAIRE

Subject ID Number:

--	--	--	--

Interviewer ID Number:

--	--	--	--	--	--

Interview Date:

--	--

Month

--	--

Day

--	--

Year

1. FOLLOW CONTROL CARD PROCEDURES TO IDENTIFY AND VERIFY RESPONDENT INFORMATION.
2. COVER CONSENT INFORMATION WITH RESPONDENT AND ASK FOR SIGNATURE, THEN SAY:

Before we start the interview let me tell you a little about the questions. I will be asking you about such things as medical information, jobs you have held, your family, and places you have lived. I also will want to know when certain events occurred. Sometimes the period of time I ask about will be your entire life and other times it will be since you were 16 years old, or some other time period.

If you do not understand the time period or the question, ask me to repeat the question or to clarify, if possible. We want to make sure the information is as accurate as possible.

The questions will take an average of one hour to complete. If you want to take a break at some point, just let me know.

THE RESPONDENT HAS BEEN INFORMED ABOUT THE STUDY AND GIVEN HIS/HER CONSENT.

SIGNATURE OF INTERVIEWER

A. CURRENT MEDICAL CONDITION

First I am going to ask you a few general questions about your health and medical history.

A1. In general, compared with other people your age, would you say your health excellent, good, fair, or poor?

- EXCELLENT.....01
- GOOD.....02
- FAIR.....03
- POOR.....04

A2. Do you feel you have a health problem?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } + GO TO A3.

a. [IF YES] What (is/are) the health problem(s)?

HEALTH PROBLEM #1	OFFICE USE
HEALTH PROBLEM #2	OFFICE USE
HEALTH PROBLEM #3	OFFICE USE
HEALTH PROBLEM #4	OFFICE USE

A3. Does any health problem keep you from working either full or part-time? ([IF RETIRED:] Did any health problem cause your retirement?)

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } + GO TO A4.

a. [IF YES] What (is/are) the health problem(s)?

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
HEALTH PROBLEM #1	OFFICE USE			
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
HEALTH PROBLEM #2	OFFICE USE			
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
HEALTH PROBLEM #3	OFFICE USE			
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
HEALTH PROBLEM #4	OFFICE USE			

A4. During the past 3 months did you see a doctor, or spend at least 2 days in a row in bed due to an illness?

- SAW A DOCTOR.....01
 - SPENT 2 DAYS IN A ROW IN BED.....02
 - BOTH 1 AND 2.....03
 - NO.....04
 - DON'T KNOW.....94
 - REFUSED.....97
- } + GO TO SECTION B

a. [IF ANSWER 01, 02, OR 03] What caused you to (see a doctor/spend 2 or more consecutive days in bed/both see a doctor and spend 2 or more consecutive days in bed)?

GO TO SECTION B

8. HOSPITALIZATIONS

81. Throughout your life, have you ever been hospitalized overnight or longer not including when you were born?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } + GO TO 84

82. How many times, in your life, have you been hospitalized overnight or longer?

NUMBER OF TIMES

REFUSED.....97 + GO TO 84

83. [ASK QUESTIONS a. THRU d. FOR EACH HOSPITALIZATION INDICATED IN QUESTION B2. THEN SAY:] We would like to obtain the hospital records for each time that you were hospitalized. I need you to sign a form that gives us your permission to ask for your records.

HOSPITALIZATION #1	
a. In what month and year were you (first/next) hospitalized?	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center; margin-top: 5px;">MONTH YEAR</p>
b. What was the reason for this overnight hospitalization? [CODE TRAUMATIC, NON-TRAUMATIC, OTHER]	<p>TRAUMATIC . . . 01</p> <p>NON-TRAUMATIC . 02</p> <p>OTHER 03</p> <div style="display: flex; justify-content: flex-end; align-items: center; margin-top: 5px;"> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: right; margin-top: 5px;">OFFICE USE</p>
c. What was the name and address of the hospital you stayed in?	<p style="text-align: center;">NAME OF HOSPITAL</p> <hr/> <p style="text-align: center;">ADDRESS</p> <hr/> <p style="text-align: center;">CITY, STATE ZIP</p>
d. What was the name and address of the doctor who treated you?	<p style="text-align: center;">DOCTOR'S NAME</p> <hr/> <p style="text-align: center;">ADDRESS</p> <hr/> <p style="text-align: center;">CITY, STATE ZIP</p>
e. WHAT IS THE PERMISSION FORM NUMBER FOR THIS STAY?	<div style="border: 1px solid black; width: 40px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>
<p>GO TO NEXT HOSPITAL VISIT OR, AFTER ALL VISITS, B4.</p>	

FILL OUT A CONSENT FORM FOR EACH DIFFERENT HOSPITAL AND HAVE RESPONDENT SIGN THEM ALL. ONCE ALL CONSENT FORMS ARE SIGNED AND CLIPPED TOGETHER, GO TO THE NEXT SECTION. THERE MUST BE A CONSENT FORM FOR EACH DIFFERENT HOSPITAL. IF THE RESPONDENT REFUSES TO SIGN A FORM, MARK "REFUSED" IN THE SIGNATURE SPACE. BE SURE TO ENTER CONSECUTIVE CONSENT FORM NUMBERS ON EACH FORM AND IN EACH PART e. FOR EACH REPORTED HOSPITALIZATION.

HOSPITALIZATION #2	HOSPITALIZATION #3	HOSPITALIZATION #4
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>
<p>TRAUMATIC . . . 01</p> <p>NON-TRAUMATIC . 02 OFFICE USE</p> <p>OTHER 03 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/></p>	<p>TRAUMATIC . . . 01</p> <p>NON-TRAUMATIC . 02 OFFICE USE</p> <p>OTHER 03 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/></p>	<p>TRAUMATIC . . . 01</p> <p>NON-TRAUMATIC . 02 OFFICE USE</p> <p>OTHER 03 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/></p>
<p>NAME OF HOSPITAL</p> <p>ADDRESS</p> <p>CITY, STATE ZIP</p>	<p>NAME OF HOSPITAL</p> <p>ADDRESS</p> <p>CITY, STATE ZIP</p>	<p>NAME OF HOSPITAL</p> <p>ADDRESS</p> <p>CITY, STATE ZIP</p>
<p>DOCTOR'S NAME</p> <p>ADDRESS</p> <p>CITY, STATE ZIP</p>	<p>DOCTOR'S NAME</p> <p>ADDRESS</p> <p>CITY, STATE ZIP</p>	<p>DOCTOR'S NAME</p> <p>ADDRESS</p> <p>CITY, STATE ZIP</p>
<div style="border: 1px solid black; width: 40px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>	<div style="border: 1px solid black; width: 40px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>	<div style="border: 1px solid black; width: 40px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>
<p>GO TO NEXT HOSPITAL VISIT OR, AFTER ALL VISITS, B4.</p>	<p>GO TO NEXT HOSPITAL VISIT OR, AFTER ALL VISITS, B4.</p>	<p>GO TO NEXT HOSPITAL VISIT OR, AFTER ALL VISITS, B4.</p>

84. In your entire life, have you ever had a serious condition which you felt you should have been hospitalized for but were not?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO B5.

a. [IF YES,] please describe the condition. _____

--	--	--	--

 OFFICE USE

85. In your entire life, have you ever had a biopsy or surgery for which you were not hospitalized?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO SECTION C

a. [IF YES,] please describe the biopsy or surgery. _____

--	--	--	--

 OFFICE USE

GO TO SECTION C

C. MEDICATION HISTORY

Now I'd like to ask you about any medicines you have taken or currently take..

C1. During the past two (2) years, have you taken any of the following medicines?

	<u>YES</u>	<u>NO</u>	<u>DON'T KNOW</u>	<u>REFUSED</u>
a. Anti-convulsants--anti-seizure medicines (e.g, dilantin, phenurone, tridione).....	.01	.02	.94	.97
b. Antituberculous drugs (e.g., INH, PAS, Pyrazinamide, ethionamide).....	.01	.02	.94	.97
c. Antibiotics (e.g., penicillin, tetracycline, sulfonamides).....	.01	.02	.94	.97
d. Pills for diabetes (e.g., Diabinese, Orinase, Dymelor, Tolinase).....	.01	.02	.94	.97
e. Blood pressure medicines or water pills (e.g., Aldomet, Diuril, Hydrodiuril).....	.01	.02	.94	.97
f. Male Hormones (e.g., methyltestosterone).....	.01	.02	.94	.97
g. Female Hormones or birth control pills.....	.01	.02	.94	.97
h. Antithyroid drugs (e.g., Tapazole, propylthiouracil).....	.01	.02	.94	.97
i. Antidepressants or major tranquilizers (including barbiturates, valium, librium, thorazine, sparine, mellaril, stelazine, compazine, niamid, nardil, marplan, parnate, tofranil, elavil, etc.).....	.01	.02	.94	.97

INTERVIEWER: LIST BELOW THE NAMES OF ALL MEDICATIONS TAKEN BY THE RESPONDENT IN THE LAST TWO WEEKS. [LAST TWO WEEKS IS SAME AS TAKEN CURRENTLY.]

MEDICATION #2	MEDICATION #3
<div style="text-align: center; margin-bottom: 10px;">OFFICE USE <input style="width: 40px; height: 20px;" type="text"/></div> <hr style="border-top: 1px dashed black;"/>	<div style="text-align: center; margin-bottom: 10px;">OFFICE USE <input style="width: 40px; height: 20px;" type="text"/></div> <hr style="border-top: 1px dashed black;"/>
<div style="text-align: center; margin-bottom: 10px;">OFFICE USE <input style="width: 40px; height: 20px;" type="text"/></div>	<div style="text-align: center; margin-bottom: 10px;">OFFICE USE <input style="width: 40px; height: 20px;" type="text"/></div>
<div style="text-align: center; margin-bottom: 10px;"># <input style="width: 20px; height: 20px;" type="text"/> PER DAY</div> CAPS/PILLS 01 OUNCES 02 ML 03 OTHER 04	<div style="text-align: center; margin-bottom: 10px;"># <input style="width: 20px; height: 20px;" type="text"/> PER DAY</div> CAPS/PILLS 01 OUNCES 02 ML 03 OTHER 04
<div style="text-align: center; margin-bottom: 10px;"># <input style="width: 20px; height: 20px;" type="text"/></div> DAYS 01 WEEKS 02 MONTHS 03 YEARS 04	<div style="text-align: center; margin-bottom: 10px;"># <input style="width: 20px; height: 20px;" type="text"/></div> DAYS 01 WEEKS 02 MONTHS 03 YEARS 04
GO TO NEXT MEDICATION OR, AFTER ALL MEDICATIONS, C4.	GO TO NEXT MEDICATION OR, AFTER ALL MEDICATIONS, C4.

Other Non-prescription medicines such as pills, tonics, vitamins, or remedies? (SPECIFY)

C4.

	(1)	(2)	(3)
	Vitamin B-6	Vitamin A	OFFICE USE
a. Are you currently taking _____? IF YES ↓	YES01 NO02 } DONT'T KNOW . .94 } REFUSED97 }	YES01 NO02 } DONT'T KNOW . . .94 } REFUSED97 }	YES01 NO02 } DONT'T KNOW . .94 } REFUSED97 }
b. For what condition are you currently taking _____? OFFICE USE	 OFFICE USE	 OFFICE USE	 OFFICE USE
c. How much do you take a day? [RECORD # AND CODE METHOD]	# [] [] PER DAY CAPS/PILLS01 OUNCES02 ML03 OTHER04	# [] [] PER DAY CAPS/PILLS01 OUNCES02 ML03 OTHER04	# [] [] PER DAY CAPS/PILLS01 OUNCES02 ML03 OTHER04
d. How long have you taken _____? [RECORD # AND CODE TIME PERIOD]	# [] [] DAYS01 WEEKS02 MONTHS03 YEARS04	# [] [] DAYS01 WEEKS02 MONTHS03 YEARS04	# [] [] DAYS01 WEEKS02 MONTHS03 YEARS04
	GO TO COLUMN (2)	GO TO COLUMN (3)	GO TO COLUMN (4)

(4)

(5)

(6)

<p>Other <u>Non-prescription medicines</u> such as pills, tonics, vitamins, or remedies? (SPECIFY)</p>	<p>Other <u>Non-prescription medicines</u> such as pills, tonics, vitamins, or remedies? (SPECIFY)</p>	<p>Other <u>Non-prescription medicines</u> such as pills, tonics, vitamins, or remedies? (SPECIFY)</p>
<p>OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p>OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p>OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>
<p>YES01 NO02 DONT'T KNOW . .94 } GO TO D. REFUSED97</p>	<p>YES01 NO02 DONT'T KNOW . .94 } GO TO D. REFUSED97</p>	<p>YES01 NO02 DONT'T KNOW . .94 } GO TO D. REFUSED97</p>
<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p>
<p># <input type="checkbox"/> <input type="checkbox"/> PER DAY</p> <p>CAPS/PILLS01 OUNCES02 ML03 OTHER04</p>	<p># <input type="checkbox"/> <input type="checkbox"/> PER DAY</p> <p>CAPS/PILLS01 OUNCES02 ML03 OTHER04</p>	<p># <input type="checkbox"/> <input type="checkbox"/> PER DAY</p> <p>CAPS/PILLS01 OUNCES02 ML03 OTHER04</p>
<p># <input type="checkbox"/> <input type="checkbox"/></p> <p>DAYS01 WEEKS02 MONTHS03 YEARS04</p>	<p># <input type="checkbox"/> <input type="checkbox"/></p> <p>DAYS01 WEEKS02 MONTHS03 YEARS04</p>	<p># <input type="checkbox"/> <input type="checkbox"/></p> <p>DAYS01 WEEKS02 MONTHS03 YEARS04</p>
<p>GO TO COLUMN (5)</p>	<p>GO TO COLUMN (6)</p>	<p>GO TO NEXT OTHER NON-PRESCRIPTION MEDICINE. WHEN FINISHED WITH ALL, GO TO SECTION D.</p>

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CONTINUE

D. SMOKING HISTORY

Now I'd like to ask a few questions about the use of tobacco products.

D1. Have you smoked 100 or more cigarettes during your lifetime?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO D2

IF YES:

a. How old were you when you first started smoking at least 2 cigarettes a day or 1/2 pack a week?

AGE

[IF NEVER, CODE "00", and GO TO D2.]

b. Overall, for how many years did you smoke cigarettes, regularly (at least cigarettes a day or 1/2 pack per week)?

YEARS

c. Over the entire time you smoked regularly, on the average how many cigarettes did you smoke per day?

CIGARETTES/DAY

d. Have you smoked cigarettes regularly within the past year?

- YES.....01 → GO TO D2
- NO.....02
- DON'T KNOW.....94 → GO TO D2
- REFUSED.....97 → GO TO D2

e. [IF NO TO d.,] How many years ago did you last smoke cigarettes regularly?

YEARS AGO

D2. Have you ever smoked an average of one or more cigars a week for a year?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO D3

IF YES:

a. How many years altogether did you smoke an average of one or more cigars a week for a year?

YEARS

b. Over that time period how many cigars a week did you smoke, on the average?

CIGARS/WEEK

D3. Did you ever smoke an average of one or more pipefuls of tobacco a week for a year?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO D4

IF YES:

a. How many years altogether did you smoke an average of one or more pipefuls of tobacco a week for a year?

YEARS

b. Over that time period how many pipefuls of tobacco a week did you smoke, on the average?

PIPEFULS OF TOBACCO/WEEK

04. Have you ever used smokeless tobacco like snuff or chewing tobacco an average of one or more times a week for a year?

YES.....01

NO.....02

DON'T KNOW.....94

REFUSED.....97

} → GO TO SECTION E

IF YES:

a. How many years altogether did you use smokeless tobacco an average of one or more times a week for a year?

--	--

YEARS

b. Over that time period how many times a week did you use smokeless tobacco, on the average?

--	--

TIMES USED SMOKELESS TOBACCO/WEEK

E. ALCOHOLIC BEVERAGES

The next series of questions covers the consumption of alcoholic beverages. By alcoholic beverages we mean beer, wine, or liquor.

E1. Have you, in your entire life, consumed a total of 12 or more alcoholic beverages in a single year?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO SECTION F.

a. At what age did you first drink 12 or more an alcoholic beverages in a single year?

AGE

DON'T KNOW.....94

REFUSED.....97

b. At what age did you last drink 12 or more alcoholic beverages in a single year?

AGE

DON'T KNOW.....94

REFUSED.....97

c. For how many years altogether did you drink at least 12 or more alcoholic beverages in a year?

YEARS

E2. On the average, how many days a month do or did you usually drink?

DAYS/MONTH

DON'T KNOW.....94

REFUSED.....97

E3. On average, when you drink or when you drank, how many [COMPLETE FOR EACH TYPE OF BEVERAGE, ONE AT A TIME] do or did you usually drink a day?

a.	b.	c.
12 OZ. GLASSES OF BEER	4 OZ. GLASSES OF WINE	1 1/2 OZ. SHOTS OF LIQUOR
NUMBER OF BEERS/DAY <input type="text"/> <input type="text"/>	NUMBER OF WINES/DAY <input type="text"/> <input type="text"/>	SHOTS/DAY <input type="text"/> <input type="text"/>
NONE. 00	NONE. 00	NONE. 00
DON'T KNOW 94	DON'T KNOW 94	DON'T KNOW 94
REFUSED 97	REFUSED 97	REFUSED 97

E4. Were there ever periods of 3 or more consecutive months when you drank considerably more than you normally did?

YES.....01
 NO.....02
 DON'T KNOW.....94
 REFUSED.....97

} + GO TO SECTION F

E5. How many of these periods, when you drank considerably more than usual, have you ever had?

PERIODS

DON'T KNOW. 94)
) + GO TO SECTION F
 REFUSED. 97)

E6. At what age did the first period of drinking more than was usual begin?

--	--

AGE

DON'T KNOW. . . . 94

REFUSED. . . . 97

E7. At what age did the last period of drinking more than was usual begin?

--	--

AGE

DON'T KNOW. . . . 94

REFUSED. . . . 97

E8. For how many months on average did (this period/these periods) last?

--	--	--

MONTHS

E9. On average, when you drank during (this period/these periods), how many [COMPLETE FOR EACH TYPE OF BEVERAGE ONE AT A TIME] did you usually drink a day?

a.

b.

c.

12 OZ. GLASSES OF BEER	4 OZ. GLASSES OF WINE	1 1/2 OZ. SHOTS OF LIQUOR						
NUMBER OF BEERS/DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>			NUMBER OF WINES/DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>			SHOTS/DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
NONE. 00	NONE. 00	NONE. 00						
DON'T KNOW 94	DON'T KNOW 94	DON'T KNOW. . 94						
REFUSED 97	REFUSED 97	REFUSED . . . 97						

F. EXPOSURES AWAY FROM THE WORKPLACE

I would like to ask you questions about the chemicals or toxic materials you may have used or handled in hobbies or activities away from your regular job or work. These non-job activities might include developing photographs, refinishing furniture, spray painting, lawn work, or any other spare time activity involving chemicals. We want to include only those activities you took part in 2 or more times per month, on average.

F1. Did you ever have a hobby or engage in other activities on an average of 2 or more times per month that involved exposures to chemicals, toxic materials, or dusts?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } + GO TO F2.

[IF YES]:

a. What was the (first/next) hobby or activity that involved exposures to chemicals, toxic materials, or dusts? [GET THE TITLES OF ALL HOBBIES/ACTIVITIES, THEN CONTINUE WITH b-e FOR EACH HOBBY/ACTIVITY.]

HOBBY/ACTIVITY #1	
b. What chemicals, toxic materials, or dusts were you exposed to in (HOBBY/ACTIVITY)?	1. _____ 2. _____ 3. _____
c. In what year did you start (HOBBY/ACTIVITY)?	19 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> DON'T KNOW 94
d. For how many years have you done (HOBBY/ACTIVITY)?	YEARS <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> DON'T KNOW 94
e. How often would you say that you do or did (HOBBY/ACTIVITY)? Was it daily, at least once a week, at least twice a month, or less than twice a month?	DAILY 01 1/WEEK 02 2/MONTH 03 LESS THAN 2/MONTH. 04 DON'T KNOW 94
GO TO NEXT ACTIVITY. WHEN FINISHED WITH ALL ACTIVITIES, GO TO F2.	

HOBBY/ACTIVITY #2	HOBBY/ACTIVITY #3	HOBBY/ACTIVITY #4
***** 1. _____ 2. _____ 3. _____	***** 1. _____ 2. _____ 3. _____	***** 1. _____ 2. _____ 3. _____
19 <input type="text"/> <input type="text"/> DON'T KNOW 94	19 <input type="text"/> <input type="text"/> DON'T KNOW 94	19 <input type="text"/> <input type="text"/> DON'T KNOW
YEARS <input type="text"/> <input type="text"/> DON'T KNOW 94	YEARS <input type="text"/> <input type="text"/> DON'T KNOW 94	YEARS <input type="text"/> <input type="text"/> DON'T KNOW
DAILY 01 1/WEEK 02 2/MONTH 03 LESS THAN 2/MONTH. 04 DON'T KNOW 94	DAILY 01 1/WEEK 02 2/MONTH 03 LESS THAN 2/MONTH. 04 DON'T KNOW 94	DAILY 1/WEEK 2/MONTH LESS THAN 2/MONTH. DON'T KNOW
GO TO NEXT ACTIVITY. WHEN FINISHED WITH ALL ACTIVITIES, GO TO F2.	GO TO NEXT ACTIVITY. WHEN FINISHED WITH ALL ACTIVITIES, GO TO F2.	GO TO NEXT ACTIVITY. WHEN FINISHED WITH ALL ACTIVITIES, GO TO F2.

F2. Have you or anyone in your household

↓
↓
↓
↓
↓
↓
↓

[IF YES]

	.1	.2	.3
	What (was/were) the name(s) of the spray(s) (company)?	How many times per year?	For how many years ?
<p>a...personally applied household bug spray more than 4 times a year in your home?</p> <p>YES 01 + +</p> <p>NO 02 } ↓</p> <p>DON'T KNOW. . 94 } ↓</p>	<p>_____</p> <p>_____</p> <p>DON'T KNOW. .94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p>TIMES/YEAR</p> <p>DON'T KNOW . . 94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p># YEARS</p> <p>DON'T KNOW . . 94</p> <p>GO TO b.</p>
<p>b...had any pest control company treat the inside of your home more than 4 times a year?</p> <p>YES 01 + +</p> <p>NO 02 } ↓</p> <p>DON'T KNOW. . 94 } ↓</p>	<p>_____</p> <p>_____</p> <p>DON'T KNOW. .94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p>TIMES/YEAR</p> <p>DON'T KNOW . . 94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p># YEARS</p> <p>DON'T KNOW . . 94</p> <p>GO TO c.</p>
<p>c...personally sprayed weed killers more than 4 times a year in areas around the outside of your home?</p> <p>YES 01 + +</p> <p>NO 02 } ↓</p> <p>DON'T KNOW. . 94 } ↓</p>	<p>_____</p> <p>_____</p> <p>DON'T KNOW. .94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p>TIMES/YEAR</p> <p>DON'T KNOW . . 94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p># YEARS</p> <p>DON'T KNOW . . 94</p> <p>GO TO d.</p>
<p>d...had a chemical company spray weed killers around the outside of your home more than 4 times a year?</p> <p>YES 01 + +</p> <p>NO 02 } ↓</p> <p>DON'T KNOW. . 94 } ↓</p>	<p>_____</p> <p>_____</p> <p>DON'T KNOW. .94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p>TIMES/YEAR</p> <p>DON'T KNOW . . 94</p>	<p><input type="text"/></p> <p><input type="text"/></p> <p># YEARS</p> <p>DON'T KNOW . . 94</p>

F3. Has anyone in your household other than yourself worked at a chemical plant or manufactured herbicides (weed killers)?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO SECTION G

a. [IF YES], please tell me the relationship of the other person to you & the name and address of the chemical plant.

RELATIONSHIP _____

NAME OF COMPANY _____

STREET ADDRESS _____

CITY, STATE _____ ZIP _____

G. MISCELLANEOUS

This section asks about places where you might have visited or lived and been exposed to certain types of chemicals.

G1. Have you ever traveled or lived outside of the United States either on your own or because of your job, including military service?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO G16

G2. While you were living or traveling outside of the United States did you ever spend more than just a few hours in Vietnam after September of 1964?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO G16

G3. Were you in Vietnam while serving in the military?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO G6

G4. What branch(es) of service were you in while in Vietnam?

[CIRCLE ALL THAT APPLY]

- ARMY.....01
- NAVY.....02
- AIR FORCE.....03
- MARINES.....04

G5. What was your service number?

--	--	--	--	--	--	--	--	--	--

- DON'T KNOW.....94
- REFUSED.....97

G6. During what years were you in Vietnam?

FROM 19

--	--

 TO 19

--	--

FROM 19

--	--

 TO 19

--	--

FROM 19

--	--

 TO 19

--	--

- DON'T KNOW.....94
- REFUSED.....97

G7. What were your activities or duties while in Vietnam?

G8. Did you come into contact with herbicides, insecticides, or pesticides in Vietnam?

YES.....01
NO.....02
DON'T KNOW.....94
REFUSED.....97

} → GO TO G12

G9. What were the chemicals used for, that is, were they used to kill insects, destroy vegetation, or for some other purpose? [CIRCLE ALL THAT APPLY.]

KILL INSECTS.....01
DESTROY VEGETATION.....02
OTHER (SPECIFY).....03

DON'T KNOW.....94

G10. Did you spray or apply these chemicals?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO G11

a. [IF YES], for how many days in total did you spray or apply herbicides, insecticides, or pesticides in Vietnam?

DAYS

- DON'T KNOW.....94
- REFUSED.....97

b. Do you know the names of the chemicals that you sprayed or applied?

- YES.....01
 - NO.....02
 - REFUSED.....97
- } → GO TO G11

c. [IF YES], what were their names?

G11. Were you present when others were spraying these chemicals?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } + GO TO G12

a. [IF YES], for how many days in total were you present while others were spraying or applying these chemicals?

DAYS

- DON'T KNOW.....94
- REFUSED.....97

b. Do you know any of the names of the herbicides, insecticides, or pesticides that you worked with or came in contact with?

- YES.....01
 - NO.....02
 - REFUSED.....97
- } + GO TO G12

c. [IF YES], what were their names?

G12. Did you pass through any area that looked like it had been defoliated (that is, sprayed with a chemical to kill vegetation, trees, and grass)?

- YES.....01
- NO.....02
- DON'T KNOW.....94
- REFUSED.....97

[IF AGENT ORANGE IS LISTED IN G10c or G11c, AUTOMATICALLY CODE G13 - 01 AND CONTINUE WITH G14. IF NOT, ASK G13.]

G13. One of the herbicides used in Vietnam was Agent Orange. Did you ever come in contact with Agent Orange?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO G16

G14. How did you come in contact with Agent Orange while in Vietnam?

G15. On how many days in total, did you come in contact with Agent Orange while in Vietnam?

- DAYS
- DON'T KNOW.....94
 - REFUSED.....97

RURAL QUESTIONS

G16. During any part of your life did you live or work on a farm, a ranch, or in a rural area?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO SECTION H

[IF YES:]

a. In what year did you first live or work on a farm or ranch or in a rural area?

19

b. In what year did you last live or work on a farm or ranch or in a rural area?

19

c. In total, for how many years did you live or work on a farm or ranch or in a rural area?

YEARS

G17. While living or working on a farm, ranch, or in a rural area, were any herbicides, pesticides, or insecticides ever used on the land or crops?

- YES.....01
- NO.....02
- DON'T KNOW.....94
- REFUSED.....97

G18. Did you ever apply or spray, or mix or prepare, herbicides, insecticides or pesticides, or work in or near an area where they were used?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO SECTION H

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CONTINUE

G19. While you were on a farm, ranch, or in a rural area . . .

CHEMICAL CONTACT #1	
a...what herbicide, insecticide, or pesticide, did you come in contact with?	NAME
b...in what year did you first come in contact with (CHEMICAL NAME)?	19 <input type="text"/> <input type="text"/>
c...in what year did you last come in contact with (CHEMICAL NAME)?	19 <input type="text"/> <input type="text"/>
d...in total, for how many years did you come in contact with (CHEMICAL NAME)?	<input type="text"/> <input type="text"/> YEARS
e...did you prepare or apply the chemical, or work near an area where the chemical was used?	PREPARE 01 APPLY 02 WORK NEAR 03 DON'T KNOW 94 CODE ALL THAT APPLY
f...for how many days per year did you come in contact with (CHEMICAL NAME)?	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR
GO TO NEXT CHEMICAL CONTACT OR, AFTER ALL COMPLETED, GO TO SECTION H.	

CHEMICAL CONTACT #2	CHEMICAL CONTACT #3	CHEMICAL CONTACT #4
NAME	NAME	NAME
19 <input type="text"/> <input type="text"/>	19 <input type="text"/> <input type="text"/>	19 <input type="text"/> <input type="text"/>
19 <input type="text"/> <input type="text"/>	19 <input type="text"/> <input type="text"/>	19 <input type="text"/> <input type="text"/>
<input type="text"/> <input type="text"/> YEARS	<input type="text"/> <input type="text"/> YEARS	<input type="text"/> <input type="text"/> YEARS
PREPARE 01	PREPARE 01	PREPARE 01
APPLY 02 CODE	APPLY 02 CODE	APPLY 02 C
WORK NEAR 03 ALL	WORK NEAR 03 ALL	WORK NEAR 03 T
THAT	THAT	A
APPLY	APPLY	A
DON'T KNOW 94	DON'T KNOW 94	DON'T KNOW 94
<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
DAYS/YEAR	DAYS/YEAR	DAYS/YEAR
GO TO NEXT CHEMICAL CONTACT OR, AFTER ALL COMPLETED, GO TO SECTION H.	GO TO NEXT CHEMICAL CONTACT OR, AFTER ALL COMPLETED, GO TO SECTION H.	GO TO NEXT CHEMICAL CONTACT AFTER ALL COMPLETED, GO TO SECTION H.

H. SUNLIGHT EXPOSURE AND SENSITIVITY

In the next few questions I will be asking you about places you have lived, how much time you spend in the sun, and your sensitivity to sunlight.

H1. Beginning with the state in which you currently live, and then going backwards please list the states and countries in which you have lived for more than months since you were born. If you were in the military, include places where you were stationed for more than 6 months.

	RESIDENCE #1	RESIDENCE #2
<p>a. What state (do/did) you (now/previously) live in?</p>	<hr style="border: none; border-top: 1px solid black;"/> <p>STATE</p>	<hr style="border: none; border-top: 1px solid black;"/> <p>STATE</p>
<p>[ASK ONLY IF YOU DON'T KNOW] b. What country is that state in?</p>	<hr style="border: none; border-top: 1px solid black;"/> <p>COUNTRY</p>	<hr style="border: none; border-top: 1px solid black;"/> <p>COUNTRY</p>
<p>c. During which years did you live there?</p>	<p>FROM 19 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> TO 19 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/></p>	<p>FROM 19 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> TO 19 <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/></p>
	<p>REPEAT UNTIL RESPONDENT GIVES DATA BACK TO WHERE HE LIVED AT BIRTH.</p>	<p>REPEAT UNTIL RESPONDENT GIVES DATA BACK TO WHERE HE LIVED AT BIRTH.</p>

RESIDENCE #3	RESIDENCE #4	RESIDENCE #5
<p>STATE _____</p> <p>-----</p> <p>COUNTRY _____</p> <p>-----</p> <p>FROM 19 <input type="text"/> <input type="text"/> TO 19 <input type="text"/> <input type="text"/></p>	<p>STATE _____</p> <p>-----</p> <p>COUNTRY _____</p> <p>-----</p> <p>FROM 19 <input type="text"/> <input type="text"/> TO 19 <input type="text"/> <input type="text"/></p>	<p>STATE _____</p> <p>-----</p> <p>COUNTRY _____</p> <p>-----</p> <p>FROM 19 <input type="text"/> <input type="text"/> TO 19 <input type="text"/> <input type="text"/></p>
<p>REPEAT UNTIL RESPONDENT GIVES DATA BACK TO WHERE HE LIVED AT BIRTH.</p>	<p>REPEAT UNTIL RESPONDENT GIVES DATA BACK TO WHERE HE LIVED AT BIRTH.</p>	<p>REPEAT UNTIL RESPONDENT GIVES DATA BACK TO WHERE HE LIVED AT BIRTH.</p>

H2. IF RESPONDENT DID NOT REPORT "LIVED IN NEW JERSEY" (IN H1 a:), GO TO H6.
IF RESPONDENT DID REPORT "LIVED IN NEW JERSEY" (IN H1 a:) SAY:

Did you ever live in Newark, New Jersey?

YES.....01
NO.....02
DON'T KNOW.....94
REFUSED.....97

} → GO TO H6.

H3. Did you ever live on any of the following streets: Albert, Joseph, Euclid, Lister, Cornelia, or Lockwood?

YES.....01
NO.....02
DON'T KNOW.....94
REFUSED.....97

} → GO TO H6.

H4. During what years did you live on any of these streets?

1) FROM 19 TO 19

2) FROM 19 TO 19

3) FROM 19 TO 19

4) FROM 19 TO 19

a. In total, for how many months did you live on any of these streets?

MONTHS

DONT'T KNOW.....94
REFUSED.....97

H5. Can you please give the address(es)?

NO. AND STREET _____
CITY AND STATE _____
ZIP CODE _____

NO. AND STREET _____
CITY AND STATE _____
ZIP CODE _____

Now I have a few questions about you and your sensitivity to sunlight.

H6. When you were a child, did you have many freckles, a few freckles, or no freckles at all?

- MANY.....01
- A FEW.....02
- NO FRECKLES.....03
- DON'T KNOW.....94

[HAND RESPONDENT CARD H7:] Please look at this card.

H7. What usually happens to your skin after your first half-hour of sun exposure the summer?

- ALWAYS BURN, NEVER TAN.....01
- USUALLY BURN, TAN WITH DIFFICULTY.....02
- SOMETIMES MILD BURN, TAN ABOUT AVERAGE.....03
- RARELY BURN, TAN ABOVE AVERAGE.....04
- NEITHER BURN NOR TAN.....05
- DON'T KNOW.....94

H8. Have you ever, in your life, had a severe, blistering sunburn?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
- } + GO TO H10

H9. How many times have you had a severe, blistering sunburn?

- ONCE OR TWICE.....01
- 3-10 TIMES.....02
- MORE THAN 10 TIMES.....03
- DON'T KNOW.....94

H10. What is the natural color of your eyes?

- BLUE.....01
- GREEN.....02
- BROWN.....03
- HAZEL.....04
- OTHER.....05

H11. What was your natural hair color at age 16?

- BLOND.....01
- RED.....02
- BROWN.....03
- BLACK.....04
- OTHER.....05

H12. Did you ever have medical treatment or therapy with radiation or isotopes?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO H13.

	TREATMENT #1	TREATMENT #2	TREATMENT #3									
a. What part of your body was treated?	<hr/>	<hr/>	<hr/>									
b. For how long were you treated? [RECORD # AND CODE TIME PERIOD.]	# <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				# <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				# <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>			
	DAYS 01	DAYS 01	DAYS 01									
	WEEKS 02	WEEKS 02	WEEKS 02									
	MONTHS 03	MONTHS 03	MONTHS 03									
	YEARS 04	YEARS 04	YEARS 04									
GO TO NEXT TREATMENT AFTER ALL TREATMENTS, GO TO H13.												

H13. Did you ever receive ultraviolet or sunlamp therapy for a medical or skin condition?

- YES.....01
 - NO.....02
 - DON'T KNOW.....94
 - REFUSED.....97
- } → GO TO H14.

	TREATMENT #1	TREATMENT #2	TREATMENT #3
a. What part of your body was treated?			
b. For how long were you treated? [RECORD # AND CODE TIME PERIOD.]	# <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> DAYS 01 WEEKS 02 MONTHS 03 YEARS 04	# <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> DAYS 01 WEEKS 02 MONTHS 03 YEARS 04	# <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> DAYS 01 WEEKS 02 MONTHS 03 YEARS 04
c. Did you take psoralin pills with this therapy?	YES 01 NO 02 DON'T KNOW . 94 REFUSED . . 97	YES 01 NO 02 DON'T KNOW . 94 REFUSED . . 97	YES 01 NO 02 DON'T KNOW . 94 REFUSED . . 97
GO TO NEXT TREATMENT. AFTER ALL TREATMENTS, GO TO H14.			

In the next set of questions, I will be asking you to estimate the average number of hours per day you spend outdoors during your leisure time between the hours 9:00 a.m. and 5:00 p.m. By leisure time I mean, the time not working at your usual job, for example time spent hunting, fishing, playing golf, swimming, gardening. Please do not include sunbathing.

H14. When you were...

	a.	b.	c.
	on the average how many leisure days (do/did) you spend out of doors each year?	on the average how many hours per week (did/do) you spend outdoors during your leisure time during the Spring and Summer (April-September)	on the average how many hours per week (did/do) you spend outdoors during your leisure time during the Fall and Winter (Oct-March)?
16-21 YEARS OLD...	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK [GO TO NEXT AGE]
22-30 YEARS OLD...	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK [GO TO NEXT AGE]
31-40 YEARS OLD...	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK [GO TO NEXT AGE]
41-60 YEARS OLD...	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK [GO TO NEXT AGE]
61+ YEARS OLD...	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK	<input type="text"/> <input type="text"/> <input type="text"/> HOURS/WEEK [GO TO H15]

H15.
When you were...

	a.	b.	c.	d.
	how often did you use sun-screen or tanning lotion? Would you say...	how often did you wear a hat, long sleeves, and long pants as protective clothing from the sun? Would you say...	on the average, how many days per year did you sunbathe outdoors?	on the average, how many days per year did you sunbathe using sunlamps or tanning booths?
16-21 YEARS OLD...	Usually . . . 01 Sometimes . . 02 Never 03	Usually . . . 01 Sometimes . . 02 Never 03	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR [GO TO NEXT AGE]
22-30 YEARS OLD...	Usually . . . 01 Sometimes . . 02 Never 03	Usually . . . 01 Sometimes . . 02 Never 03	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR [GO TO NEXT AGE]
31-40 YEARS OLD...	Usually . . . 01 Sometimes . . 02 Never 03	Usually . . . 01 Sometimes . . 02 Never 03	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR [GO TO NEXT AGE]
41-60 YEARS OLD...	Usually . . . 01 Sometimes . . 02 Never 03	Usually . . . 01 Sometimes . . 02 Never 03	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR [GO TO NEXT AGE]
61+ YEARS OLD...	Usually . . . 01 Sometimes . . 02 Never 03	Usually . . . 01 Sometimes . . 02 Never 03	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR	<input type="text"/> <input type="text"/> <input type="text"/> DAYS/YEAR [GO TO SECTION I]

I. DATA CONCERNING MARITAL STATUS

INTERVIEWER: SKIP THIS SECTION IF THE STUDY MEMBER IS FEMALE.

This section is about your marital history. For the purposes of this interview, I will use the word "wife" to refer to a person you were married to for any length of time or a woman you lived with for 2 or more years.

Part of our study deals with the possible reproductive problems resulting from exposure to chemical-herbicides. Because women are better at remembering the details about their pregnancies, we will be interviewing wives and former wives about their pregnancies. The interview will be conducted by phone and will take about 30 minutes to complete.

11. Are you currently married or living with a woman as though married?

YES.....01

NO.....02

DON'T KNOW....94

REFUSED.....97

} + PLACE A LARGE "X" THROUGH "CURRENT WIFE" NAME AND ADDRESS INFORMATION ON THE CONTROL CARD AND GO TO 13.

12. What is your current wife's or partner's name, address, and telephone number?

RECORD INFORMATION IN THE CURRENT WIFE COLUMN ON THE CONTROL CARD FOR THIS RESPONDENT. BE CERTAIN TO ASK AND RECORD CURRENT WIFE BIRTHDATE.

USE THE QUESTION PROVIDED ON THE CONTROL CARD TO SECURE WIFE LOCATOR INFORMATION.

IF DECEASED, RECORD ALL INFORMATION AND DATE OF DEATH ON CONTROL CARD.

13. (Other than your current wife or partner) how many times have you been married or lived with a woman for at least 2 years as though married?

TIMES MARRIED/LIVED AS MARRIED

--	--

IF "00" GO TO SECTION J

14. What (is/are) the name(s), telephone number(s), and last address(es) of your former (wife/wives)?

MAKE CERTAIN THE NUMBER OF NAMES AND ADDRESSES ENTERED FOR "OTHER WIVES" ON THE CONTROL CARD MATCHES THE NUMBER ENTERED IN Q.13. REMEMBER TO ASK AND RECORD BIRTHDATE(S).

USE THE QUESTION PROVIDED ON THE CONTROL CARD TO SECURE WIFE LOCATOR INFORMATION.

IF DECEASED, RECORD ALL INFORMATION AND DATE OF DEATH ON CONTROL CARD.

J. OCCUPATIONAL HISTORY

SECTION I - SPECIFIC

*
* **ALL REFERENTS SKIP TO J. OCCUPATIONAL HISTORY, SECTION IV. - GENERAL.** *
*

This next series of questions asks about specific companies and locations where you might have worked and your jobs at those places.

We have obtained employment records from (COMPANY NAME). I am going to ask you questions about your work at (COMPANY NAME).

I would like you to refer to a copy of the work history information we obtained from (COMPANY NAME) before answering the questions. The information may be correct or it may include errors. Please look at it carefully and try to give me the most correct information possible.

HAND RESPONDENT THE COPY OF THE WORK HISTORY SHEET AND RETAIN A COPY FOR YOUR USE.

BE CERTAIN THAT ANY DATA COLLECTED ABOUT THE KOLKER OR DIAMOND ALKALI PLANT IN NEWARK SPECIFICALLY REFERS TO THE PLANT LOCATED JUST SOUTH OF THE PASSAIC RIVER AT 80 LISTER STREET.

SITE	INTERVIEWER, IS J1. WORK HISTORY INCLUDED?	ASK FOR EVERY COMPANY WITH "NO" IN J1. J2. Have you ever worked for (COMPANY NAME AND LOCATION)?
a. Kolker Chemical Works Newark, NJ	YES 01 → GO TO J3 NO 02 → + + + + +	YES 01 NO 02 } DON'T KNOW. . 94 } → GO TO REFUSED . . . 97 } NEXT CO.
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	YES 01 → GO TO J3 NO 02 → + + + + +	YES 01 NO 02 } DON'T KNOW. . 94 } → GO TO REFUSED . . . 97 } NEXT CO.
c. Hoffman-Taff Co. Verona, MO.	YES 01 → GO TO J3 NO 02 → + + + + +	YES 01 NO 02 } DON'T KNOW. . 94 } → GO TO REFUSED . . . 97 } NEXT CO.
d. NEPACCO Verona, MO	YES 01 → GO TO J3 NO 02 → + + + + +	YES 01 NO 02 } DON'T KNOW. . 94 } → GO TO REFUSED . . . 97 } NEXT CO.
e. Syntex Co. Verona, MO	YES 01 → GO TO J3 NO 02 → + + + + +	YES 01 NO 02 } DON'T KNOW. . 94 } → GO TO REFUSED . . . 97 } NEXT CO.
f. Syntex Co. Springfield, MO	YES 01 → GO TO J3 NO 02 → + + + + +	YES 01 NO 02 } DON'T KNOW. . 94 } → GO TO REFUSED . . . 97 } J SECTION II

SITE	J3. In what month and year did you begin working for (COMPANY NAME AND LOCATION)?	J4. In what month and year did you end employment for (COMPANY NAME AND LOCATION)? [CODE 99 & 99 FOR CURRENT]
a. Kolker Chemical Works Newark, NJ	<p style="text-align: center;">BEGIN WORKING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR DATE MUST BE IN RANGE 02-46 THROUGH 08-51</p>	<p style="text-align: center;">END EMPLOYMENT</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR DATE MUST BE IN RANGE 02-46 THROUGH 08-51</p>
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	<p style="text-align: center;">BEGIN WORKING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR DATE MUST BE IN RANGE 08-51 THROUGH 12-71</p>	<p style="text-align: center;">END EMPLOYMENT</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR DATE MUST BE IN RANGE 08-51 THROUGH 12-71</p>
c. Hoffman-Taff Co. Verona, MO.	<p style="text-align: center;">BEGIN WORKING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>	<p style="text-align: center;">END EMPLOYMENT</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>
d. NEPACCO Verona, MO	<p style="text-align: center;">BEGIN WORKING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>	<p style="text-align: center;">END EMPLOYMENT</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>
e. Syntex Co. Verona, MO	<p style="text-align: center;">BEGIN WORKING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>	<p style="text-align: center;">END EMPLOYMENT</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>
f. Syntex Co. Springfield, MO	<p style="text-align: center;">BEGIN WORKING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>	<p style="text-align: center;">END EMPLOYMENT</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div>, 19 <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> </div> </div> <p style="text-align: center;">MONTH YEAR</p>

SITE	J5. Were you first assigned to production, maintenance/trades, laboratory, or office/clerical?	J6. HAND RESPONDENT CARD J6/J18a Using this card and your work history sheet, tell me to what process you were first assigned.
a. Kolker Chemical Works Newark, NJ	PRODUCTION 01 MAINTENANCE/TRADES . . . 02 LABORATORY 03 OFFICE/CLERICAL. 04	CODE FROM CARD <input type="checkbox"/> <input type="checkbox"/> (IF 28, SPECIFY) 28= _____
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	PRODUCTION 01 MAINTENANCE/TRADES . . . 02 LABORATORY 03 OFFICE/CLERICAL. 04	CODE FROM CARD <input type="checkbox"/> <input type="checkbox"/> (IF 28, SPECIFY) 28= _____
c. Hoffman-Taff Co. Verona, MO.	PRODUCTION 01 MAINTENANCE/TRADES . . . 02 LABORATORY 03 OFFICE/CLERICAL. 04	CODE FROM CARD <input type="checkbox"/> <input type="checkbox"/> (IF 28, SPECIFY) 28= _____
d. NEPACCO Verona, MO.	PRODUCTION 01 MAINTENANCE/TRADES . . . 02 LABORATORY 03 OFFICE/CLERICAL. 04	CODE FROM CARD <input type="checkbox"/> <input type="checkbox"/> (IF 28, SPECIFY) 28= _____
e. Syntex Co. Verona, MO.	PRODUCTION 01 MAINTENANCE/TRADES . . . 02 LABORATORY 03 OFFICE/CLERICAL. 04	CODE FROM CARD <input type="checkbox"/> <input type="checkbox"/> (IF 28, SPECIFY) 28= _____
f. Syntex Co. Springfield, MO.	PRODUCTION 01 MAINTENANCE/TRADES . . . 02 LABORATORY 03 OFFICE/CLERICAL. 04	CODE FROM CARD <input type="checkbox"/> <input type="checkbox"/> (IF 28, SPECIFY) 28= _____

SITE	J7. [HAND RESPONDENT CARD J7:] What was the first job title you held for a month or more in (PROCESS FROM J6)?
a. Kolker Chemical Works Newark, NJ	JOB TITLE: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	JOB TITLE: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
c. Hoffman-Taff Co. Verona, MO.	JOB TITLE: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
d. NEPACCO Verona, MO.	JOB TITLE: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
e. Syntex Co. Verona, MO.	JOB TITLE: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
f. Syntex Co. Springfield, MO.	JOB TITLE: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>

SITE	J8. When did you first and last work as (JOB TITLE IN J7)?	J9. Please tell me your duties as a (JOB TITLE FROM J7)?
a. Kolker Chemical Works Newark, NJ	<p style="text-align: center;">MONTH YEAR</p> <p>FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p> <p>LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p>	<p><u>DUTIES:</u> _____</p> <p>_____</p> <p>_____</p>
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	<p style="text-align: center;">MONTH YEAR</p> <p>FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p> <p>LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p>	<p><u>DUTIES:</u> _____</p> <p>_____</p> <p>_____</p>
c. Hoffman-Taff Co. Verona, MO.	<p style="text-align: center;">MONTH YEAR</p> <p>FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p> <p>LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p>	<p><u>DUTIES:</u> _____</p> <p>_____</p> <p>_____</p>
d. NEPACCO Verona, MO.	<p style="text-align: center;">MONTH YEAR</p> <p>FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p> <p>LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p>	<p><u>DUTIES:</u> _____</p> <p>_____</p> <p>_____</p>
e. Syntex Co. Verona, MO.	<p style="text-align: center;">MONTH YEAR</p> <p>FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p> <p>LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p>	<p><u>DUTIES:</u> _____</p> <p>_____</p> <p>_____</p>
f. Syntex Co. Springfield, MO.	<p style="text-align: center;">MONTH YEAR</p> <p>FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p> <p>LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/></p>	<p><u>DUTIES:</u> _____</p> <p>_____</p> <p>_____</p>

SITE	J10. HAND RESPONDENT CARD J10: What kind of protective clothing or equipment did you wear as a (JOB TITLE IN J7)?	
a. Kolker Chemical Works Newark, NJ	RUBBER BOOTS01 GLOVES02 MASK03 OTHER (SPECIFY) . . .07	RUBBER/CARTRIDGE RESPIRATOR. .04 SUPPLIED AIR RESPIRATOR. . . .05 NONE06
b. Diamond Alkali plant operated by Diamond Shamrock in Newark, NJ	RUBBER BOOTS01 GLOVES02 MASK03 OTHER (SPECIFY) . . .07	RUBBER/CARTRIDGE RESPIRATOR. .04 SUPPLIED AIR RESPIRATOR. . . .05 NONE06
c. Hoffman-Taff Co. Verona, MO.	RUBBER BOOTS01 GLOVES02 MASK03 OTHER (SPECIFY) . . .07	RUBBER/CARTRIDGE RESPIRATOR. .04 SUPPLIED AIR RESPIRATOR. . . .05 NONE06
d. NEPACCO Verona, MO	RUBBER BOOTS01 GLOVES02 MASK03 OTHER (SPECIFY) . . .07	RUBBER/CARTRIDGE RESPIRATOR. .04 SUPPLIED AIR RESPIRATOR. . . .05 NONE06
e. Syntex Co. Verona, MO	RUBBER BOOTS01 GLOVES02 MASK03 OTHER (SPECIFY) . . .07	RUBBER/CARTRIDGE RESPIRATOR. .04 SUPPLIED AIR RESPIRATOR. . . .05 NONE06
f. Syntex Co. Springfield, MO	RUBBER BOOTS01 GLOVES02 MASK03 OTHER (SPECIFY) . . .07	RUBBER/CARTRIDGE RESPIRATOR. .04 SUPPLIED AIR RESPIRATOR. . . .05 NONE06

SITE	J11. When you worked as a (JOB TITLE IN J7) how many hours did you usually spend outdoors during your work shift?	
	HOURS OUTDOORS	
a. Kolker Chemical Works Newark, NJ	LESS THAN 1 HOUR. . . 01 1-2 HOURS 02 2-3 HOURS 03 3-4 HOURS 04	4-5 HOURS 05 5-6 HOURS 06 MORE THAN 6 HOURS . . 07
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	LESS THAN 1 HOUR. . . 01 1-2 HOURS 02 2-3 HOURS 03 3-4 HOURS 04	4-5 HOURS 05 5-6 HOURS 06 MORE THAN 6 HOURS . . 07
c. Hoffman-Taff Co. Verona, MO.	LESS THAN 1 HOUR. . . 01 1-2 HOURS 02 2-3 HOURS 03 3-4 HOURS 04	4-5 HOURS 05 5-6 HOURS 06 MORE THAN 6 HOURS . . 07
d. NEPACCO Verona, MO.	LESS THAN 1 HOUR. . . 01 1-2 HOURS 02 2-3 HOURS 03 3-4 HOURS 04	4-5 HOURS 05 5-6 HOURS 06 MORE THAN 6 HOURS . . 07
e. Syntex Co. Verona, MO	LESS THAN 1 HOUR. . . 01 1-2 HOURS 02 2-3 HOURS 03 3-4 HOURS 04	4-5 HOURS 05 5-6 HOURS 06 MORE THAN 6 HOURS . . 07
f. Syntex Co. Springfield, MO	LESS THAN 1 HOUR. . . 01 1-2 HOURS 02 2-3 HOURS 03 3-4 HOURS 04	4-5 HOURS 05 5-6 HOURS 06 MORE THAN 6 HOURS . . 07

[HAND RESPONDENT CARD # J-12 AND SAY:] Please tell me the letter which corresponds to your answer.

	J12. When you ended working as a (JOB TITLE IN J7) what did you do? [CIRCLE ONE CODE]	
a. Kolker Chemical Works Newark, NJ	A . . . 01 B . . . 02 C . . . 03	D 04 E 05
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	A . . . 01 B . . . 02 C . . . 03	D 04 E 05
c. Hoffman-Taff Co. Verona, MO.	A . . . 01 B . . . 02 C . . . 03	D 04 E 05
d. NEPACCO Verona, MO	A . . . 01 B . . . 02 C . . . 03	D 04 E 05
e. Syntex Co. Verona, MO	A . . . 01 B . . . 02 C . . . 03	D 04 E 05
f. Syntex Co. Springfield, MO	A . . . 01 B . . . 02 C . . . 03	D 04 E 05

ANSWER ROUTING INSTRUCTIONS

- 01 = GO TO CONTINUATION AND REPEAT Qs.J5-J16. LABEL COMPANY NAME IN PART a. - f.
- 02 = GO TO NAMED STUDY COMPANY AND START WITH Q.J1. WHEN ALL (a-f) FINISHED, GO TO J SECTION II.
- 03 = TELL THE RESPONDENT: We will talk about that job a little later. GO TO NEXT UNANSWERED STUDY COMPANY AND START WITH Q.J1. WHEN ALL (a-f) FINISHED, GO TO J SECTION II.
- 04 = GO TO J13.
- 05 = GO TO NEXT UNANSWERED STUDY COMPANY AND START WITH Q.J1. WHEN ALL (a-f) FINISHED, GO TO J SECTION II.

SITE	J13. What was the reason for being out of work for a month or more?	J14. On what month, day, and year were you (ANSWER FROM J13)?
a. Kolker Chemical Works Newark, NJ	LAID OFF . . . 01 DISABLED (SICK) . . 02 RETIRED . . . 03 QUIT 04 OTHER (SPECIFY) . . . 05 _____	DATE OUT OF WORK <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH DAY YEAR
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	LAID OFF . . . 01 DISABLED (SICK) . . 02 RETIRED . . . 03 QUIT 04 OTHER (SPECIFY) . . . 05 _____	DATE OUT OF WORK <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH DAY YEAR
c. Hoffman-Taff Co. Verona, MO.	LAID OFF . . . 01 DISABLED (SICK) . . 02 RETIRED . . . 03 QUIT 04 OTHER (SPECIFY) . . . 05 _____	DATE OUT OF WORK <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH DAY YEAR
d. NEPACCO Verona, MO	LAID OFF . . . 01 DISABLED (SICK) . . 02 RETIRED . . . 03 QUIT 04 OTHER (SPECIFY) . . . 05 _____	DATE OUT OF WORK <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH DAY YEAR
e. Syntex Co. Verona, MO	LAID OFF . . . 01 DISABLED (SICK) . . 02 RETIRED . . . 03 QUIT 04 OTHER (SPECIFY) . . . 05 _____	DATE OUT OF WORK <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH DAY YEAR
f. Syntex Co. Springfield, MO	LAID OFF . . . 01 DISABLED (SICK) . . 02 RETIRED . . . 03 QUIT 04 OTHER (SPECIFY) . . . 05 _____	DATE OUT OF WORK <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH DAY YEAR

J15. On what month, day, and year did you go back to work?

IF NEVER, ENTER 99-99-99 AND GO TO NEXT COMPANY (a. - f.) OR GO TO J SECTION II.

SITE

a. Kolker
Chemical Works
Newark, NJ

DATE BACK TO WORK -

MONTH

DAY

YEAR

b. Diamond Alkali
Plant operated
by Diamond
Shamrock in
Newark, NJ

DATE BACK TO WORK

MONTH

DAY

YEAR

c. Hoffman-Taff
Co.
Verona, MO.

DATE BACK TO WORK

MONTH

DAY

YEAR

d. NEPACCO
Verona, MO

DATE BACK TO WORK

MONTH

DAY

YEAR

e. Syntex Co.
Verona, MO

DATE BACK TO WORK

MONTH

DAY

YEAR

f. Syntex Co.
Springfield,
MO

DATE BACK TO WORK

MONTH

DAY

YEAR

J16. Where did you go back to work?	
SITE	WHERE BACK TO WORK
a. Kolker Chemical Works Newark, NJ	AT SAME STUDY COMPANY/LOCATION . . . 01
	AT ANOTHER STUDY COMPANY/ LOCATION LISTED 02
	TOOK ANOTHER JOB AT ANY OTHER COMPANY OR COMPANY/LOCATION 03
b. Diamond Alkali Plant operated by Diamond Shamrock in Newark, NJ	AT SAME STUDY COMPANY/LOCATION . . . 01
	AT ANOTHER STUDY COMPANY/ LOCATION LISTED 02
	TOOK ANOTHER JOB AT ANY OTHER COMPANY OR COMPANY/LOCATION 03
c. Hoffman-Taff Co. Verona, MO.	AT SAME STUDY COMPANY/LOCATION . . . 01
	AT ANOTHER STUDY COMPANY/ LOCATION LISTED 02
	TOOK ANOTHER JOB AT ANY OTHER COMPANY OR COMPANY/LOCATION 03
d. NEPACCO Verona, MO	AT SAME STUDY COMPANY/LOCATION . . . 01
	AT ANOTHER STUDY COMPANY/ LOCATION LISTED 02
	TOOK ANOTHER JOB AT ANY OTHER COMPANY OR COMPANY/LOCATION 03
e. Syntex Co. Verona, MD	AT SAME STUDY COMPANY/LOCATION . . . 01
	AT ANOTHER STUDY COMPANY/ LOCATION LISTED 02
	TOOK ANOTHER JOB AT ANY OTHER COMPANY OR COMPANY/LOCATION 03
f. Syntex Co. Springfield, MO	AT SAME STUDY COMPANY/LOCATION . . . 01
	AT ANOTHER STUDY COMPANY/ LOCATION LISTED 02
	TOOK ANOTHER JOB AT ANY OTHER COMPANY OR COMPANY/LOCATION 03

01 = GO TO A CONTINUATION AND REPEAT QS J5-J16. LABEL COMPANY NAME IN PART a-f.

02 = GO TO NAMED STUDY COMPANY AND START WITH QJ1. WHEN ALL (a-f) FINISHED, GO TO J SECTION II.

03 = TELL THE RESPONDENT:
We will talk about that company later. GO TO NEXT UNANSWERED STUDY COMPANY AND START WITH QJ1. WHEN ALL (a-f) FINISHED, GO TO J SECTION II.

AFTER ALL SECTIONS a.-f. AND CONTINUATIONS ARE FINISHED,
GO TO J. SECTION II.

J. OCCUPATIONAL HISTORY

SECTION II - AUXILIARY QUESTIONS
FOR KOLKER AND DIAMOND
SHAMROCK EMPLOYEES

	a. KOLKER CHEMICAL WORKS IN NEWARK, NJ	b. DIAMOND SHAMROCK ALKALI PLANT IN NEWARK, NJ
J17. REVIEW QJ1. DID THIS PERSON EVER WORK AT. . . [CODE EACH COLUMN]	YES 01 NO 02 } DON'T KNOW . 94 } GO TO REFUSED 97 } → COLUMN b.	YES. 01 NO 02 } DON'T KNOW. . 94 } GO TO J REFUSED 97 } SECTION III
J18. Were you present at work on a day when there was an explo- sion or major fire?	YES. 01 NO 02 GO TO COLUMN b.	YES. 01 NO 02 GO TO NEXT SECTION
a. HAND CARD J6/J18a. To what process were you assigned?	CODE FROM CARD J6/J18a <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> (IF 28, SPECIFY) </div> 28 = _____	CODE FROM CARD J6/J18a <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> (IF 28, SPECIFY) </div> 28 = _____
J19. What sub- stance exploded or burned?	_____ _____	_____ _____
J20. What month and year did that happen?	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> </div> <div style="text-align: center;">, 19</div> <div style="text-align: center;"> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> MONTH YEAR </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> </div> <div style="text-align: center;">, 19</div> <div style="text-align: center;"> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 30px; border: 1px solid black;" type="text"/> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> MONTH YEAR </div>
J21. Were you in the immediate area of the mishap, in an area adjacent to the area where the mishap occur- red or were you in some other area of the plant?	IMMEDIATE AREA 01 ADJACENT AREA 02 SOME OTHER AREA 03	IMMEDIATE AREA 01 ADJACENT AREA 02 SOME OTHER AREA 03

	a. KOLKER CHEMICAL WORKS IN NEWARK, NJ	b. DIAMOND SHAMROCK ALKALI PLANT IN NEWARK, NJ
J22. Did you get any dust, ash or debris on your clothes or skin from the explosion or fire?	YES 01 NO 02 DON'T KNOW . 94 REFUSED . . . 97	YES 01 NO 02 DON'T KNOW . 94 REFUSED . . . 97
J23. Were you involved in the clean-up after the mishap?	YES 01 NO 02 + GO TO J26	YES 01 NO 02 + GO TO J26
J24. What were your clean-up duties?	_____ _____ _____	_____ _____ _____
J25. For how many days were you involved with the clean-up?	<div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> DAYS	<div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> DAYS
J26. Were you present at another explosion or major fire at (NAME FROM COLUMN a. or b.)	YES 01 + GO TO NEXT MISHAP NO. 02 + GO TO b.	YES 01 + GO TO NEXT MISHAP NO. 02 + GO TO J27

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CONTINUE

J. OCCUPATIONAL HISTORY

**SECTION III - AUXILIARY QUESTIONS
FOR NEPACCO AND
SYNTEX EMPLOYEES**

	a. NEPACCO/VERONA, MO
<p>J27. REVIEW QJ1. DID THIS PERSON EVER WORK AT NEPACCO/VERONA OR SYNTEX/VERONA OR SYNTEX/SPRINGFIELD? [CODE EACH COLUMN]</p>	<p>YES 01 NO 02) DON'T KNOW . 94 } → GO TO REFUSED . . . 97 } COLUMN</p>
<p>J28. Did you ever <u>dispose</u> of still bottom or any other kinds of wastes?</p>	<p>YES. 01 NO 02 + GO TO J31</p>
<p>J29. What substance did you <u>dispose</u> of?</p>	<p><u>SUBSTANCE:</u> _____ _____</p>
<p>J30. What were your duties in <u>disposing</u> of (SUBSTANCE(S) LISTED IN J29)?</p>	<p><u>DUTIES:</u> _____ _____</p>
<p>J31. In what month and year did you first <u>dispose</u> of any of these substances?</p>	<p style="text-align: center;">FIRST</p> <p style="text-align: center;"> <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR </p>
<p>J32. In what month and year did you last <u>dispose</u> of any of these substances?</p>	<p style="text-align: center;">LAST</p> <p style="text-align: center;"> <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR </p>
<p>J33. In all, how many times did you <u>dispose</u> of any of these wastes?</p>	<p style="text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> NUMBER OF TIMES </p>

	a. NEPACCO/VERONA, MO
J34. Did you ever <u>store</u> still bottom or any other kinds of wastes?	YES 01 NO 02 +GO TO J-
J35. What substance was <u>stored</u> ?	SUBSTANCE: _____ _____
J36. What were your duties in <u>storing</u> (SUBSTANCE(S) LISTED IN J35.)?	DUTIES: _____ _____
J37. In what month and year did you first <u>store</u> any of these substances?	FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
J38. In what month and year did you last <u>store</u> any of these wastes?	LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
J39. In all how many times did you <u>store</u> any of these wastes?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> NUMBER OF TIMES
J40. Did you ever <u>handle</u> , other than dispose of or store, still bottom or any other kinds of waste?	YES 01 NO 02 + GO TO COLUMN b
J41. What substance(s) was <u>handled</u> ?	SUBSTANCE: _____ _____
J42. What were your duties in <u>handling</u> (SUBSTANCE(S) IN J41)?	DUTIES: _____ _____

	a. NEPACCO/VERONA, MO
J43. In what month and year did you first <u>handle</u> any of these substances?	FIRST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
J44. In what month and year did you last <u>handle</u> any of these substances?	LAST <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
J45. In all, how many times did you <u>handle</u> any of these wastes?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> NUMBER OF TIMES GO TO COLUMN b.

b. SYNTEX/VERONA, MO	c. SYNTEX/SPRINGFIELD, MO
<p style="text-align: center;">FIRST</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> , 19 </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>	<p style="text-align: center;">FIRST</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> , 19 </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>
<p style="text-align: center;">LAST</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> , 19 </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>	<p style="text-align: center;">LAST</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> , 19 </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>
<div style="text-align: center;"> <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> </div> <p style="text-align: center;">NUMBER OF TIMES GO TO COLUMN c.</p>	<div style="text-align: center;"> <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> </div> <p style="text-align: center;">NUMBER OF TIMES GO TO J SECTION IV</p>

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J. OCCUPATIONAL HISTORY

SECTION IV - GENERAL

This section asks about places you worked for 6 months or longer since your 16th birthday including part-time work. You should be careful to mention each place you worked so we don't forget any employment.

We will start with the company where you are currently working and go backwards, ending with the company where you were working at age 16. If you are not presently working, for whatever reason, start with the company where you last worked.

INTERVIEWER: BE CAREFUL TO GET EACH EMPLOYER AND FOLLOW SKIP INSTRUCTIONS CAREFULLY.

J46. Are you currently employed, unemployed, retired, or something else?

- EMPLOYED.....01
- UNEMPLOYED.....02
- RETIRED.....03
- OTHER.....04 (SPECIFY) _____

	a. EMPLOYER #1	b. EMPLOYER #2
J47. What (is/was) the name of the (current/previous) company where you (are/were) employed?	COMPANY: _____ _____	COMPANY: _____ _____
J48. In what city and state (is/was) the company located?	CITY: _____ STATE: _____	CITY: _____ STATE: _____
J49. What month and year did you start working at (COMPANY)?	START <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> , 19 <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> </div> MONTH YEAR	START <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> , 19 <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> </div> MONTH YEAR
J50. What month and year did you stop working at (COMPANY)? [IF CURRENTLY EMPLOYED, PUT 99 99.]	STOP <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> , 19 <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> </div> MONTH YEAR	STOP <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> , 19 <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div> </div> MONTH YEAR
J51. IS THE COMPANY LISTED ONE OF THE STUDY COMPANY/LOCATIONS?	YES.....01 + GO TO J57 NO.....02	YES.....01 + GO TO J57 NO.....02
J52. What is the main product or service provided by (COMPANY)?	PROD/SVC: _____ _____ OFFICE USE <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div>	PROD/SVC: _____ _____ OFFICE USE <div style="border: 1px solid black; width: 30px; height: 20px; display: flex; justify-content: space-between; padding: 2px;"> </div>

c. EMPLOYER #3	d. EMPLOYER #4	e. EMPLOYER #5
COMPANY: _____ _____ _____	COMPANY: _____ _____ _____	COMPANY: _____ _____ _____
CITY: _____ STATE: _____	CITY: _____ STATE: _____	CITY: _____ STATE: _____
START <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	START <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	START <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
STOP <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	STOP <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	STOP <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
YES.....01 → GO TO J57 NO.....02	YES.....01 → GO TO J57 NO.....02	YES.....01 → GO TO J57 NO.....02
PROD/SVC: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	PROD/SVC: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	PROD/SVC: _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>

	a. EMPLOYER #1	b. EMPLOYER #2
J53. What different positions did you hold while working for (COMPANY FROM J47)?	1) _____ _____ 2) _____ _____ 3) _____ _____	1) _____ _____ 2) _____ _____ 3) _____ _____
a. For how many months were you (a/an) [NAME EACH POSITION FROM J53 ONE AT A TIME]?	1) <input type="text"/> <input type="text"/> <input type="text"/> # MONTHS 2) <input type="text"/> <input type="text"/> <input type="text"/> # MONTHS 3) <input type="text"/> <input type="text"/> <input type="text"/> # MONTHS	1) <input type="text"/> <input type="text"/> <input type="text"/> # MONTHS 2) <input type="text"/> <input type="text"/> <input type="text"/> # MONTHS 3) <input type="text"/> <input type="text"/> <input type="text"/> # MONTHS
J54. What were your duties as [NAME EACH POSITION FROM J53 ONE AT A TIME]?	1) _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/> 2) _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/> 3) _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	1) _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/> 2) _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/> 3) _____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>

c. EMPLOYER #3	d. EMPLOYER #4	e. EMPLOYER #5																											
1) _____ _____ 2) _____ _____ 3) _____ _____	1) _____ _____ 2) _____ _____ 3) _____ _____	1) _____ _____ 2) _____ _____ 3) _____ _____																											
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	a. EMPLOYER #1	b. EMPLOYER #2
J55. Was the work full-time or part-time?	FULL-TIME 01	FULL-TIME 01
	PART-TIME 02	PART-TIME 02
J56. During your workshift, on the average, how many hours (did/do) you usually spend outdoors?	LESS THAN 1 HOUR. . . 01	LESS THAN 1 HOUR. . . 01
	1-2 HOURS 02	1-2 HOURS 02
	2-3 HOURS 03	2-3 HOURS 03
	3-4 HOURS 04	3-4 HOURS 04
	4-5 HOURS 05	4-5 HOURS 05
	5-6 HOURS 06	5-6 HOURS 06
	MORE THAN 6 HOURS . . 07	MORE THAN 6 HOURS . . 07

c. EMPLOYER #3	d. EMPLOYER #4	e. EMPLOYER #5
FULL-TIME 01	FULL-TIME 01	FULL-TIME 01
PART-TIME 02	PART-TIME 02	PART-TIME 02
LESS THAN 1 HOUR. . . 01	LESS THAN 1 HOUR. . . 01	LESS THAN 1 HOUR. . . 01
1-2 HOURS 02	1-2 HOURS 02	1-2 HOURS 02
2-3 HOURS 03	2-3 HOURS 03	2-3 HOURS 03
3-4 HOURS 04	3-4 HOURS 04	3-4 HOURS 04
4-5 HOURS 05	4-5 HOURS 05	4-5 HOURS 05
5-6 HOURS 06	5-6 HOURS 06	5-6 HOURS 06
MORE THAN 6 HOURS . . 07	MORE THAN 6 HOURS . . 07	MORE THAN 6 HOURS . . 07

	a. EMPLOYER #1	b. EMPLOYER #2
J57. Previous to working at (COMPANY IN J47.) did you have a job at another company or were you out of work for one month or longer?	JOB AT ANOTHER COMPANY 01+GO TO J47 COLUMN b. OUT OF WORK . . 02	JOB AT ANOTHER COMPANY 01+GO TO J47 COLUMN c. OUT OF WORK . 02
J58. What was the reason you were off work?	NEVER WORKED.....00+GO TO J V LAID OFF.....01 DISABLED (SICK)...02 RETIRED.....03 QUIT.....04 OTHER (SPECIFY)...05 DON'T KNOW.....94 REFUSED.....97 GO TO PREVIOUS EMPLOYER AT J47.	NEVER WORKED...00 + GO TO J V LAID OFF.....01 DISABLED (SICK)...02 RETIRED.....03 QUIT.....04 OTHER (SPECIFY)...05 DON'T KNOW.....94 REFUSED.....97 GO TO PREVIOUS EMPLOYER AT J47.

c. EMPLOYER #3	d. EMPLOYER #4	e. EMPLOYER #5
JOB AT ANOTHER COMPANY 01→GO TO J47 COLUMN d. OUT OF WORK . . 02	JOB AT ANOTHER COMPANY 01→GO TO J47 COLUMN e. OUT OF WORK . 02	JOB AT ANOTHER COMPANY 01 + GO TO J47 IN CONTINUATION BOOKLET OUT OF WORK . 02
NEVER WORKED.....00→GO TO J V LAID OFF.....01 DISABLED (SICK)...02 RETIRED.....03 QUIT.....04 OTHER (SPECIFY)...05 <hr/> DON'T KNOW.....94 REFUSED.....97	NEVER WORKED...00 + GO TO J V LAID OFF.....01 DISABLED (SICK)...02 . RETIRED.....03 QUIT.....04 OTHER (SPECIFY)...05 <hr/> DON'T KNOW.....94 REFUSED.....97	NEVER WORKED...00 + GO TO J V LAID OFF.....01 DISABLED (SICK)...02 RETIRED.....03 QUIT.....04 OTHER (SPECIFY)...05 <hr/> DON'T KNOW.....94 REFUSED.....97
GO TO PREVIOUS EMPLOYER AT J47.	GO TO PREVIOUS EMPLOYER AT J47.	GO TO PREVIOUS EMPLOYER AT J47.

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J. OCCUPATIONAL HISTORY

SECTION V - OTHER OCCUPATIONAL EXPOSURES

Now that we have talked about your jobs, I would like to review chemicals, materials and equipment you may have worked with regularly on your job for 30 days or longer. IF SUBJECT IS A WORKER, SAY "Do not refer to chemicals you worked with at (COMPANY NAME ANSWERED YES IN J1 OR J2) unless you also worked with these chemicals at another company".

INTERVIEWER: ASK QUESTIONS CONCERNING ALL EXPOSURES FIRST. THEN, GO BACK AND DETERMINE THE COMPANY, JOB AND THE PERIOD OF TIME THE SUBJECT WAS EXPOSED.

We are going to ask about equipment, metals and chemicals you may have been exposed to work. By exposed, we mean that you made, used, or handled the material or worked in near an area where the material was made, used, or handled.

DO NOT INCLUDE EXPOSURES AT ANY OF OUR STUDY COMPANY/LOCATIONS.	A. EQUIPMENT EXPOSURES	
	1. ELECTRICAL CAPACITORS	2. ELECTRICAL CONDENSERS
J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)? <div style="border: 1px solid black; padding: 2px; display: inline-block;">IF YES</div> → + ↓	YES. 01 NO 02 DON'T KNOW . . 94 } GO TO NEXT ITEM REFUSED. . . . 97	YES. 01 NO 02 DON'T KNOW . . 94 } GO TO NEXT ITEM REFUSED 97
J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?	COMPANY: _____ _____ CITY: _____ STATE: _____	COMPANY: _____ _____ CITY: _____ STATE: _____
J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

A. EQUIPMENT EXPOSURES

3. ELECTRICAL TRANSFORMERS	4. GAS TRANSMISSION TURBINES	5. HEAT TRANSFER OR EXCHANGE UNITS
YES. 01 NO 02) GO TO DON'T KNOW . . 94) NEXT ITEM REFUSED. . . . 97)	YES. 01 NO 02) GO TO DON'T KNOW . . 94) NEXT ITEM REFUSED 97)	YES. 01 NO 02) GO TO DON'T KNOW . . 94) NEXT ITEM REFUSED. . . . 97)

COMPANY: _____	COMPANY: _____	COMPANY: _____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

	B. METAL EXPOSURES	C. CHEMICAL EXPOSURES
DO NOT INCLUDE EXPOSURES AT ANY OF OUR STUDY COMPANY/LOCATIONS.	11. MERCURY	12. AROCLOR, ASKAREL, INERTEEN, THERMINOL, OR OTHER PCB'S
J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)?	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED 97)
J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?	COMPANY: _____ _____ CITY: _____ STATE: _____	COMPANY: _____ _____ CITY: _____ STATE: _____
J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

C. CHEMICAL EXPOSURES

13. HOLLOWAX OR CHLORINATED NAPHTHALENE	14. (2,4,5-T) TRICHLOROPHENOXYACETIC ACID	15. 2,4,D (DICHLOROPHENOXYACETIC ACID
YES. 01 NO 02) DON'T KNOW . . 94) → NEXT REFUSED 97) GO TO ITEM	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT REFUSED. . . . 97) GO TO ITEM	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT REFUSED 97) GO TO ITEM

COMPANY: _____	COMPANY: _____	COMPANY: _____
_____	_____	_____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

C. CHEMICAL EXPOSURES		
DO NOT INCLUDE EXPOSURES AT ANY OF OUR STUDY COMPANY/LOCATIONS.	16. HEXACHLOROPHENE	17. AGENT ORANGE
J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)?	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97J	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97J
J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?	COMPANY: _____ _____ CITY: _____ STATE: _____	COMPANY: _____ _____ CITY: _____ STATE: _____
J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

C. CHEMICAL EXPOSURES

18. DDT	19. TCB-TETRACHLORO-BENZENE	20. HCB-HEXACHLORO-BENZENE
YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)

COMPANY: _____	COMPANY: _____	COMPANY: _____
_____	_____	_____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
_____	_____	_____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
_____	_____	_____
OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
START 19 <input type="text"/> <input type="text"/>	START 19 <input type="text"/> <input type="text"/>	START 19 <input type="text"/> <input type="text"/>
LAST 19 <input type="text"/> <input type="text"/>	LAST 19 <input type="text"/> <input type="text"/>	LAST 19 <input type="text"/> <input type="text"/>
# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>	# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>	# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>

C. CHEMICAL EXPOSURES

23. 3,4 DICHLORO-ANILINE	24. ETO-ETHYLENE OXIDE	25. DURSBAN, LEPTOPHOS, MALATHION, PARATHION
YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)

COMPANY: _____	COMPANY: _____	COMPANY: _____
_____	_____	_____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>	OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>
START 19 <input type="text"/> <input type="text"/>	START 19 <input type="text"/> <input type="text"/>	START 19 <input type="text"/> <input type="text"/>
LAST 19 <input type="text"/> <input type="text"/>	LAST 19 <input type="text"/> <input type="text"/>	LAST 19 <input type="text"/> <input type="text"/>
# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>	# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>	# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>

			C. CHEMICAL EXPOSURES	
DO NOT INCLUDE EXPOSURES AT ANY OF OUR STUDY COMPANY/LOCATIONS.			26. PENTACHLOROPHENOL PCP, DOWCIDE-7, PENCLOROL	27. SILVEX
J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)?	YES. 01 NO 02) DON'T KNOW . . 94}+NEXT REFUSED. . . . 97J	GO TO ITEM	YES. 01 NO 02) DON'T KNOW . . 94}+NEXT REFUSED . . . 97J	GO TO ITEM
*****			*****	
J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?	COMPANY: _____ _____ CITY: _____ STATE: _____		COMPANY: _____ _____ CITY: _____ STATE: _____	
J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?	START 19 <input type="checkbox"/> <input type="checkbox"/>		START 19 <input type="checkbox"/> <input type="checkbox"/>	
J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?	LAST 19 <input type="checkbox"/> <input type="checkbox"/>		LAST 19 <input type="checkbox"/> <input type="checkbox"/>	
J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

C. CHEMICAL EXPOSURES	D. SOLVENTS	
28. MCPA	29. CS ₂ -CARBON DISULFIDE	30. HEX: N-HEXANE
YES: 01 NO 02) DON'T KNOW . . 94} → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94} → NEXT GO TO ITEM REFUSED 97)	YES. 01 NO 02) DON'T KNOW . . 94} → NEXT GO TO ITEM REFUSED. . . . 97)

COMPANY: _____	COMPANY: _____	COMPANY: _____
_____	_____	_____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

D. SOLVENTS

33. PERCHLOROETHYLENE OR TRICHLOROETHYLENE	34. BENZENE	35. CARBON TETRACHLORIDE
YES. 01 NO 02) GO TO DON'T KNOW . . 94)→NEXT ITEM REFUSED. . . . 97J	YES. 01 NO 02) GO TO DON'T KNOW . . 94)→NEXT ITEM REFUSED. . . . 97J	YES. 01 NO 02) GO TO DON'T KNOW . . 94)→NEXT ITEM REFUSED 97J
***** COMPANY: _____ _____		
CITY: _____		
STATE: _____		
JOB TITLE: _____ _____		
OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/>		
START 19 <input type="text"/> <input type="text"/>	START 19 <input type="text"/> <input type="text"/>	START 19 <input type="text"/> <input type="text"/>
LAST 19 <input type="text"/> <input type="text"/>	LAST 19 <input type="text"/> <input type="text"/>	LAST 19 <input type="text"/> <input type="text"/>
# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>	# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>	# MONTHS <input type="text"/> <input type="text"/> <input type="text"/>

DO NOT INCLUDE EXPOSURES
AT ANY OF OUR STUDY
COMPANY/LOCATIONS.

D. SOLVENTS

	36. TOLUENE	37. METHYLENE CHLORIDE
J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)?	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED 97)
J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?	COMPANY: _____ _____ CITY: _____ STATE: _____	COMPANY: _____ _____ CITY: _____ STATE: _____
J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	JOB TITLE: _____ _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

E. OTHER CHEMICAL EXPOSURES

38. ACRYLAMIDE	39. PBB'S - POLYBROMI-NATED BIPHENYL'S	40. PHENOBARBITOL OR BARBITURATES
YES. 01 NO 02) DON'T KNOW . . 94)→NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94)→NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94)→NEXT GO TO ITEM REFUSED 97)
***** COMPANY: _____ _____	***** COMPANY: _____ _____	***** COMPANY: _____ _____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

E. OTHER CHEMICAL EXPOSURES

43. CYANIDE	44. DIMETHYLAMINO- PROPIONITRILE(DMAPN)	45. METHYL BROMIDE
YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED. . . . 97)	YES. 01 NO 02) DON'T KNOW . . 94) → NEXT GO TO ITEM REFUSED 97)

COMPANY: _____ _____	COMPANY: _____ _____	COMPANY: _____ _____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____

JOB TITLE: _____ _____	JOB TITLE: _____ _____	JOB TITLE: _____ _____
OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

E. OTHER CHEMICAL EXPOSURES

DO NOT INCLUDE EXPOSURES AT ANY OF OUR STUDY COMPANY/LOCATIONS.

46. ORGANOPHOSPHORUS ESTERS

47. OTHER HERBICIDES

J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)?

YES. 01
 NO 02)
 DON'T KNOW . . 94) → NEXT
 REFUSED. . . . 97)
 | GO TO
 | ITEM

YES. 01
 NO 02)
 DON'T KNOW . . 94) → NEXT
 REFUSED 97)
 | GO TO
 | ITEM

J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?

COMPANY: _____

 CITY: _____
 STATE: _____

COMPANY: _____

 CITY: _____
 STATE: _____

J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?

JOB TITLE: _____

 OFFICE USE

JOB TITLE: _____

 OFFICE USE

J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?

START
 19

START
 19

J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?

LAST
 19

LAST
 19

J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?

MONTHS

MONTHS

E. OTHER CHEMICAL EXPOSURES		F. OTHERS NOT MENTIONED
48. THALLIUM	49. DUSTS (i.e., WOOD, LEATHER, ETC.)	50. _____
YES: 01	YES. 01	YES. 01
NO 02) GO TO	NO 02) GO TO	NO 02) GO TO
DON'T KNOW . . 94) → NEXT	DON'T KNOW . . 94) → NEXT	DON'T KNOW . . 94) → FOR
REFUSED. . . . 97) ITEM	REFUSED. . . . 97) ITEM	REFUSED . . . 97) EACH
*****	*****	*****
COMPANY: _____	COMPANY: _____	COMPANY: _____
_____	_____	_____
CITY: _____	CITY: _____	CITY: _____
STATE: _____	STATE: _____	STATE: _____
JOB TITLE: _____	JOB TITLE: _____	JOB TITLE: _____
_____	_____	_____
OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
START	START	START
19 <input type="checkbox"/> <input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>
LAST	LAST	LAST
19 <input type="checkbox"/> <input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>	19 <input type="checkbox"/> <input type="checkbox"/>
# MONTHS	# MONTHS	# MONTHS
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

AFTER J60-64 HAS BEEN ASKED FOR EACH YES, GO TO J65.

F. OTHERS NOT MENTIONED		
	51. _____	52. _____
J59. In any job you have held, have you ever worked for 30 days or more with (NAME OF EQUIPMENT/CHEMICAL)? DO NOT INCLUDE EXPOSURES AT ANY OF OUR STUDY COMPANY/LOCATIONS.	YES. 01 NO 02) GO TO DON'T KNOW . . 94) →FOR REFUSED . . . 97) YES	YES. 01 NO 02) GO TO DON'T KNOW . . 94) →FOR REFUSED . . . 97) YES
J60. At what company and in which city did you work with (NAME OF EQUIPMENT/CHEMICAL)?	COMPANY: _____ CITY: _____ STATE: _____	COMPANY: _____ CITY: _____ STATE: _____
J61. What was your job title when you worked with (NAME OF EQUIPMENT/CHEMICAL)?	JOB TITLE: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	JOB TITLE: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
J62. In what year did you start working with (NAME OF EQUIPMENT/CHEMICAL)?	START 19 <input type="checkbox"/> <input type="checkbox"/>	START 19 <input type="checkbox"/> <input type="checkbox"/>
J63. In what year did you last work with (EQUIPMENT/CHEMICAL)?	LAST 19 <input type="checkbox"/> <input type="checkbox"/>	LAST 19 <input type="checkbox"/> <input type="checkbox"/>
J64. For how many months did you work with (EQUIPMENT/CHEMICAL)?	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	# MONTHS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

AFTER J60-64 HAS BEEN ASKED FOR EACH YES, GO TO J65.

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CONTINUE

Now I'm going to ask about certain types of tasks you might have done at any of your jobs: ([IF WORKER, CONTINUE:] For these questions, you should include tasks done at (SITE).)

	a. At what company and in which city and state was that?	b. What was your job title when you were doing this activity?
<p>J65. Did you ever have a job that required repeating a task over and over again with your hands like on a production line? PLEASE SPECIFY:</p> <p>_____</p> <p>YES. 01 + + +</p> <p>NO 02</p> <p>DON'T KNOW . . 94</p> <p>REFUSED . . . 97</p> <p style="margin-left: 200px;">} GO TO J66</p>	<p>COMPANY: _____</p> <p>_____</p> <p>CITY: _____</p> <p>STATE: _____</p> <p>_____</p>	<p>JOB TITLE: _____</p> <p>_____</p> <p>OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/></p>
<p>J66. Did you ever have a job that required repeated heavy lifting? PLEASE SPECIFY:</p> <p>_____</p> <p>YES. 01 + + +</p> <p>NO 02</p> <p>DON'T KNOW . . 94</p> <p>REFUSED . . . 97</p> <p style="margin-left: 200px;">} GO TO J67</p>	<p>COMPANY: _____</p> <p>_____</p> <p>CITY: _____</p> <p>STATE: _____</p> <p>_____</p>	<p>JOB TITLE: _____</p> <p>_____</p> <p>OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/></p>
<p>J67. Did you ever have a job that required you to work with your hands over your head for most of the day? PLEASE SPECIFY:</p> <p>_____</p> <p>YES. 01 + + +</p> <p>NO 02</p> <p>DON'T KNOW . . 94</p> <p>REFUSED . . . 97</p> <p style="margin-left: 200px;">} GO TO J68</p>	<p>COMPANY: _____</p> <p>_____</p> <p>CITY: _____</p> <p>STATE: _____</p> <p>_____</p>	<p>JOB TITLE: _____</p> <p>_____</p> <p>OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/></p>

<p>c. In what year did you start to do this activity?</p>	<p>d. In what year did you last do this activity?</p>	<p>e. For how many months did you do this activity?</p>
<p>START</p> <p>19 <input type="text"/> <input type="text"/></p>	<p>LAST</p> <p>19 <input type="text"/> <input type="text"/></p>	<p># MONTHS</p> <p><input type="text"/> <input type="text"/> <input type="text"/></p> <p>GO TO J66</p>
<p>START</p> <p>19 <input type="text"/> <input type="text"/></p>	<p>LAST</p> <p>19 <input type="text"/> <input type="text"/></p>	<p># MONTHS</p> <p><input type="text"/> <input type="text"/> <input type="text"/></p> <p>GO TO J67</p>
<p>START</p> <p>19 <input type="text"/> <input type="text"/></p>	<p>LAST</p> <p>19 <input type="text"/> <input type="text"/></p>	<p># MONTHS</p> <p><input type="text"/> <input type="text"/> <input type="text"/></p> <p>GO TO J68</p>

	a. At what company and in which city and state was that?	b. What was your job title when you were doing this activity?
<p>J68. Did you ever have a job that required you to handle heavy vibrating equipment such as jack hammers, drills, etc.? PLEASE SPECIFY:</p> <p>_____</p> <p>YES. 01 + + +</p> <p>NO 02 </p> <p>DON'T KNOW . . 94 } → GO TO</p> <p>REFUSED . . . 97 SECTION</p> <p style="margin-left: 150px;">K</p>	<p>COMPANY: _____</p> <p>_____</p> <p>CITY: _____</p> <p>STATE: _____</p> <p>_____</p>	<p>JOB TITLE: _____</p> <p>_____</p> <p>_____</p> <p>OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>

<p>c. In what year did you start to do this activity?</p>	<p>d. In what year did you last do this activity?</p>	<p>e. For how many months did you do this activity?</p>
<p>START</p> <p>19 <input type="text"/> <input type="text"/></p>	<p>LAST</p> <p>19 <input type="text"/> <input type="text"/></p>	<p># MONTHS</p> <p><input type="text"/> <input type="text"/> <input type="text"/></p> <p>GO TO SECTION K</p>

K. DEMOGRAPHIC INFORMATION

K1. RACE: BY OBSERVATION. ([IF UNCERTAIN ASK:] Do you consider yourself white, black, Asian, American Indian, or something else?)

- WHITE.....01
- BLACK.....02
- ASIAN (ORIENTAL OR PACIFIC ISLANDER).....03
- AMERICAN INDIAN (ALASKAN NATIVE).....04
- OTHER.....05
- (SPECIFY) _____

K2. Are you of Hispanic (Spanish) origin or descent?

- YES.....01
- NO.....02
- DON'T KNOW.....94
- REFUSED.....97

K3. What is your country of birth?

COUNTRY

K4.

a. What was the highest grade in school which you completed? [CODE ONLY ONE.]

NO FORMAL SCHOOLING.....01

1 TO 8 YEARS (GRADE SCHOOL).....02

9 TO 12 YEARS (HIGH SCHOOL).....03

AFTER HIGH SCHOOL
VOCATIONAL OR TECHNICAL TRAINING.....04

SOME COLLEGE
GRADUATE, POST GRADUATE WORK.....05

DON'T KNOW.....94

REFUSED.....97

} → GO TO K5.

b. How old were you when you finished (HIGHEST GRADE)?

AGE

DON'T KNOW.....94

REFUSED.....97

HAND RESPONDENT CARD # K-5

K5. Please look at the card and tell me the letter which corresponds to you religious preference. [IF THE RESPONSE IS "e", ASK: "What is the other religion?"]

a. PROTESTANT.....01

b. CATHOLIC.....02

c. JEWISH.....03

d. SEVENTH DAY ADVENTIST.....04

e. OTHER (SPECIFY).....05

f. NO RELIGION.....06

g. DON'T KNOW.....94

h. REFUSED.....97

HAND RESPONDENT CARD # K-6.

K6. Please look at this card and indicate the letter of the category which contains the amount of your family's total income. [CODE ONLY ONE.]

- a. LESS THAN \$10,000.....01
- b. \$10,000 - \$19,999.....02
- c. \$20,000 - \$29,999.....03
- d. \$30,000 - \$39,999.....04
- e. \$40,000 - \$49,999.....05
- f. \$50,000 OR MORE.....06

DON'T KNOW.....94
REFUSED.....97

K7. For how many hours do you normally sleep during a 24-hour period?

HOURS

DON'T KNOW.....94
REFUSED.....97

K8. Do you exercise vigorously and regularly for at least a half-hour, 3 times weekly (include jogging, swimming, tennis, bicycling, aerobics, etc.)?

YES.....01
NO.....02
DON'T KNOW.....94
REFUSED.....97

- K9. a. THANK RESPONDENT FOR COOPERATION,
b. SET UP TRAVEL PLANS,
c. MAKE CERTAIN YOU HAVE ACCOUNTED FOR ALL PERMISSION FORMS,
d. REMEMBER TO COMPLETE SECTION L.

L. INTERVIEWER OBSERVATIONS AND EVALUATION

COMPLETE THIS SECTION AS SOON AFTER LEAVING THE RESPONDENT AS POSSIBLE.

L1. What was the language in which the interview was conducted?

ENGLISH.....01

SPANISH.....02

OTHER.....03

SPECIFY: _____

L2. What was the level of respondent cooperation?

VERY GOOD.....01

GOOD.....02

FAIR, OR.....03

POOR?.....04

L3. Overall, what is the quality of the interview?

HIGH QUALITY.....01

GENERALLY RELIABLE.....02

QUESTIONABLE, OR.....03

UNSATISFACTORY?.....04

+ GO TO L5

L4. IF UNSATISFACTORY OR QUESTIONABLE:

What was the main reason for the unsatisfactory or questionable quality of the interview?

- THE RESPONDENT: WAS ILL OR DISABLED.....01
- SPOKE ENGLISH POORLY.....02
- WAS EVASIVE OR SUSPICIOUS.....03
- WAS BORED OR UNINTERESTED.....04
- WAS UPSET OR DEPRESSED BY THE TOPIC.....05
- WAS DRUNK OR ON DRUGS.....06
- HAD POOR HEARING OR SPEECH.....07
- WAS CONFUSED BY FREQUENT INTERRUPTION.....08
- WAS INSUFFICIENTLY KNOWLEDGEABLE.....09
- WAS MENTALLY DISTURBED.....10
- OR: SOMETHING ELSE.....11
- SPECIFY: _____

L5. Was the respondent assisted by another person during most of the interview?

- YES.....01
- NO.....02 + GO TO L8

L6. Who assisted the respondent? [CODE ALL THAT APPLY.]

- SPOUSE.....01
- CHILD.....02
- SIBLING.....03
- OTHER RELATIVE.....04
- OTHER.....05
- SPECIFY: _____

L7. Why was the respondent assisted? [CODE ALL THAT APPLY.]

TOO ILL.....01

LANGUAGE PROBLEM.....02

RESPONDENT REQUEST.....03

SOMETHING ELSE.....04

SPECIFY:

L8. RECORD ANY OTHER RELEVANT OBSERVATIONS, COMMENTS, OR IMPRESSIONS YOU HAVE ABOUT THIS INTERVIEW.

NIOSH OCCUPATIONAL HEALTH STUDY
WIVES REPRODUCTIVE QUESTIONNAIRE

Subject ID Number:

--	--	--	--	--	--

Interviewer ID Number:

--	--	--	--	--	--

Interview Date:

--	--	--	--	--	--

Checked By:

--	--

1. FOLLOW CONTROL CARD PROCEDURES TO IDENTIFY AND VERIFY RESPONDENT INFORMATION.
2. COVER CONSENT INFORMATION WITH RESPONDENT AND ASK FOR SIGNATURE, THEN SAY:

Before we start the interview let me tell you a little about the questions. I will be asking you about such things as medical information, job information, and other information from different times during your life. Sometimes the period of time I ask about will be your entire life and other times it will be when you were pregnant or another time period.

If you do not understand the time period or the question, ask me to repeat the question or to clarify, if possible. We want to make sure the information is as accurate as possible.

The questions will take an average of 45 minutes to complete. If you want to take a break at some point, just let me know.

THE STUDY SUBJECT HAS BEEN INFORMED OF THE INFORMATION CONTAINED IN THE INTRODUCTORY LETTER.

SIGNATURE OF INTERVIEWER

A. PERSONAL DATA

First I have some general questions about you.

A1. What is your date of birth?

MONTH		DAY		YEAR			

A2. What was the highest grade in school which you completed? [CODE ONLY ONE.]

- NO FORMAL SCHOOLING.....01
- 1 TO 8 YEARS (GRADE SCHOOL).....02
- 9 TO 12 YEARS (HIGH SCHOOL).....03
- AFTER HIGH SCHOOL
VOCATIONAL OR TECHNICAL TRAINING.....04
- SOME COLLEGE
GRADUATE, POST GRADUATE WORK.....05
- DON'T KNOW.....94
- REFUSED.....97

A3. Do you consider yourself white, black, Asian, American Indian, or something else?

- WHITE.....01
- BLACK.....02
- ASIAN (ORIENTAL OR PACIFIC ISLANDER).....03
- AMERICAN INDIAN (ALASKAN NATIVE).....04
- OTHER.....05
- (SPECIFY) _____

A4. Are you of Hispanic (Spanish) origin or descent?

YES.....01
NO.....02
DON'T KNOW.....94
REFUSED.....97

A5. What is your religion?

PROTESTANT.....01
CATHOLIC.....02
JEWISH03
SEVENTH DAY ADVENTIST.....04
OTHER (SPECIFY).....05

NO RELIGION.....06
DON'T KNOW.....94
REFUSED.....97

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CONTINUE

B. MEDICAL CONDITIONS

This next group of questions is about your health in general. I'm going to read a list of health conditions which can only be diagnosed by a doctor.

B1. Has a doctor ever told you that you had (CONDITION)?

CONDITIONS	
SUGAR DIABETES	THYROID CONDITION
YES . . .01 → ASK a-d NO. . . .02 → + + + + + + +	YES . . .01 → ASK a-d NO. . . .02 → + + + + + + +
a. In what month and year were you first told you had (CONDITION)? <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> <div style="text-align: center;"> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> </div>	
b. What medicine/treatment were you given for (CONDITION)? <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center; width: 45%;"> OFFICE USE <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> </div> <div style="text-align: center; width: 45%;"> OFFICE USE <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> </div> </div>	
c. What was the month and year of your first treatment for (CONDITION)? <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> FIRST <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> <div style="text-align: center;"> FIRST <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> </div>	
d. What was the month and year of your last treatment for (CONDITION)? <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> LAST <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> <div style="text-align: center;"> LAST <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 30px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> </div>	

REPEAT B1. FOR NEXT CONDITION

CONDITION	
EPILEPSY, FITS, OR OTHER OTHER NEUROLOGICAL CONDITIONS	
YES . . .01 + ASK a-d	
NO. . . .02 + + + + + + +	
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
MONTH	YEAR
<hr/>	
OFFICE USE	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
FIRST	
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
MONTH	YEAR
LAST	
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
MONTH	YEAR

B1. Has a doctor ever told you that you had (CONDITION)?

		CONDITIONS	
		LIVER CONDITION	HEART CONDITION
		YES . . .01 → ASK a-d	YES . . .01 → ASK a-d
		NO. . . .02 → → → → → → →	NO. . . .02 → → → → → → →
a. In what month and year were you first told you had (CONDITION)?		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH YEAR </div> </div>	
b. What medicine/treatment were you given for (CONDITION)?		<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">OFFICE USE</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex;"> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> </div> </div>	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">OFFICE USE</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex;"> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> </div> </div>
c. What was the month and year of your first treatment for (CONDITION)?		<div style="text-align: center; margin-bottom: 5px;">FIRST</div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>	<div style="text-align: center; margin-bottom: 5px;">FIRST</div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>
d. What was the month and year of your last treatment for (CONDITION)?		<div style="text-align: center; margin-bottom: 5px;">LAST</div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>	<div style="text-align: center; margin-bottom: 5px;">LAST</div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH </div> <div style="text-align: center;"> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> YEAR </div> </div>
e. What kind of (CONDITION) did you have?		<div style="border-bottom: 1px solid black; margin-bottom: 5px;">CONDITION:</div> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <div style="display: flex; justify-content: center; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex;"> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> </div> </div> <div style="text-align: center;">OFFICE USE</div>	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">CONDITION:</div> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <div style="display: flex; justify-content: center; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex;"> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> <div style="width: 10px; height: 100%;"></div> </div> </div> <div style="text-align: center;">OFFICE USE</div>

REPEAT B1. FOR NEXT CONDITION

CONDITION							
VENEREAL DISEASE							
YES . . .01 + ASK a-d							
NO. . .02 + + + + + + +							
<table border="1" style="width: 40px; height: 20px; margin: 0 auto;"> <tr><td> </td><td> </td></tr> </table>			<table border="1" style="width: 40px; height: 20px; margin: 0 auto;"> <tr><td> </td><td> </td></tr> </table>				
MONTH	YEAR						
<hr/> OFFICE USE <table border="1" style="width: 100%; height: 20px; margin-top: 5px;"> <tr> <td style="width: 15%;"> </td> <td style="width: 15%;"> </td> <td style="width: 15%;"> </td> <td style="width: 15%;"> </td> <td style="width: 15%;"> </td> <td style="width: 15%;"> </td> </tr> </table>							
FIRST							
<table border="1" style="width: 40px; height: 20px; margin: 0 auto;"> <tr><td> </td><td> </td></tr> </table>			<table border="1" style="width: 40px; height: 20px; margin: 0 auto;"> <tr><td> </td><td> </td></tr> </table>				
MONTH	YEAR						
LAST							
<table border="1" style="width: 40px; height: 20px; margin: 0 auto;"> <tr><td> </td><td> </td></tr> </table>			<table border="1" style="width: 40px; height: 20px; margin: 0 auto;"> <tr><td> </td><td> </td></tr> </table>				
MONTH	YEAR						
CONDITION: _____							
<table border="1" style="width: 100%; height: 20px; margin-top: 10px;"> <tr> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> </tr> </table>							
OFFICE USE							

81. Has a doctor ever told you that you had (CONDITION)?

	CANCER YES . . .01 + ASK a-g NO. . . .02 + GO TO SECTION C
a. In what month and year were you first told you had cancer?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH YEAR
b. What medicine/treatment were you given for cancer?	_____ _____ OFFICE USE <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
c. What was the month and year of your first treatment for cancer?	FIRST <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH YEAR
d. What was the month and year of your last treatment for cancer?	LAST <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> MONTH YEAR
e. What kind of cancer did you have?	CONDITION: _____ _____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> OFFICE USE
f. What is the name and address of the hospital (or doctor) where you were treated for cancer?	HOSPITAL/DR: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
g. Will you give permission to obtain your medical records?	YES 01 + GO TO PERMISSION WORKSHEET NO 02

GO TO SECTION C

C. MARITAL HISTORY

In this next section I will ask you questions about your marital history but there will be some questions about your pregnancies mixed in. We have mixed the questions so we will be sure not to miss any information.

For the purposes of this study we define "being married" as any legal marriage regardless of length or living with a man for 2 years or more.

C1. How many times have you ever been pregnant? Please be sure to include any pregnancies that ended in the birth of a child, a stillborn child, a miscarriage, or an induced abortion? [NEVER, ENTER "00"]

TIMES PREGNANT [ENTER HERE AND ON PAGE D-1 AT Q.D1]

a. Did you ever have a hysterectomy or have your tubes tied?

YES.....01

NO.....02 + GO TO C2

b. [IF YES], In what year was it performed?

19

C2. Are you currently married, widowed, divorced, or separated?

MARRIED.....01

WIDOWED.....02

DIVORCED.....03

SEPARATED.....04

C3. Including any times you were actually married or lived as married with a man for 2 years or more, how many times have you been married?

[INTERVIEWER: INCLUDE LIVING RELATIONSHIP WITH INDEX MALE AS A MARRIAGE.]

TIMES MARRIED

C4. Which marriage/relationship was to Mr. _____?
(INDEX MALE)

MARRIAGE #

INTERVIEWER: CODE "1" IN SECOND BOX IF THE MARRIAGE WAS TO THE INDEX MALE. OTHERWISE, CODE "0" IN THE SECOND BOX.

I am going to ask you for some details about your marriage(s).

	1 <input type="text"/> <input type="text"/> MARRIAGE	2 <input type="text"/> <input type="text"/> MARRIAGE
C5. In what month and year were you and your (1ST, 2ND, 3RD, ETC.) husband married?	<input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	<input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
C6. What is the month and year of your (ex)husband's birth?	<input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	<input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
C7. <u>FOR CURRENT MARRIAGE :</u> <u>IF MARRIED:</u> GO TO C8. <u>IF WIDOWED:</u> In what year did he pass away? <u>IF DIVORCED OR SEPARATED:</u> In what year did you stop living together? OR <u>FOR ALL OTHER MARRIAGES:</u> In what year did you stop living together?	19 <input type="text"/> <input type="text"/> YEAR	19 <input type="text"/> <input type="text"/> YEAR
C8. Did you work outside the home during this marriage?	YES . . . 01 NO. . . . 02 + GO TO C9	YES . . . 01 NO. . . . 02 + GO TO C9

<div style="text-align: center;"> <input type="text" value="3"/> <input type="text"/> MARRIAGE </div>	<div style="text-align: center;"> <input type="text" value="4"/> <input type="text"/> MARRIAGE </div>	<div style="text-align: center;"> <input type="text" value="5"/> <input type="text"/> MARRIAGE </div>
<div style="text-align: center;"> <input type="text"/> <input type="text"/>, 19 <input type="text"/> <input type="text"/> MONTH YEAR </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/>, 19 <input type="text"/> <input type="text"/> MONTH YEAR </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/>, 19 <input type="text"/> <input type="text"/> MONTH YEAR </div>
<div style="text-align: center;"> <input type="text"/> <input type="text"/>, 19 <input type="text"/> <input type="text"/> MONTH YEAR </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/>, 19 <input type="text"/> <input type="text"/> MONTH YEAR </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/>, 19 <input type="text"/> <input type="text"/> MONTH YEAR </div>
<div style="text-align: center;"> 19 <input type="text"/> <input type="text"/> YEAR </div>	<div style="text-align: center;"> 19 <input type="text"/> <input type="text"/> YEAR </div>	<div style="text-align: center;"> 19 <input type="text"/> <input type="text"/> YEAR </div>
YES . . . 01 NO. . . . 02 + GO TO C9	YES . . . 01 NO. . . . 02 + GO TO C9	YES . . . 01 NO. . . . 02 + GO TO C9

C8.

a. What were the dates (mo/yr) of your employment during this marriage?

INTERVIEWER: USE BEGIN MARRIAGE DATE IF JOB STARTED BEFORE MARRIAGE; USE END MARRIAGE DATE IF JOB IS CURRENT OR EXTENDED BEYOND THE END OF MARRIAGE; USE TODAY'S DATE IF JOB IS CURRENT AND THIS IS THE PRESENT MARRIAGE. DON'T CODE EMPLOYMENT LAPSES OF SIX MONTHS OR LESS.

	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> MARRIAGE	
<p>(1) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <hr style="border-top: 1px dashed black;"/> <p>(2) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <hr style="border-top: 1px dashed black;"/> <p>(3) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <hr style="border-top: 1px dashed black;"/> <p>(4) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p>	<p>(1) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <hr style="border-top: 1px dashed black;"/> <p>(2) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <hr style="border-top: 1px dashed black;"/> <p>(3) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <hr style="border-top: 1px dashed black;"/> <p>(4) FROM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p> <p style="text-align: center;">TO</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> </div>, 19 <div style="border: 1px solid black; padding: 2px;"> </div> </div> <p>MONTH YEAR</p>	<div style="border: 1px solid black; display: inline-block; width: 40px; height: 20px; margin: 0 auto;"></div> PREGNANCIES	
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>INTERVIEWER: IF NEVER PREGNANT ("00" AT C1), SKIP THIS QUESTION AND GO TO C10.</p> </div> <p>C9. How many times were you pregnant during this marriage?</p>	<div style="border: 1px solid black; display: inline-block; width: 40px; height: 20px; margin: 0 auto;"></div> PREGNANCIES	<div style="border: 1px solid black; display: inline-block; width: 40px; height: 20px; margin: 0 auto;"></div> PREGNANCIES

<div style="text-align: center;"> <input type="text" value="3"/> <input type="text"/> MARRIAGE </div>	<div style="text-align: center;"> <input type="text" value="4"/> <input type="text"/> MARRIAGE </div>	<div style="text-align: center;"> <input type="text" value="5"/> <input type="text"/> MARRIAGE </div>
(1) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(1) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(1) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
(2) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(2) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(2) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
(3) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(3) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(3) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
(4) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(4) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR	(4) FROM <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR TO <input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR
<div style="text-align: center;"> <input type="text"/> <input type="text"/> PREGNANCIES </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/> PREGNANCIES </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/> PREGNANCIES </div>

	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> MARRIAGE
C10. During this marriage, did you ever want to get pregnant but were unable to? <div style="border: 1px solid black; display: inline-block; padding: 2px;">IF YES</div> ↓	YES . . . 01 NO. . . . 02 → GO TO C12	YES . . . 01 NO. . . . 02 → GO TO C12
a. Did you ever try for at least 1 year and were unable to get pregnant? <div style="border: 1px solid black; display: inline-block; padding: 2px;">IF YES</div> ↓	a. YES . . . 01 NO. . . . 02 → GO TO c	a. YES . . . 01 NO. . . . 02 → GO TO c
b. In what year did you begin trying? ↓	b. 19 <div style="border: 1px solid black; display: inline-block; width: 40px; height: 20px; vertical-align: middle;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 40px; height: 20px; vertical-align: middle;"></div>
c. Did <u>you</u> ever see a doctor because you had trouble getting pregnant? <div style="border: 1px solid black; display: inline-block; padding: 2px;">IF YES</div> ↓	c. YES . . . 01 NO. . . . 02 → GO TO C11	c. YES . . . 01 NO. . . . 02 → GO TO C11
(1) What was the doctor's diagnosis?	PROBLEM WITH FEMALE ORGANS. . . 01 HORMONAL/GLANDULAR. . . . 02 NO REPORTED ABNORMALITY. . . 03 OTHER. 04 <hr/> <hr/>	PROBLEM WITH FEMALE ORGANS. . . 01 HORMONAL/GLANDULAR. . . . 02 NO REPORTED ABNORMALITY. . . 03 OTHER. 04 <hr/> <hr/>

	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> MARRIAGE
C11. Did your (ex)husband ever see a doctor because you had trouble getting pregnant? <div style="border: 1px solid black; display: inline-block; padding: 2px;">IF YES</div> ↓	YES . . . 01 NO. . . . 02 → GO TO C12	YES . . . 01 NO. . . . 02 → GO TO C12
a. What was the doctor's diagnosis?	PROBLEM WITH MALE ORGANS. . . 01 HORMONAL/ GLANDULAR. . . . 02 SPERM COUNT LOW. 03 IMPOTENCY. . . . 04 NO REPORTED ABNORMALITY. . . 05 OTHER. 06 <hr/> <hr/>	PROBLEM WITH MALE ORGANS. . . 01 HORMONAL/ GLANDULAR. . . . 02 SPERM COUNT LOW. 03 IMPOTENCY. . . . 04 NO REPORTED ABNORMALITY. . . 05 OTHER. 06 <hr/> <hr/>
C12. Did your (ex)husband ever have a vasectomy? <div style="border: 1px solid black; display: inline-block; padding: 2px;">IF YES</div> ↓	YES . . . 01 NO. . . . 02 → GO TO C13	YES . . . 01 NO. . . . 02 → GO TO C13
a. In what year was it performed?	19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></div>	19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></div>
C13. During your (1ST, 2ND, 3RD, ETC.) marriage, did you and your (ex)husband use anything to prevent you from getting pregnant?	YES . . . 01 NO. . . . 02 → GO TO C14	YES . . . 01 NO. . . . 02 → GO TO C14

QUESTIONS C13. a-e

	1 <input type="text"/> <input type="text"/> MARRIAGE	2 <input type="text"/> <input type="text"/> MARRIAGE
<p>a. Tell me the (first/next) kind of birth control you used during this marriage.</p> <p>NONE USED 00 PILL. 01 IUD 02 DIAPHRAGM 03 FOAMS 04 CONDOMS 05 RHYTHM/ABSTINENCE . . . 06 OTHER (SPECIFY) 07</p> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>FOR EACH TYPE, ENTER CODE IN a. AND ASK:</p> </div> <p>b. During which year did you start using (METHOD)?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>IF METHOD WAS USED BEFORE THIS MARRIAGE, ENTER BEGINNING DATE OF MARRIAGE.</p> </div> <p>c. If pregnancy occurred or you quit using (METHOD), what year did you stop?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>ENTER CURRENT YEAR IF USING NOW; OR IF MARRIAGE HAS ENDED, ENTER THAT YEAR IF METHOD WAS USED AFTERWARD.</p> </div> <p>d. Did you use any additional method for more than 2 months at the same time you were using (METHOD)?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>IF YES</p> </div> <p style="text-align: center;">↓</p> <p>1) Which method?</p> <p>e. Did you use any kind of birth control after you used (METHOD IN a. AND d.)?</p>	<p>a. TYPE 1 <input type="text"/> <input type="text"/></p> <p>b. 19 <input type="text"/> <input type="text"/></p> <p>c. 19 <input type="text"/> <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/> <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 1 <input type="text"/> <input type="text"/></p> <p>b. 19 <input type="text"/> <input type="text"/></p> <p>c. 19 <input type="text"/> <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/> <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>
<p>c. If pregnancy occurred or you quit using (METHOD), what year did you stop?</p> <p>d. Did you use any additional method for more than 2 months at the same time you were using (METHOD)?</p> <p>e. Did you use any kind of birth control after you used (METHOD IN a. AND d.)?</p>	<p>a. TYPE 2 <input type="text"/> <input type="text"/></p> <p>b. 19 <input type="text"/> <input type="text"/></p> <p>c. 19 <input type="text"/> <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/> <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 2 <input type="text"/> <input type="text"/></p> <p>b. 19 <input type="text"/> <input type="text"/></p> <p>c. 19 <input type="text"/> <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/> <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>
<div style="border: 1px solid black; padding: 10px;"> <p>IF "YES" TO 13e., CONTINUE ASKING 13 a-e FOR EACH TYPE AND CODE ANSWERS FOR TYPES 3 AND 4 ON THE NEXT SERIES. IF "NO", GO TO C14.</p> </div>		

<div style="text-align: center;"> <table border="1" style="display: inline-table; margin: 0 auto;"> <tr><td style="width: 20px; height: 20px; text-align: center;">3</td><td style="width: 20px; height: 20px;"></td></tr> </table> MARRIAGE </div>	3		<div style="text-align: center;"> <table border="1" style="display: inline-table; margin: 0 auto;"> <tr><td style="width: 20px; height: 20px; text-align: center;">4</td><td style="width: 20px; height: 20px;"></td></tr> </table> MARRIAGE </div>	4		<div style="text-align: center;"> <table border="1" style="display: inline-table; margin: 0 auto;"> <tr><td style="width: 20px; height: 20px; text-align: center;">5</td><td style="width: 20px; height: 20px;"></td></tr> </table> MARRIAGE </div>	5																			
3																										
4																										
5																										
<p>a. TYPE 1 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>b. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>c. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>e. YES. . 01+GO TO NEXT a</p> <p>NO . . 02+GO TO C14</p>									<p>a. TYPE 1 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>b. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>c. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>e. YES. . 01+GO TO NEXT a</p> <p>NO . . 02+GO TO C14</p>									<p>a. TYPE 1 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>b. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>c. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>e. YES. . 01+GO TO NEXT a</p> <p>NO . . 02+GO TO C14</p>								
<p>a. TYPE 2 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>b. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>c. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>e. YES. . 01+GO TO NEXT a</p> <p>NO . . 02+GO TO C14</p>									<p>a. TYPE 2 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>b. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>c. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>e. YES. . 01+GO TO NEXT a</p> <p>NO . . 02+GO TO C14</p>									<p>a. TYPE 2 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>b. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>c. 19 <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <table border="1" style="display: inline-table; margin: 0 10px;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>e. YES. . 01+GO TO NEXT a</p> <p>NO . . 02+GO TO C14</p>								
<p>IF "YES" TO 13e., CONTINUE ASKING 13 a-e FOR EACH TYPE AND CODE ANSWERS FOR TYPES 3 AND 4 ON THE NEXT SERIES. IF "NO", GO TO C14.</p>																										

QUESTIONS C13. a.-e.
(CONTINUED)

<div style="text-align: center;">1</div> <div style="text-align: center;">MARRIAGE</div>	<div style="text-align: center;">2</div> <div style="text-align: center;">MARRIAGE</div>
<p>a. Tell me the (first/next) kind of birth control you used during this marriage.</p> <p>NONE USED 00 PILL. 01 IUD 02 DIAPHRAGM 03 FOAMS 04 CONDOMS 05 RHYTHM/ABSTINENCE . . . 06 OTHER (SPECIFY) 07</p> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>FOR EACH TYPE, ENTER CODE IN a. AND ASK:</p> </div> <p>b. During which year did you start using (METHOD)?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>IF METHOD WAS USED BEFORE THIS MARRIAGE, ENTER BEGINNING DATE OF MARRIAGE.</p> </div> <p>c. If pregnancy occurred or you quit using (METHOD), what year did you stop?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>ENTER CURRENT YEAR IF USING NOW; OR IF MARRIAGE HAS ENDED, ENTER THAT YEAR IF METHOD WAS USED AFTERWARD.</p> </div> <p>d. Did you use any additional method for more than 2 months at the same time you were using (METHOD)?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>IF YES</p> </div> <p style="text-align: center;">↓</p> <p>1) Which method?</p> <p>e. Did you use any kind of birth control after you used (METHOD IN a. AND d.)?</p>	<p>a. TYPE 3 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . . 02+GO TO C14</p>
<p>a. TYPE 4 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . . 02+GO TO C14</p>	<p>a. TYPE 4 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . . 02+GO TO C14</p>

IF "YES" TO 13e., CONTINUE ASKING 13 a-e FOR EACH TYPE AND CODE ANSWERS FOR TYPES 5 AND 6 ON THE NEXT SERIES. IF "NO", GO TO C14.

<div style="text-align: center;">3</div> <div style="text-align: center;">MARRIAGE</div>	<div style="text-align: center;">4</div> <div style="text-align: center;">MARRIAGE</div>	<div style="text-align: center;">5</div> <div style="text-align: center;">MARRIAGE</div>
<p>a. TYPE 3 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 3 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 3 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>
<p>a. TYPE 4 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 4 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 4 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>

IF "YES" TO 13e., CONTINUE ASKING 13 a-e FOR EACH TYPE AND CODE ANSWERS FOR TYPES 5 AND 6 ON THE NEXT SERIES. IF "NO", GO TO C14.

QUESTIONS C13. a.-e.
(CONTINUED)

1	
---	--

MARRIAGE

2	
---	--

MARRIAGE

a. Tell me the (first/next) kind of birth control you used during this marriage.

- NONE USED 00
- PILL 01
- IUD 02
- DIAPHRAGM 03
- FOAMS 04
- CONDOMS 05
- RHYTHM/ABSTINENCE . . . 06
- OTHER (SPECIFY) 07



FOR EACH TYPE, ENTER CODE IN
a. AND ASK:

b. During which year did you start using (METHOD)?

IF METHOD WAS USED BEFORE THIS MARRIAGE, ENTER BEGINNING DATE OF MARRIAGE.

c. If pregnancy occurred or you quit using (METHOD), what year did you stop?

ENTER CURRENT YEAR IF USING NOW; OR IF MARRIAGE HAS ENDED, ENTER THAT YEAR IF METHOD WAS USED AFTERWARD.

d. Did you use any additional method for more than 2 months at the same time you were using (METHOD)?

IF YES



1) Which method?

e. Did you use any kind of birth control after you used (METHOD IN a. AND d.)?

a. TYPE 5

--	--

b. 19

--	--

c. 19

--	--

d. ADDITIONAL TYPE

YES . . . 01

NO . . . 02+GO TO
e

1) TYPE

--	--

e. YES . . 01+GO TO
NEXT a

NO . . 02+GO TO
C14

a. TYPE 5

--	--

b. 19

--	--

c. 19

--	--

d. ADDITIONAL TYPE

YES . . . 01

NO . . . 02+GO TO
e

1) TYPE

--	--

e. YES . . 01+GO TO
NEXT a

NO . . 02+GO TO
C14

a. TYPE 6

--	--

b. 19

--	--

c. 19

--	--

d. ADDITIONAL TYPE

YES . . . 01

NO . . . 02+GO TO
e

1) TYPE

--	--

e. YES . . 01+GO TO
NEXT a

NO . . 02+GO TO
C14

a. TYPE 6

--	--

b. 19

--	--

c. 19

--	--

d. ADDITIONAL TYPE

YES . . . 01

NO . . . 02+GO TO
e

1) TYPE

--	--

e. YES . . 01+GO TO
NEXT a

NO . . 02+GO TO
C14

IF "YES" TO 13e., CONTINUE ASKING 13 a-e FOR EACH TYPE AND CODE ANSWERS FOR OTHER TYPES ON PAGES IN THE CONTINUATION BOOKLET. IF "NO", GO TO C14.

<div style="text-align: center;">3 <input type="text"/></div> <div style="text-align: center;">MARRIAGE</div>	<div style="text-align: center;">4 <input type="text"/></div> <div style="text-align: center;">MARRIAGE</div>	<div style="text-align: center;">5 <input type="text"/></div> <div style="text-align: center;">MARRIAGE</div>
<p>a. TYPE 5 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 5 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 5 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>
<p>a. TYPE 6 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 6 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>	<p>a. TYPE 6 <input type="text"/></p> <p>b. 19 <input type="text"/></p> <p>c. 19 <input type="text"/></p> <p>d. ADDITIONAL TYPE YES. . . 01 NO . . . 02+GO TO e</p> <p>1) TYPE <input type="text"/></p> <p>e. YES. . 01+GO TO NEXT a NO . . 02+GO TO C14</p>
<p>IF "YES" TO 13e., CONTINUE ASKING 13 a-e FOR EACH TYPE AND CODE ANSWERS FOR OTHER TYPES ON PAGES IN THE CONTINUATION BOOKLET. IF "NO", GO TO C14.</p>		

	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> MARRIAGE
C14. During this marriage did you smoke 1 or more cigarettes per day? <div style="border: 1px solid black; display: inline-block; padding: 2px; margin: 5px 0;">IF YES</div> ↓	YES. . . 01 NO . . . 02+GO TO C15	YES. . . 01 NO . . . 02+GO TO C15
a. About how many cigarettes did you smoke a day during this marriage?	a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # CIGARETTES	a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # CIGARETTES
b. In what year did you first smoke during this marriage? <div style="border: 1px solid black; display: inline-block; padding: 2px; margin: 5px 0;">IF SMOKED BEFORE MARRIAGE ENTER YEAR OF MARRIAGE.</div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>
c. In what year did you last smoke during this marriage? <div style="border: 1px solid black; display: inline-block; padding: 2px; margin: 5px 0;">IF MARRIAGE ENDED BEFORE STOPPED SMOKING, ENTER YEAR MARRIAGE ENDED.</div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>

<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> 3 </div> <p style="text-align: center;">MARRIAGE</p>	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> 4 </div> <p style="text-align: center;">MARRIAGE</p>	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> 5 </div> <p style="text-align: center;">MARRIAGE</p>
<p>YES. . . 01</p> <p>NO . . . 02+GO TO C15</p>	<p>YES. . . 01</p> <p>NO . . . 02+GO TO C15</p>	<p>YES. . . 01</p> <p>NO . . . 02+GO TO C15</p>
<p>a.</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div> <p style="text-align: center;"># CIGARETTES</p>	<p>a.</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div> <p style="text-align: center;"># CIGARETTES</p>	<p>a.</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div> <p style="text-align: center;"># CIGARETTES</p>
<p>b.</p> <p>19</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div>	<p>b.</p> <p>19</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div>	<p>b.</p> <p>19</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div>
<p>c.</p> <p>19</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div>	<p>c.</p> <p>19</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div>	<p>c.</p> <p>19</p> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; display: flex; justify-content: space-between; align-items: center;"> </div>

	<table border="1" style="margin: auto;"> <tr> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> MARRIAGE	1		<table border="1" style="margin: auto;"> <tr> <td style="width: 20px; height: 20px; text-align: center;">2</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> MARRIAGE	2	
1						
2						
C15. During this marriage, did you use any <u>other</u> tobacco products like snuff, chewing tobacco, pipe tobacco, or cigars? <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">IF YES</div> ↓	YES. . . 01 NO . . . 02+GO TO C16	YES. . . 01 NO . . . 02+GO TO C16				
a. What did you use?	a. SNUFF/CH. TOB. . . 01 PIPE 02 CIGARS 03 ANY COMBINATION OF THE ABOVE . . 04	a. SNUFF/CH. TOB. . . 01 PIPE 02 CIGARS 03 ANY COMBINATION OF THE ABOVE . . 04				
b. In what year did you first use other tobacco products in this marriage? <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">IF USED BEFORE MARRIAGE ENTER YEAR OF MARRIAGE.</div>	b. 19 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>			b. 19 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>		
c. In what year did you last use other tobacco products in this marriage? <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">IF MARRIAGE ENDED BEFORE STOPPED USING, ENTER YEAR MARRIAGE ENDED.</div>	c. 19 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>			c. 19 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>		

<div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div> <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px; vertical-align: middle;"></div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">4</div> <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px; vertical-align: middle;"></div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5</div> <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px; vertical-align: middle;"></div> MARRIAGE
YES. . . 01 NO . . . 02→GO TO C16	YES. . . 01 NO . . . 02→GO TO C16	YES. . . 01 NO . . . 02→GO TO C16
a. SNUFF/CH. TOB. . 01 PIPE 02 CIGARS 03 ANY COMBINATION OF THE ABOVE . . 04	a. SNUFF/CH. TOB. . 01 PIPE 02 CIGARS 03 ANY COMBINATION OF THE ABOVE . . 04	a. SNUFF/CH. TOB. . 01 PIPE 02 CIGARS 03 ANY COMBINATION OF THE ABOVE . . 04
b. 19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px;"></div>
c. 19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px;"></div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px;"></div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 20px; height: 15px;"></div>

	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> MARRIAGE
C16. During this marriage, how often did you drink an alcoholic beverage like beer, wine, or whiskey?	EVERY DAY. . . . 01 3-4 X/WK 02 1-2 X/WK 03 1-2 X/MO 04 < 1 X/MO 05 NEVER. 00 UNKNOWN. 94	EVERY DAY. . . . 01 3-4 X/WK 02 1-2 X/WK 03 1-2 X/MO 04 < 1 X/MO 05 NEVER. 00 UNKNOWN. 94
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">IF CODED 01, 02, 03, 04, OR 05</div> ↓	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">IF CODED 00 OR 94, GO TO C16d.</div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">IF CODED 00 OR 94, GO TO C16d.</div>
a. About how many cans, glasses, or drinks did you usually have on each occasion?	a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # DRINKS	a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # DRINKS
b. In what year did you first drink alcoholic beverages during this marriage? <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">IF DRANK BEFORE MARRIAGE ENTER YEAR OF MARRIAGE.</div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>
c. In what year did you last drink alcoholic beverages during this marriage? <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">IF MARRIAGE ENDED BEFORE STOPPED DRINKING, ENTER YEAR MARRIAGE ENDED.</div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>
d. REPEAT QUESTIONS 5-16 FOR THE NEXT MARRIAGE. IF NO MORE MARRIAGES, GO TO SECTION D. IF NEVER PREGNANT AND ALL MARRIAGES COVERED, THIS IS THE END OF THE INTERVIEW BUT COMPLETE SECTION J.		

<div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">4</div> MARRIAGE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5</div> MARRIAGE
EVERY DAY. . . . 01 3-4 X/WK 02 1-2 X/WK 03 1-2 X/MO 04 < 1 X/MO 05 NEVER. 00 UNKNOWN. 94 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> IF CODED 00 OR 94, GO TO C16d. </div>	EVERY DAY. . . . 01 3-4 X/WK 02 1-2 X/WK 03 1-2 X/MO 04 < 1 X/MO 05 NEVER. 00 UNKNOWN. 94 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> IF CODED 00 OR 94, GO TO C16d. </div>	EVERY DAY. . . . 01 3-4 X/WK 02 1-2 X/WK 03 1-2 X/MO 04 < 1 X/MO 05 NEVER. 00 UNKNOWN. 94 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> IF CODED 00 OR 94, GO TO C16d. </div>
a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # DRINKS	a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # DRINKS	a. <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div> # DRINKS
b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	b. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>
c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>	c. 19 <div style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></div>

D. PREGNANCY OUTCOME

D1. ENTER NUMBER OF PREGNANCIES FROM C1:

REVIEW D1: IF RESPONDENT NEVER PREGNANT ("00"), END INTERVIEW. IF "01" OR MORE ENTERED, CONTINUE.

IF A RESPONDENT REPORTS A MULTIPLE BIRTH, RECORD THE DETAILS ABOUT EACH BABY IN A SEPARATE PREGNANCY COLUMN. FOR EACH ADDITIONAL CHILD (2ND, 3RD, ETC.) BE CERTAIN THAT THE PREGNANCY NUMBER FOR EACH COLUMN MATCHES THAT OF THE 1ST OF THE MULTIPLE CHILDREN, RECODE QUESTIONS D2 AND D3, AND CONTINUE FROM D4 ASKING ABOUT EACH OF THE MULTIPLE BABIES.

In this part of the interview, I'll be asking some questions about each of your pregnancies. Let's start with your first pregnancy.

	PREGNANCY #	0	1	
D2. In which marriage did your (first/next) pregnancy occur? [USE NUMBERS ASSIGNED AT OR BEFORE Q.C4. CODE "00" IF UNMARRIED.]	<input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/>			
D3. How many weeks pregnant were you when you went to see a doctor?	<input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/>			
D4. Did your (1st, 2nd, etc.) pregnancy end with a live birth, miscarriage, stillbirth, induced abortion, tubal pregnancy, (or are you now pregnant)? OR FOR MULTIPLE BIRTHS: Was this baby live born or stillborn?	LIVE BIRTH. 01 + GO TO 20 MISCARRIAGE 02 + GO TO 9 STILLBIRTH. 03 + GO TO 14 INDUCED ABORTION. . 04 + GO TO 5 TUBAL PREGNANCY . . 05 + GO TO 8 NOW PREGNANT. . . . 06 + GO TO 19			

CODE PREGNANCY				CODE PREGNANCY			
PREGNANCY #	0			PREGNANCY #	0		
<div style="border: 1px solid black; width: 40px; height: 25px; margin: 0 auto;"></div>				<div style="border: 1px solid black; width: 40px; height: 25px; margin: 0 auto;"></div>			
<div style="border: 1px solid black; width: 40px; height: 25px; margin: 0 auto;"></div>				<div style="border: 1px solid black; width: 40px; height: 25px; margin: 0 auto;"></div>			
WEEKS PREGNANT				WEEKS PREGNANT			
LIVE BIRTH.	01	+	GO TO 20	LIVE BIRTH.	01	+	GO TO 20
MISCARRIAGE	02	+	GO TO 9	MISCARRIAGE	02	+	GO TO 9
STILLBIRTH.	03	+	GO TO 14	STILLBIRTH.	03	+	GO TO 14
INDUCED ABORTION.	04	+	GO TO 5	INDUCED ABORTION.	04	+	GO TO 5
TUBAL PREGNANCY	05	+	GO TO 8	TUBAL PREGNANCY	05	+	GO TO 8
NOW PREGNANT.	06	+	GO TO 19	NOW PREGNANT.	06	+	GO TO 19

		PREGNANCY #		
		0	1	
<div style="border: 1px solid black; padding: 2px; display: inline-block;">FOR INDUCED ABORTIONS</div>		19 <input type="text"/> <input type="text"/>		
D5. In what year did you have the abortion?				
D6. Did the medical person suggest you have an abortion for health reasons? <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px 0;">IF YES</div> ↓		YES 01 NO. 02 + GO TO D7		
a. What was the health reason? [RECORD VERBATIM <u>AND</u> CIRCLE CODE]		a. _____ _____ PROBLEM WITH MOTHER 01 PROBLEM WITH CHILD. 02 BOTH MOTHER AND CHILD 03		
D7. How many weeks pregnant were you when you had the abortion?		<input type="text"/> <input type="text"/> WEEKS PREGNANT		
IF ABORTION OCCURRED IN INDEX MARRIAGE, CONTINUE WITH SECTIONS E, F, G, AND H. IF IT OCCURRED IN ANY OTHER MARRIAGE, GO TO NEXT PREGNANCY.				
AFTER ALL PREGNANCIES/MULTIPLE BIRTHS, GO TO SECTION I.				

CODE PREGNANCY

CODE PREGNANCY

CODE PREGNANCY			CODE PREGNANCY		
PREGNANCY #	0		PREGNANCY #	0	
19	<input type="text"/>	<input type="text"/>	19	<input type="text"/>	<input type="text"/>
YES 01			YES 01		
NO. 02 + GO TO D7			NO. 02 + GO TO D7		
a.			a.		
_____			_____		
_____			_____		
PROBLEM WITH MOTHER 01			PROBLEM WITH MOTHER 01		
PROBLEM WITH CHILD. 02			PROBLEM WITH CHILD. 02		
BOTH MOTHER AND CHILD 03			BOTH MOTHER AND CHILD 03		
<input type="text"/> <input type="text"/> WEEKS PREGNANT			<input type="text"/> <input type="text"/> WEEKS PREGNANT		

		PREGNANCY #	
		0	1
FOR TUBAL PREGNANCIES			
D8. In what year was this pregnancy?		19	<input type="text"/>
a. What is the name and address of the hospital or doctor where you went for treatment of the tubal pregnancy?		HOSP: _____ DR: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
b. Will you give permission for us to obtain copies of the medical records?		YES 01 → COMPLETE PERMISSION WORK-SHEET NO. 02	
c. IF TUBAL PREGNANCY OCCURRED IN INDEX MARRIAGE, CONTINUE WITH SECTIONS E, F, G, AND H. IF IT OCCURRED IN ANOTHER MARRIAGE, GO TO NEXT PREGNANCY.			
AFTER ALL PREGNANCIES/MULTIPLE BIRTHS, GO TO SECTION I.			

CODE PREGNANCY

CODE PREGNANCY

PREGNANCY #	0			PREGNANCY #	0		
19	<input type="text"/>	<input type="text"/>		19	<input type="text"/>	<input type="text"/>	
<p>HOSP: _____</p> <p>DR: _____</p> <p>STREET: _____</p> <p>CITY: _____</p> <p>STATE: _____</p> <p>ZIP: <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/></p>				<p>HOSP: _____</p> <p>DR: _____</p> <p>STREET: _____</p> <p>CITY: _____</p> <p>STATE: _____</p> <p>ZIP: <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/></p>			
<p>YES 01 + COMPLETE PER- MISSION WORK- SHEET</p> <p>NO. 02</p>				<p>YES 01 + COMPLETE PER- MISSION WORK- SHEET</p> <p>NO. 02</p>			

	PREGNANCY #	0	1
FOR MISCARRIAGES			
D9. In what month and year did you miscarry?	<input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR		
D10. How many weeks pregnant were you when you miscarried?	<input type="text"/> <input type="text"/> WEEKS		
D11. In what city and state did the miscarriage occur?	CITY: _____ STATE: _____		
D12. Did you see a doctor or go to a hospital when you miscarried? <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">IF YES</div> ↓	YES 01 NO. 02 + GO TO D13a		
a. What is the name and address of the hospital or doctor?	HOSP: _____ DR: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
D13. Will you give permission for us to obtain copies of the medical records?	YES 01 + COMPLETE PER- MISSION WORK- SHEET NO. 02		
D13a. IF MISCARRIAGE OCCURRED IN INDEX MARRIAGE, CONTINUE WITH SECTIONS E, F, G, AND H. IF IT OCCURRED IN ANOTHER MARRIAGE, GO TO NEXT PREGNANCY.			
AFTER ALL PREGNANCIES/MULTIPLE BIRTHS, GO TO SECTION I.			

CODE PREGNANCY

CODE PREGNANCY

PREGNANCY # 0	PREGNANCY # 0
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="text"/> <input type="text"/> MONTH </div> <div style="text-align: center;"> , 19 <input type="text"/> <input type="text"/> YEAR </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="text"/> <input type="text"/> MONTH </div> <div style="text-align: center;"> , 19 <input type="text"/> <input type="text"/> YEAR </div> </div>
<div style="text-align: center;"> <input type="text"/> <input type="text"/> WEEKS </div>	<div style="text-align: center;"> <input type="text"/> <input type="text"/> WEEKS </div>
CITY: _____ STATE: _____	CITY: _____ STATE: _____
YES 01 NO. 02 + GO TO D13a	YES 01 NO. 02 + GO TO D13a
HOSP: _____ DR: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	HOSP: _____ DR: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
YES 01 + COMPLETE PER- MISSION WORK- SHEET NO. 02	YES 01 + COMPLETE PER- MISSION WORK- SHEET NO. 02

	PREGNANCY #	0	1
FOR STILLBIRTHS			
D14. In what month and year did the stillbirth occur?	<input type="text"/> <input type="text"/> , 19 <input type="text"/> <input type="text"/> MONTH YEAR		
D15. Did the doctor say the baby was born early, late, or on time?	EARLY 01 LATE 03 ON TIME 02 } DON'T KNOW. . 94 } + GO TO D16		
<div style="border: 1px solid black; display: inline-block; padding: 2px;">IF EARLY OR LATE</div> ↓ a. How many weeks?	a. <input type="text"/> <input type="text"/> WEEKS		
D16. Did the baby have any birth defects?	YES 01 NO. 02 + GO TO D17		
<div style="border: 1px solid black; display: inline-block; padding: 2px;">IF YES</div> ↓ a. What type of birth defect? [RECORD VERBATIM.]	DEFECTS _____ _____ _____ OFFICE USE _____ _____ OFFICE USE		
D17. In what city and state did this birth occur?	CITY: _____ STATE: _____		
D18. What was the name and address of your hospital and doctor?	HOSP: _____ DR: _____ STREET: _____ CITY: _____ STATE: ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
D19. Will you give permission for us to obtain medical records? IF STILLBIRTH OCCURRED IN INDEX MARRIAGE, CONTINUE WITH SECTIONS E, F, G, AND H. IF IT OCCURRED IN ANOTHER MARRIAGE, GO TO NEXT PREGNANCY.	YES 01 + COMPLETE PERMISSION WORKSHEET. NO. 02 [SEE SKIP INSTRUCTIONS IN QUESTION COLUMN.]		

AFTER ALL PREGNANCIES/MULTIPLE BIRTHS,
GO TO SECTION I.

CODE PREGNANCY

CODE PREGNANCY

PREGNANCY # 0	PREGNANCY # 0
[] [] , 19 [] [] MONTH YEAR	[] [] , 19 [] [] MONTH YEAR
EARLY 01 LATE 03 ON TIME 02))+ GO TO D16 DON'T KNOW. . . 94)	EARLY 01 LATE 03 ON TIME 02))+ GO TO D16 DON'T KNOW. . . 94)
a. [] [] WEEKS	a. [] [] WEEKS
YES 01 NO. 02 + GO TO D17	YES 01 NO. 02 + GO TO D17
DEFECTS _____ _____ [] [] [] [] OFFICE USE	DEFECTS _____ _____ [] [] [] [] OFFICE USE
_____ [] [] [] [] OFFICE USE	_____ [] [] [] [] OFFICE USE
CITY: _____ STATE: _____	CITY: _____ STATE: _____
HOSP: _____ DR: _____	HOSP: _____ DR: _____
STREET: _____ CITY: _____	STREET: _____ CITY: _____
STATE: ZIP: [] [] [] [] []	STATE: ZIP: [] [] [] [] []
YES 01 + COMPLETE PERMIS- SION WORKSHEET. NO. 02 [SEE SKIP INSTRUCTIONS IN QUESTION COLUMN.]	YES 01 + COMPLETE PERMIS- SION WORKSHEET. NO. 02 [SEE SKIP INSTRUCTIONS IN QUESTION COLUMN.]

	PREGNANCY #	0	1
FOR LIVE BIRTHS	<input type="text"/> <input type="text"/>	, 19	<input type="text"/> <input type="text"/>
D20. In what month and year was your baby born?	MONTH		YEAR
D21. Did the doctor say your baby was born early, late, or on time?	EARLY 01	LATE 03	
IF EARLY OR LATE	ON TIME 02)	} → GO TO D22	
↓	DON'T KNOW. . 94)		
a. How many weeks (early/late)?	<input type="text"/> <input type="text"/>	WEEKS	
D22. In what city and state was your baby born?	CITY:	_____	
	STATE:	_____	
D23. What was the name and address of your hospital and doctor?	HOSP:	_____	
	DR:	_____	
	STREET:	_____	
	CITY:	_____	
	STATE:	ZIP:	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
D24. Was it a boy or a girl?	BOY 01		
	GIRL 02		
D25. How much (# LBS/OZS) did he/she weigh at birth?	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	
	LBS	OZS	
a. Will you give permission for us to obtain copies of the medical records?	YES 01	→ COMPLETE PERMISSION WORKSHEET	
	NO. 02		

CODE PREGNANCY

CODE PREGNANCY

PREGNANCY # <input type="text" value="0"/> <input type="text"/> <input type="text"/>	PREGNANCY # <input type="text" value="0"/> <input type="text"/> <input type="text"/>
<input style="width: 30px; height: 20px;" type="text"/> , 19 <input style="width: 30px; height: 20px;" type="text"/> MONTH YEAR	<input style="width: 30px; height: 20px;" type="text"/> , 19 <input style="width: 30px; height: 20px;" type="text"/> MONTH YEAR
EARLY 01 LATE 03 ON TIME 02 } }+ GO TO D22 DON'T KNOW. . 94 }	EARLY 01 LATE 03 ON TIME 02 } }+ GO TO D22 DON'T KNOW. . 94 }
----- a. <input style="width: 30px; height: 20px;" type="text"/> WEEKS	----- a. <input style="width: 30px; height: 20px;" type="text"/> WEEKS
CITY: _____	CITY: _____
STATE: _____	STATE: _____
HOSP: _____	HOSP: _____
DR: _____	DR: _____
STREET: _____	STREET: _____
CITY: _____	CITY: _____
STATE: _____ ZIP: <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/>	STATE: _____ ZIP: <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/> <input style="width: 20px; height: 15px;" type="text"/>
BOY 01 GIRL. 02	BOY 01 GIRL. 02
<input style="width: 30px; height: 20px;" type="text"/> <input style="width: 30px; height: 20px;" type="text"/> LBS OZS	<input style="width: 30px; height: 20px;" type="text"/> <input style="width: 30px; height: 20px;" type="text"/> LBS OZS
YES 01 + COMPLETE PER- MISSION WORKSHEET NO. 02	YES 01 + COMPLETE PER- MISSION WORKSHEET NO. 02

		PREGNANCY #	
		0	1
<p>D26. Was he/she born with any birth defects?</p> <p>IF YES</p> <p>↓</p>	<p>YES 01</p> <p>NO. 02 + GO TO D27</p>		
<p>a. What type of birth defect?</p> <p>[RECORD VERBATIM.]</p>	<p><u>DEFECTS:</u></p> <hr/> <div style="display: flex; justify-content: flex-end; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> <p style="text-align: right;">OFFICE USE</p> <hr/> <div style="display: flex; justify-content: flex-end; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> <p style="text-align: right;">OFFICE USE</p>		

CODE PREGNANCY

CODE PREGNANCY

CODE PREGNANCY				CODE PREGNANCY			
PREGNANCY #	0			PREGNANCY #	0		
YES 01				YES 01			
NO. 02 + GO TO D27				NO. 02 + GO TO D27			
<u>DEFECTS:</u>				<u>DEFECTS:</u>			
_____				_____			
_____			<input type="checkbox"/>	_____			<input type="checkbox"/>
OFFICE USE				OFFICE USE			
_____				_____			
_____			<input type="checkbox"/>	_____			<input type="checkbox"/>
OFFICE USE				OFFICE USE			

		PREGNANCY #	
		0	1
D27. Did a doctor find any (OTHER) birth defects later?	YES 01 NO. 02 → GO TO D28		
IF YES			
↓			
a. What type of birth defect? [RECORD VERBATIM.]	<u>DEFECTS:</u> <hr/> <div style="text-align: right;"> <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/> OFFICE USE </div> <hr/> <div style="text-align: right;"> <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/> OFFICE USE </div>		
b. What was his/her age when this was found? [CODE THE APPROPRIATE LABEL.]	b. <input type="text"/> <input type="text"/> DAYS 01 <input type="text"/> <input type="text"/> MONTHS 02 <input type="text"/> <input type="text"/> YEARS. 03		
c. What was the name and address of your hospital and doctor?	HOSP: _____ DR: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
d. Will you give permission for us to obtain medical records?	YES 01 → COMPLETE PERMISSION WORKSHEET NO. 02		

CODE PREGNANCY

CODE PREGNANCY

PREGNANCY #	0			PREGNANCY #	0		
YES 01				YES 01			
NO. 02 + GO TO D28				NO. 02 + GO TO D28			
DEFECTS:				DEFECTS:			
_____				_____			
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>				<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			
OFFICE USE				OFFICE USE			
_____				_____			
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>				<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			
OFFICE USE				OFFICE USE			
b. <input type="text"/> <input type="text"/> DAYS 01				b. <input type="text"/> <input type="text"/> DAYS 01			
MONTHS 02				MONTHS 02			
YEARS. 03				YEARS. 03			
HOSP: _____				HOSP: _____			
DR: _____				DR: _____			
STREET: _____				STREET: _____			
CITY: _____				CITY: _____			
STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>				STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			
YES 01 + COMPLETE PERMIS- SION WORKSHEET				YES 01 + COMPLETE PERMIS- SION WORKSHEET			
NO. 02				NO. 02			

		PREGNANCY #		0	1							
D23. Was he/she found to have any mental condition such as mental retardation or a learning disability which required special care or education?		YES 01 + GO TO a.										
		NO. 02 +GO TO CHECKPOINT ON PAGE D-19										
a. What is the condition? [RECORD VERBATIM.]		<u>CONDITION:</u>										

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		OFFICE USE										

		<table border="1"> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										
		OFFICE USE										

CODE PREGNANCY

CODE PREGNANCY

CODE PREGNANCY				CODE PREGNANCY											
PREGNANCY #	0			PREGNANCY #	0										
YES 01 + GO TO a.				YES 01 + GO TO a.											
NO. 02 +GO TO CHECKPOINT ON PAGE D-19				NO. 02 +GO TO CHECKPOINT ON PAGE D-19											
<u>CONDITION:</u>				<u>CONDITION:</u>											
_____				_____											
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OFFICE USE				OFFICE USE											
_____				_____											
<table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> </tr> </table>								<table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> </tr> </table>							
OFFICE USE				OFFICE USE											

CHECKPOINT	PREGNANCY #	0	1	
<p>IS THERE A YES ANSWER FOR QUESTION D26, D27, OR D28?</p>	<p>YES 01 NO. 02 + GO TO D30</p>			
<p>D29. Does any relative have the same (birth defect(s)/mental condition(s)/birth defect(s) or mental condition(s))?</p> <p>IF YES</p> <p>↓</p>	<p>YES 01 NO. 02 + GO TO D30</p>			
<p>a. What is the condition?</p>	<p><u>CONDITION:</u></p> <p>_____</p> <p>_____ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p> <p>_____</p> <p>_____ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p>			
<p>b. What is this relative's relationship to you?</p>	<p><u>RELATIONSHIP:</u></p> <p>_____</p> <p>_____ <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p> <p><u>RELATIONSHIP:</u></p> <p>_____</p> <p>_____ <input type="checkbox"/> <input type="checkbox"/></p> <p>OFFICE USE</p>			
<p>D30. IF LIVE BIRTH OCCURRED IN INDEX MARRIAGE, CONTINUE WITH SECTIONS E, F, G, AND H. IF IT OCCURRED IN ANOTHER MARRIAGE, RETURN TO D2 FOR NEXT PREGNANCY.</p>				
<p>AFTER ALL PREGNANCIES/MULTIPLE BIRTHS, GO TO SECTION I.</p>				

CODE PREGNANCY

CODE PREGNANCY

PREGNANCY #	0			PREGNANCY #	0										
YES 01				YES 01											
NO. 02 → GO TO D30				NO. 02 → GO TO D30											
YES 01				YES 01											
NO. 02 → GO TO D30				NO. 02 → GO TO D30											
<u>CONDITION:</u>				<u>CONDITION:</u>											
_____				_____											
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>								<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>							
OFFICE USE				OFFICE USE											
_____				_____											
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>								<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>							
OFFICE USE				OFFICE USE											
<u>RELATIONSHIP:</u>				<u>RELATIONSHIP:</u>											
_____				_____											
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>						<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>									
OFFICE USE				OFFICE USE											
<u>RELATIONSHIP:</u>				<u>RELATIONSHIP:</u>											
_____				_____											
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>						<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>									
OFFICE USE				OFFICE USE											

E. CONTRACEPTIVE HISTORY

INTERVIEWER: REMEMBER THAT SECTIONS E, F, G, AND H ARE ONLY TO BE ASKED FOR PREGNANCIES BY THE INDEX MALE. IF THE SECOND DIGIT OF THE MARRIAGE IDENTIFIER (Q.D2) IS A "1", ASK SECTIONS E, F, G, AND H.

<p>E1. ENTER PREGNANCY NUMBER FROM SECTION D.</p>	<p style="text-align: center;">PREGNANCY <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/></p>
<p>E2. At the time you became pregnant, were you and your husband using birth control?</p> <p style="margin-left: 20px;"><input style="border: 1px solid black; padding: 2px 5px;" type="text" value="IF YES"/></p> <p style="margin-left: 20px;">↓</p>	<p>YES 01</p> <p>NO. 02 + GO TO E2b</p>
<p>a. What kind of birth control were you using?</p> <p style="margin-left: 20px;">CIRCLE ONLY ONE RESPONSE CODE.</p>	<p>PILL. 01 + GO TO E3</p> <p>IUD 02 + GO TO E4</p> <p>DIAPHRAGM 03)</p> <p>FOAMS 04 </p> <p>CONDOMS 05 </p> <p>RHYTHM/ ABSTINENCE. 06 } +GO TO E5</p> <p>OTHER 07 </p> <p>COMBINATION OF DIAPHRAGM/FOAM, CONDOM/FOAM, OR OTHER COMBINATION WITH FOAM 08 J</p>
<p>b. What was the last kind of birth control that you used? [USE CODES FROM ABOVE. IF NONE, ENTER "00".]</p>	<p style="text-align: center;"><input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> BIRTH CONTROL</p> <p>[FOLLOW SKIPS FROM 2a. IF "00" IS ENTERED, GO TO SECTION F, MEDICAL HISTORY.]</p>

PREGNANCY <input type="text"/> <input type="text"/>	PREGNANCY <input type="text"/> <input type="text"/>
YES 01 NO. 02 → GO TO E2b	YES 01 NO. 02 → GO TO E2b
PILL. 01 → GO TO E3 IUD 02 → GO TO E4 DIAPHRAGM 03 } FOAMS 04 } CONDOMS 05 } RHYTHM/ ABSTINENCE. 06 } → GO TO E5 OTHER 07 } COMBINATION OF DIAPHRAGM/FOAM, CONDOM/FOAM, OR OTHER COMBINATION WITH FOAM 08 }	PILL. 01 → GO TO E3 IUD 02 → GO TO E4 DIAPHRAGM 03 } FOAMS 04 } CONDOMS 05 } RHYTHM/ ABSTINENCE. 06 } → GO TO E5 OTHER 07 } COMBINATION OF DIAPHRAGM/FOAM, CONDOM/FOAM, OR OTHER COMBINATION WITH FOAM 08 }
<input type="text"/> <input type="text"/> BIRTH CONTROL [FOLLOW SKIPS FROM 2a. IF "00" IS ENTERED, GO TO SECTION F, MEDICAL HISTORY.]	<input type="text"/> <input type="text"/> BIRTH CONTROL [FOLLOW SKIPS FROM 2a. IF "00" IS ENTERED, GO TO SECTION F, MEDICAL HISTORY.]

ENTER PREGNANCY NUMBER FROM SECTION D.

PREGNANCY

--	--

IF USED THE PILL

E3. How many months before/after you became pregnant did you stop taking the pill?

--	--

MONTHS

[GO TO SECTION F,
MEDICAL HISTORY]

IF HAD IUD

E4. How many months before/after you became pregnant was it removed?

--	--

MONTHS

[GO TO SECTION F,
MEDICAL HISTORY]

IF USED ANY OTHER TYPE

E5. How many months before/after you became pregnant did you stop using (TYPE CODED IN E2a.)?

--	--

MONTHS

[GO TO SECTION F,
MEDICAL HISTORY]

PREGNANCY <input type="text"/> <input type="text"/>	PREGNANCY <input type="text"/> <input type="text"/>
<input type="text"/> <input type="text"/> MONTHS [GO TO SECTION F, MEDICAL HISTORY]	<input type="text"/> <input type="text"/> MONTHS [GO TO SECTION F, MEDICAL HISTORY]
<input type="text"/> <input type="text"/> MONTHS [GO TO SECTION F, MEDICAL HISTORY]	<input type="text"/> <input type="text"/> MONTHS [GO TO SECTION F, MEDICAL HISTORY]
<input type="text"/> <input type="text"/> MONTHS [GO TO SECTION F, MEDICAL HISTORY]	<input type="text"/> <input type="text"/> MONTHS [GO TO SECTION F, MEDICAL HISTORY]

F. MEDICAL HISTORY

F1. ENTER PREGNANCY NUMBER FROM SECTION E.	PREGNANCY #					
F2. Thinking back to around the time when you became pregnant, were you given any pills or injections to start your period?	YES 01 NO. 02 DON'T KNOW. . . 94 REFUSED 97					
F3. At any time during this pregnancy, did a doctor tell you that you had a kidney or bladder condition? <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">IF YES</div> ↓	YES 01 NO. 02 + GO TO F4					
a. What was the condition? ↓	a. URINARY/BLADDER INFECTION . . 01 KIDNEY STONES 02 OTHER (SPECIFY) 03					
b. In which month of pregnancy did the doctor first tell you that you had (CONDITION FROM F3a.)? [CODE 1-9]	b. <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> MONTH					
c. Were you given any kind of medicine/treatment? <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">IF YES</div> ↓	c. YES 01 NO. 02 + GO TO F4					
d. What medicine/treatment were you given?	d. <div style="text-align: right; margin-bottom: 5px;">OFFICE USE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></div> DON'T KNOW 94 REFUSED. 97					
F4. At the time you became pregnant, did a doctor tell you that you were anemic?	YES 01 NO. 02					

PREGNANCY #		PREGNANCY #	
YES 01		YES 01	
NO. 02		NO. 02	
DON'T KNOW. . . 94		DON'T KNOW. . . 94	
REFUSED 97		REFUSED 97	
YES 01		YES 01	
NO. 02 + GO TO F4		NO. 02 + GO TO F4	
a.		a.	
URINARY/BLADDER INFECTION . . 01		URINARY/BLADDER INFECTION . . 01	
KIDNEY STONES 02		KIDNEY STONES 02	
OTHER (SPECIFY) 03		OTHER (SPECIFY) 03	
b.	<input type="checkbox"/> MONTH	b.	<input type="checkbox"/> MONTH
c. YES 01		c. YES 01	
NO. 02 + GO TO F4		NO. 02 + GO TO F4	
d.		d.	
OFFICE USE	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFFICE USE	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
DON'T KNOW 94		DON'T KNOW 94	
REFUSED. 97		REFUSED. 97	
YES 01		YES 01	
NO. 02		NO. 02	

ENTER PREGNANCY NUMBER FROM SECTION E.

ENTER PREGNANCY NUMBER FROM SECTION E.	PREGNANCY #				
<p>F3. During this pregnancy, did you ever take: ([IF UNCERTAIN SAY:] Can you remember at least one time during the pregnancy when you took . . .)</p>					
<p>a. Aspirin or Tylenol (aspirin substitute)? [PLEASE SPECIFY]</p>	<p>a. YES . . 01 NO. . . 02 + GO TO b</p>	<p>SPECIFY: _____</p>	<p>OFFICE USE</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<p>b. Cold pills/antihistamines [PLEASE SPECIFY]</p>	<p>b. YES . . 01 NO. . . 02 + GO TO c</p>	<p>SPECIFY: _____</p>	<p>OFFICE USE</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<p>c. Diet pills [PLEASE SPECIFY]</p>	<p>c. YES . . 01 NO. . . 02 + GO TO d</p>	<p>SPECIFY: _____</p>	<p>OFFICE USE</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<p>d. Antibiotics/pills for infections (OTHER THAN THOSE LISTED IN F3.) [PLEASE SPECIFY]</p>	<p>d. YES . . 01 NO. . . 02 + GO TO e</p>	<p>SPECIFY: _____</p>	<p>OFFICE USE</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<p>e. Sleeping pills/nerve medicines [PLEASE SPECIFY]</p>	<p>e. YES . . 01 NO. . . 02 + GO TO f</p>	<p>SPECIFY: _____</p>	<p>OFFICE USE</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<p>f. Diuretics/water pills [PLEASE SPECIFY]</p>	<p>f. YES . . 01 NO. . . 02 + GO TO g</p>	<p>SPECIFY: _____</p>	<p>OFFICE USE</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

PREGNANCY #				PREGNANCY #			
a. YES . . 01 NO. . . 02 + GO TO b SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				a. YES . . 01 NO. . . 02 + GO TO b SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
b. YES . . 01 NO. . . 02 + GO TO c SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				b. YES . . 01 NO. . . 02 + GO TO c SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
c. YES . . 01 NO. . . 02 + GO TO d SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				c. YES . . 01 NO. . . 02 + GO TO d SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
d. YES . . 01 NO. . . 02 + GO TO e SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				d. YES . . 01 NO. . . 02 + GO TO e SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
e. YES . . 01 NO. . . 02 + GO TO f SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				e. YES . . 01 NO. . . 02 + GO TO f SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
f. YES . . 01 NO. . . 02 + GO TO g SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				f. YES . . 01 NO. . . 02 + GO TO g SPECIFY: _____ OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			

ENTER PREGNANCY NUMBER FROM SECTION E.

PREGNANCY #				
FE. During this pregnancy, did you ever take: ([IF UNCERTAIN SAY:] Can you remember at least one time during the pregnancy when you took . . .)				
g. Prenatal vitamins or other multivitamin supplements? [PLEASE SPECIFY]				
IF YES ↓				
1) During which trimesters did you take any of these medications?				
1ST TRIMESTER . . . 01 2ND TRIMESTER . . . 02 3RD TRIMESTER . . . 03		[CODE ALL ANSWERS]		
h. Anti-nausea pills? [PLEASE SPECIFY]				
IF YES ↓				
1) During which trimesters in this pregnancy did you take anti-nausea pills?				
1ST TRIMESTER . . . 01 2ND TRIMESTER . . . 02 3RD TRIMESTER . . . 03		[CODE ALL ANSWERS]		
i. Medicine to prevent miscarriage? [PLEASE SPECIFY]				
IF YES ↓				
1) During which trimesters in this pregnancy did you take (MEDICINE FROM i)?				
1ST TRIMESTER . . . 01 2ND TRIMESTER . . . 02 3RD TRIMESTER . . . 03		[CODE ALL ANSWERS]		

PREGNANCY #				PREGNANCY #			
g. YES . . 01 NO. . . 02 + GO TO h SPECIFY: _____				g. YES . . 01 NO. . . 02 + GO TO h SPECIFY: _____			
OFFICE USE				OFFICE USE			
1ST TRIMESTER . . .	01	[CODE ALL ANSWERS]		1ST TRIMESTER . . .	01	[CODE ALL ANSWERS]	
2ND TRIMESTER . . .	02			2ND TRIMESTER . . .	02		
3RD TRIMESTER . . .	03			3RD TRIMESTER . . .	03		
h. YES . . 01 NO. . . 02 + GO TO i SPECIFY: _____				h. YES . . 01 NO. . . 02 + GO TO i SPECIFY: _____			
OFFICE USE				OFFICE USE			
1ST TRIMESTER . . .	01	[CODE ALL ANSWERS]		1ST TRIMESTER . . .	01	[CODE ALL ANSWERS]	
2ND TRIMESTER . . .	02			2ND TRIMESTER . . .	02		
3RD TRIMESTER . . .	03			3RD TRIMESTER . . .	03		
i. YES . . 01 NO. . . 02 + GO TO F6 SPECIFY: _____				i. YES . . 01 NO. . . 02 + GO TO F6 SPECIFY: _____			
OFFICE USE				OFFICE USE			
1ST TRIMESTER . . .	01	[CODE ALL ANSWERS]		1ST TRIMESTER . . .	01	[CODE ALL ANSWERS]	
2ND TRIMESTER . . .	02			2ND TRIMESTER . . .	02		
3RD TRIMESTER . . .	03			3RD TRIMESTER . . .	03		

PREGNANCY #	PREGNANCY #
YES 01 NO. 02 → GO TO F7 SPECIFY: _____ <div style="text-align: right; margin-right: 50px;">OFFICE USE</div> <div style="text-align: right; margin-right: 50px;"> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> </div>	YES 01 NO. 02 → GO TO F7 SPECIFY: _____ <div style="text-align: right; margin-right: 50px;">OFFICE USE</div> <div style="text-align: right; margin-right: 50px;"> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> </div>
YES 01 NO. 02	YES 01 NO. 02
<div style="display: inline-block; border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> POUNDS	<div style="display: inline-block; border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> POUNDS
YES (HOSPITAL). . . 01 YES (HOME). . . . 03 YES (BOTH). . . . 04 NO. 02 → GO TO F10	YES (HOSPITAL). . . 01 YES (HOME). . . . 03 YES (BOTH). . . . 04 NO. 02 → GO TO F10
a. _____ _____ <div style="text-align: right; margin-right: 50px;">OFFICE USE</div> _____ _____ <div style="text-align: right; margin-right: 50px;">OFFICE USE</div>	a. _____ _____ <div style="text-align: right; margin-right: 50px;">OFFICE USE</div> _____ _____ <div style="text-align: right; margin-right: 50px;">OFFICE USE</div>

ENTER PREGNANCY NUMBER FROM SECTION E.

PREGNANCY #			
-------------	--	--	--

F10. Did you have (any/any other) accidents or injuries, such as falls or auto accidents during this pregnancy for which you saw a doctor?

YES 01
NO. 02 + GO TO F11

IF YES



a. What kind of injury?

a.

_____ OFFICE USE

_____ OFFICE USE

_____ OFFICE USE

b. In which month of this pregnancy did the injury happen? [CODE 1-9]

b. MONTH

ENTER PREGNANCY NUMBER FROM SECTION E.

PREGNANCY #			
-------------	--	--	--

F11. Did you have any kind of an x-ray while you were pregnant or in the 3 months before you became pregnant?

IF YES

↓

YES 01
NO 02 }
DON'T KNOW 94 } + GO TO F12
REFUSED 97 }

a. Which month of this pregnancy were you x-rayed? [CODE EARLIEST MONTH, 1-9, OR IF BEFORE, CODE 0.]

MONTH

b. What part of your body was x-rayed?

IF ABDOMINAL AREA
NECK TO PELVIS

ALL OTHER BODY
AREAS, GO TO F12

↓

b.

--	--	--	--

OFFICE USE

--	--	--	--

OFFICE USE

c. Why were you x-rayed?

c.

d. Was a shield or some type of metal placed over your abdomen?

d. YES 01
NO 02
DON'T KNOW 94
REFUSED 97

F12. During this pregnancy, did you have any illnesses where you had a fever or rash?

IF YES

↓

YES 01
NO 02 }
DON'T KNOW 94 } + GO TO F13
REFUSED 97 }

a. What kind of illness?

a.

--	--	--	--

OFFICE USE

ENTER PREGNANCY NUMBER FROM SECTION E.

PREGNANCY #				
YES	01			
NO.	02	} + GO TO F14		
DON'T KNOW. . . .	94			
REFUSED	97			
a. What was it?	a.			
	(1)	_____	<input type="checkbox"/>	<input type="checkbox"/>
		_____	<input type="checkbox"/>	<input type="checkbox"/>
			OFFICE USE	
	(2)	_____	<input type="checkbox"/>	<input type="checkbox"/>
		_____	<input type="checkbox"/>	<input type="checkbox"/>
			OFFICE USE	
b. In what month of your pregnancy did you have (ILLNESS FROM a.)?	b.			
	(1)	<input type="checkbox"/>	MONTH	
	(2)	<input type="checkbox"/>	MONTH	
F14. Did a doctor ever tell you that you had high blood pressure or hypertension during this pregnancy?	YES	01		
	NO.	02		
	DON'T KNOW. . . .	94		
	REFUSED	97		
F15. Did a doctor ever tell you that you had toxemia, or eclampsia during this pregnancy?	YES	01		
	NO.	02		
	DON'T KNOW. . . .	94		
	REFUSED	97		
F16. Did a doctor every tell you that you had preeclampsia during this pregnancy?	YES	01		
	NO.	02		
	DON'T KNOW. . . .	94		
	REFUSED	97		

F13. Can you remember having any any other infections, contagious diseases or other illnesses that we haven't talked about? [INCLUDE INFLUENZA, EXCLUDE COLDS.]

IF YES



PREGNANCY #		PREGNANCY #	
YES 01	} + GO TO F14	YES 01	} + GO TO F14
NO. 02		NO. 02	
DON'T KNOW. . . . 94		DON'T KNOW. . . . 94	
REFUSED 97		REFUSED 97	
a. (1) _____		a. (1) _____	
_____	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	_____	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
OFFICE USE		OFFICE USE	
a. (2) _____		a. (2) _____	
_____	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	_____	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
OFFICE USE		OFFICE USE	
b. (1) <input type="text"/> MONTH		b. (1) <input type="text"/> MONTH	
(2) <input type="text"/> MONTH		(2) <input type="text"/> MONTH	
YES 01		YES 01	
NO. 02		NO. 02	
DON'T KNOW. . . . 94		DON'T KNOW. . . . 94	
REFUSED 97		REFUSED 97	
YES 01		YES 01	
NO. 02		NO. 02	
DON'T KNOW. . . . 94		DON'T KNOW. . . . 94	
REFUSED 97		REFUSED 97	
YES 01		YES 01	
NO. 02		NO. 02	
DON'T KNOW. . . . 94		DON'T KNOW. . . . 94	
REFUSED 97		REFUSED 97	

G. WORK HISTORY

G1. ENTER PREGNANCY NUMBER FROM SECTION F.

PREGNANCY

--	--

G2. Did you work outside the home at any time during this pregnancy or during the 3 months before you became pregnant?

YES 01

NO. 02 + GO TO SECTION H

IF YES



a. During which months of this pregnancy did you work? [CODE 1 TO 9; CODE "0" IF BEGAN BEFORE PREGNANCY.]

TO MONTHS

b. What was the company's name?

b. COMPANY NAME

c. What kind of company was it? (What did they do/make there?)

c. _____

OFFICE USE

--	--	--

d. What was your job title?

JOB TITLE: _____

OFFICE USE

--	--	--

e. What were your duties at this job? (What kind of work did you do most of the time?)

DUTIES: _____

f. While you were working during this pregnancy, did you...

f.

1) do heavy lifting

1) YES . . . 01 NO . . . 02

2) do continual standing/walking

2) YES . . . 01 NO . . . 02

3) do continual sitting

3) YES . . . 01 NO . . . 02

4) work with tools that vibrate?

4) YES . . . 01 NO . . . 02

PREGNANCY <input type="checkbox"/> <input type="checkbox"/>	PREGNANCY <input type="checkbox"/> <input type="checkbox"/>
YES 01 NO. 02 → GO TO SECTION H	YES 01 NO. 02 → GO TO SECTION H
<input type="checkbox"/> TO <input type="checkbox"/> MONTHS	<input type="checkbox"/> TO <input type="checkbox"/> MONTHS
b. COMPANY NAME <hr/> <hr/>	b. COMPANY NAME <hr/> <hr/>
c. <hr/> <hr/> OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	c. <hr/> <hr/> OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
JOB TITLE: <hr/> <hr/> OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	JOB TITLE: <hr/> <hr/> OFFICE USE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
DUTIES: <hr/> <hr/>	DUTIES: <hr/> <hr/>
f. 1) YES . . . 01 NO . . . 02 2) YES . . . 01 NO . . . 02 3) YES . . . 01 NO . . . 02 4) YES . . . 01 NO . . . 02	f. 1) YES . . . 01 NO . . . 02 2) YES . . . 01 NO . . . 02 3) YES . . . 01 NO . . . 02 4) YES . . . 01 NO . . . 02

ENTER PREGNANCY NUMBER FROM SECTION F.

PREGNANCY

--	--

g. During this pregnancy did you work with any chemicals?

IF YES



g. YES . . . 01

NO . . . 02 → GO TO G2h.

1) What chemicals did you work with?

1)

_____	OFFICE USE

_____	OFFICE USE

_____	OFFICE USE

h. During this pregnancy, did you work with any radiation, like x-rays, fluoroscopy, radioisotopes, or microwaves?

IF YES



h. YES . . . 01

NO . . . 02 → GO TO SECTION H

1) What types of radiation did you work with?

1)

_____	OFFICE USE

_____	OFFICE USE

PREGNANCY

g. YES . . . 01
NO . . . 02 + GO TO G2h.

1)

OFFICE
USE

OFFICE
USE

OFFICE
USE

PREGNANCY

g. YES . . . 01
NO . . . 02 + GO TO G2h.

1)

OFFICE
USE

OFFICE
USE

OFFICE
USE

h. YES . . . 01
NO . . . 02 + GO TO SECTION H

1)

OFFICE
USE

OFFICE
USE

h. YES . . . 01
NO . . . 02 + GO TO SECTION H

1)

OFFICE
USE

OFFICE
USE

H. SOCIAL HISTORY

ENTER PREGNANCY NUMBER FROM F1.

PREGNANCY #			
-------------	--	--	--

H1. During the 3 months before you were pregnant, did you smoke 1 or more cigarettes per day?

IF YES

↓

YES 01
NO. 02 → GO TO H2

a. About how many cigarettes did you smoke a day?

a. CIGARETTES/DAY

H2. Did you smoke 1 or more cigarettes a day during this pregnancy?

IF YES

↓

YES 01
NO. 02 → GO TO H3

a. During which months did you smoke?
[CODE 1-9]

a. to MONTHS SMOKED

b. About how many cigarettes did you usually smoke a day?

b. CIGARETTES SMOKED

H3. During this pregnancy, did you use any other tobacco products like snuff, pipe tobacco, or cigars?

IF YES

↓

YES 01
NO. 02 → GO TO H4

a. What did you use?

a. SNUFF 01
PIPE. 02
CIGARS. 03
ANY COMBINATION OF THE ABOVE. . . . 04

b. During which months of pregnancy did you did you use (it/them)? [CODE 1-9]

b. to MONTHS USED

PREGNANCY #		PREGNANCY #	
YES 01		YES 01	
NO. 02 + GO TO H2		NO. 02 + GO TO H2	
a. <input type="text"/> <input type="text"/> CIGARETTES/DAY		a. <input type="text"/> <input type="text"/> CIGARETTES/DAY	
YES 01		YES 01	
NO. 02 + GO TO H3		NO. 02 + GO TO H3	
a. <input type="text"/> to <input type="text"/> MONTHS SMOKED		a. <input type="text"/> to <input type="text"/> MONTHS SMOKED	
b. <input type="text"/> <input type="text"/> CIGARETTES SMOKED		b. <input type="text"/> <input type="text"/> CIGARETTES SMOKED	
YES 01		YES 01	
NO. 02 + GO TO H4		NO. 02 + GO TO H4	
a. SNUFF 01		a. SNUFF 01	
PIPE. 02		PIPE. 02	
CIGARS. 03		CIGARS. 03	
ANY COMBINATION OF THE ABOVE. . . . 04		ANY COMBINATION OF THE ABOVE. . . . 04	
b. <input type="text"/> to <input type="text"/> MONTHS USED		b. <input type="text"/> to <input type="text"/> MONTHS USED	

ENTER PREGNANCY NUMBER FROM F1.

PREGNANCY #

H4. During the 3 months before you were pregnant, how often did you drink an alcoholic beverage (beer, wine, or whiskey)?

- ALMOST EVERY DAY01
- 3-4 TIMES/WEEK02
- 1-2 TIMES/WEEK03
- 1-2 TIMES/MONTH. . . .04
- LESS THAN 1/MONTH. . .05
- NOT AT ALL06 } +GO TO H5
- DON'T KNOW94 } +GO TO H5
- REFUSED.97 }

IF YOU DID DRINK



a. About how many cans, glasses, or drinks did you usually have on each occasion?

a. DRINKS

H5. When you were pregnant how often did you drink an alcoholic beverage?

- ALMOST EVERY DAY . . .01
- 3-4 TIMES/WEEK02
- 1-2 TIMES/WEEK03
- 1-2 TIMES/MONTH. . . .04
- LESS THAN 1/MONTH. . .05
- NOT AT ALL06 } +GO TO H6
- DON'T KNOW94 } +GO TO H6
- REFUSED.97 }

IF YOU DID DRINK



a. About how many cans, glasses, or drinks did you usually have on each occasion?

a. DRINKS

PREGNANCY #		PREGNANCY #	
ALMOST EVERY DAY . . .01		ALMOST EVERY DAY . . .01	
3-4 TIMES/WEEK02		3-4 TIMES/WEEK02	
1-2 TIMES/WEEK03		1-2 TIMES/WEEK03	
1-2 TIMES/MONTH. . . .04		1-2 TIMES/MONTH. . . .04	
LESS THAN 1/MONTH. . .05		LESS THAN 1/MONTH. . .05	
NOT AT ALL06 }		NOT AT ALL06 }	
DON'T KNOW94 }	+GO TO H5	DON'T KNOW94 }	+GO TO H5
REFUSED.97 }		REFUSED.97 }	
a. <input type="text"/> <input type="text"/> DRINKS		a. <input type="text"/> <input type="text"/> DRINKS	
ALMOST EVERY DAY . . .01		ALMOST EVERY DAY . . .01	
3-4 TIMES/WEEK02		3-4 TIMES/WEEK02	
1-2 TIMES/WEEK03		1-2 TIMES/WEEK03	
1-2 TIMES/MONTH. . . .04		1-2 TIMES/MONTH. . . .04	
LESS THAN 1/MONTH. . .05		LESS THAN 1/MONTH. . .05	
NOT AT ALL06 }		NOT AT ALL06 }	
DON'T KNOW94 }	+GO TO H6	DON'T KNOW94 }	+GO TO H6
REFUSED.97 }		REFUSED.97 }	
a. <input type="text"/> <input type="text"/> DRINKS		a. <input type="text"/> <input type="text"/> DRINKS	

ENTER PREGNANCY NUMBER FROM F1.

	PREGNANCY #		
H6. While you were pregnant, was your house exterminated or sprayed to get rid of pests, like insects or mice? IF YES ↓	YES	01	
	NO.	02	
	DON'T KNOW.	94	} → GO TO H7
	REFUSED	97	
a. What was the house treated for? [CODE ALL ANSWERS]	ROACHES	01	
	TERMITES.	02	
	RODENTS	03	
	OTHER	04	
b. Who treated the house, you yourself, a family member, or a professional exterminator? [CODE ALL ANSWERS]	SELF.	01	
	FAMILY MEMBER	02	
	PRO.	03	
	OTHER	04	
H7. Is there anything else you would like to tell me about this pregnancy?	YES.	01	
	NO	02	→ GO TO H8
a. What is it?	a.		
H8. IF THERE ARE MORE PREGNANCIES, RETURN TO PAGE D1 AND AGAIN ASK ALL APPROPRIATE QUESTIONS THROUGH THIS PAGE. IF NO MORE PREGNANCIES, GO TO SECTION I.			

PREGNANCY #		PREGNANCY #	
YES	01	YES	01
NO.	02	NO.	02
DON'T KNOW.	94 } }+GO TO H7	DON'T KNOW.	94 } }+GO TO H7
REFUSED	97 }	REFUSED	97 }
ROACHES	01	ROACHES	01
TERMITES.	02	TERMITES.	02
RODENTS	03	RODENTS	03
OTHER	04	OTHER	04
SELF.	01	SELF.	01
FAMILY MEMBER	02	FAMILY MEMBER	02
PRO	03	PRO	03
OTHER	04	OTHER	04
YES.	01	YES.	01
NO	02 + GO TO H8	NO	02 + GO TO H8
a.		a.	
_____		_____	
_____		_____	

I. FAMILY HISTORY

11. REVIEW D20 FOR ALL PREGNANCIES.

HAS THE RESPONDENT EVER GIVEN BIRTH TO A LIVE CHILD?

- YES.....01
- NO.....02 + GO TO I4

The next few questions are about children and their health.

12. Have you ever been told by a doctor that any of your children had cancer?

- YES.....01
- NO.....02 + GO TO I3

IF YES



	DIAGNOSED CHILD #1
a. Which pregnancy was this child? [INTERVIEWER: REFER TO SECTION D TO CLARIFY #]	a. PREGNANCY
b. What kind of cancer was this?	b. _____ <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px auto;"></div> _____ <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px auto;"></div> _____ <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px auto;"></div> OFFICE USE
c. How old was the child when you first learned of this cancer? [IN YEARS]	c. YEARS OLD
d. In what year was this diagnosed?	d. 19

DIAGNOSED CHILD #2	DIAGNOSED CHILD #3
a. <input type="text"/> <input type="text"/> PREGNANCY	a. <input type="text"/> <input type="text"/> PREGNANCY
b. _____ _____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> _____ OFFICE USE	b. _____ _____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> _____ OFFICE USE
c. <input type="text"/> <input type="text"/> YEARS OLD	c. <input type="text"/> <input type="text"/> YEARS OLD
d. 19 <input type="text"/> <input type="text"/>	d. 19 <input type="text"/> <input type="text"/>

12.

DIAGNOSED CHILD #1

e. What is the name of the hospital/doctor where he/she was treated?

e.
HOSP:

DR.:

STREET:

CITY:

STATE:

ZIP:

--	--	--	--	--

f. Will you give permission to obtain his/her medical records?

f. YES . . . 01 → COMPLETE PERMIS-
SION WORKSHEET
NO. . . . 02

g. Have any of your other children had cancer?

g. YES . . . 01 → GO TO NEXT CHILD
NO. . . . 02 → GO TO I3

DIAGNOSED CHILD #2	DIAGNOSED CHILD #3
e. HOSP: _____ DR.: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	e. HOSP: _____ DR.: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
f. YES . . . 01 + COMPLETE PERMIS- SION WORKSHEET NO. . . . 02	f. YES . . . 01 + COMPLETE PERMIS- SION WORKSHEET NO. . . . 02
g. YES . . . 01 + GO TO NEXT CHILD NO. . . . 02 + GO TO I3	g. YES . . . 01 + GO TO NEXT CHILD NO. . . . 02 + GO TO I3

13. Are all of your children living?

YES.....01 → GO TO 14

NO.....02

IF NO TO 13



I would like to ask a few questions about (this/each) child.

DECEASED CHILD #1	
a. Which pregnancy was (this/the first/the next) child? (INTERVIEWER: REFER TO SECTION D TO CLARIFY #.)	a. <input type="text"/> <input type="text"/> PREGNANCY
b. In what year did the child pass away?	b. 19 <input type="text"/> <input type="text"/>
c. How old was he/she? (IN MONTHS)	c. <input type="text"/> <input type="text"/> <input type="text"/> MONTHS
d. What was the cause of death?	d. _____ _____ _____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> OFFICE USE
e. In what city and state did he/she pass away?	e. CITY: _____ STATE: _____

DECEASED CHILD #2	DECEASED CHILD #3
a. <input type="text"/> <input type="text"/> PREGNANCY	a. <input type="text"/> <input type="text"/> PREGNANCY
b. 19 <input type="text"/> <input type="text"/>	b. 19 <input type="text"/> <input type="text"/>
c. <input type="text"/> <input type="text"/> <input type="text"/> MONTHS	c. <input type="text"/> <input type="text"/> <input type="text"/> MONTHS
d. _____ _____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> _____ OFFICE USE	d. _____ _____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> _____ OFFICE USE
e. CITY: _____ STATE: _____	e. CITY: _____ STATE: _____

13.

DECEASED CHILD #1							
f. IS THE AGE IN Q.13.c. ONE MONTH?	f. YES 01 NO. 02 → GO TO f						
g. What is the name and address of the hospital/doctor where he/she was treated?	g. HOSP: _____ DR.: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>						
h. Will you give permission to obtain his/her medical records?	h. YES 01 → COMPLETE PERMIS- SION WORKSHEET NO. 02						
i. Are all of your other children living?	i. YES 01 → GO TO I4. NO. 02 → GO TO NEXT CHILD						

DECEASED CHILD #2	DECEASED CHILD #3
f. YES 01 NO. 02 + GO TO f	f. YES 01 NO. 02 + GO TO f
g. HOSP: _____ DR.: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	g. HOSP: _____ DR.: _____ STREET: _____ CITY: _____ STATE: _____ ZIP: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
h. YES . . . 01 + COMPLETE PERMIS- SION WORKSHEET NO. 02	h. YES . . . 01 + COMPLETE PERMIS- SION WORKSHEET NO. 02
i. YES 01 + GO TO I4 NO. 02 + GO TO NEXT CHILD	i. YES 01 + GO TO I4 NO. 02 + GO TO NEXT CHILD

14. Finally, I would like to know your Social Security Number since it is very useful in helping us do followup studies. Under law, you cannot be required to tell us your number and regardless of your decision no current or future benefits will be affected. Will you tell me your Social Security Number?

YES.....01

NO.....02 + GO TO 15

a. What is it?

RECORD ALL 9 DIGITS IN THE BOXES PROVIDED IN PART A OF CONTROL CARD AND GO TO 15.

15. END INTERVIEW BY THANKING RESPONDENT AND REMINDING HER OF POSSIBLE RECONTACT.

J. INTERVIEWER OBSERVATIONS AND EVALUATION

COMPLETE THIS SECTION AS SOON AFTER LEAVING THE RESPONDENT AS POSSIBLE.

J1. What was the language in which the interview was conducted?

ENGLISH.....01

SPANISH.....02

OTHER.....03

SPECIFY: _____

J2. What was the level of respondent cooperation?

VERY GOOD.....01

GOOD.....02

FAIR, OR.....03

POOR?.....04

J3. Overall, what is the quality of the interview?

HIGH QUALITY.....01

GENERALLY RELIABLE.....02

QUESTIONABLE, OR.....03

UNSATISFACTORY?.....04

} GO TO J5

J4. IF UNSATISFACTORY OR QUESTIONABLE:

What was the main reason for the unsatisfactory or questionable quality of the interview?

- THE RESPONDENT: WAS ILL OR DISABLED.....01
- SPOKE ENGLISH POORLY.....02
- WAS EVASIVE OR SUSPICIOUS.....03
- WAS BORED OR UNINTERESTED.....04
- WAS UPSET OR DEPRESSED BY THE TOPIC.....05
- WAS DRUNK OR ON DRUGS.....06
- HAD POOR HEARING OR SPEECH.....07
- WAS CONFUSED BY FREQUENT INTERRUPTION.....08
- WAS INSUFFICIENTLY KNOWLEDGEABLE.....09
- WAS MENTALLY DISTURBED.....10
- OR: SOMETHING ELSE.....11
- SPECIFY: _____

J5. Was the respondent assisted by another person during most of the interview?

- YES.....01
- NO.....02 + GO TO J8

J6. Who assisted the respondent? [CODE ALL THAT APPLY]

- SPOUSE.....01
- CHILD.....02
- SIBLING.....03
- OTHER RELATIVE.....04
- OTHER.....05
- SPECIFY: _____

J7. Why was the respondent assisted? [CODE ALL THAT APPLY]

TOO ILL.....01

LANGUAGE PROBLEM.....02

RESPONDENT REQUEST.....03

SOMETHING ELSE.....04

SPECIFY: _____

J8. RECORD ANY OTHER RELEVANT OBSERVATIONS, COMMENTS, OR IMPRESSIONS YOU HAVE ABOUT THIS INTERVIEW.

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

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

You have been asked to participate in a NIOSH research study. We explain here the nature of your participation, describe your rights, and specify how NIOSH and Lovelace Medical Foundation will treat your records

I. DESCRIPTION

1. Title:

Study of Persistent Health Effects in Chemical-Herbicides Manufacturing Workers and in Community Residents of Unknown Exposure Status.

2. Sponsor and/or Project Officer

Marie Haring Sweeney, MPH; IWSB, DSHEFS, NIOSH, CDC, PHS

3. Purpose and Benefits:

You are being asked to participate in a research study conducted by NIOSH and performed by the Lovelace Medical Foundation. The purpose of this study is to determine if there is a relationship between an individual's past workplace exposure to chemical-herbicides and certain health outcomes.

Benefits to each participant include: a free comprehensive health evaluation; information about test results; test results sent to physician of your choice, if requested; a final report of the results of the study and the NIOSH assessment of the persistent health effects of dioxin on chemical-herbicide workers and community residents; a \$300 stipend upon the completion of the health evaluation; free travel, lodging and meals; and the opportunity to participate in an important public health study on the health effects of exposure to chemicals. The foreseeable risks of participation have been minimized by using routine, or tested medical procedures and examinations. All tests and examinations will be conducted and performed by trained physicians, psychologists, nurses and technicians.

CONSENT FORM

CONSENT to participate in medical research study

II. CONDITIONS OF THE STUDY

1. I understand that I will have to travel to the Lovelace Medical Center in Albuquerque, New Mexico in order to take part in this study.

I also understand that my participation will involve the following interviews and tests:

- a. Confidential questionnaire about my health, and personal habits.
- b. Examinations by an internist, a dermatologist, a gynecologist (female participants) and a neurologist. The internist will perform a complete general physical examination; the dermatologist will examine my skin, and the neurologist will test muscle strength and nerve function. For female participants, the gynecologist will perform a pelvic and breast examination, and a pap smear will be done. None of these examinations involve any invasive or surgical procedures.
- c. Special tests (called neurophysiological tests) which evaluate the ability of the nerves to feel vibration and temperature changes. (see page 4 concerning risks and discomforts.)
- d. Hearing, vision and lung function tests.
- e. Blood tests will be taken at the start of the first day of testing. The blood tests will involve a withdrawal of approximately 220 milliliters of blood drawn by venipuncture. This is equal to approximately seven ounces of blood which is less than half the amount given when a person donates blood.
- f. Chest x-ray.

During the orientation session on the day of my arrival, I will complete a brief questionnaire to determine if I should have 220 milliliters of blood withdrawn. If my answers to the questions indicate that a 220 milliliter blood withdrawal is unlikely to cause unnecessary risk to my health, I will undergo the blood withdrawal procedure on the morning of the first day of testing, while I am in a fasting state.

If the answers to the pre-screening questions indicate that a 220 milliliter blood withdrawal may cause an adverse reaction or unnecessary risk to my health, I will undergo a blood test involving the withdrawal of approximately 4 ounces (120 milliliters) of blood. This is about the same amount of blood taken for tests when a patient is admitted to a hospital for a diagnostic evaluation. The 120ml blood specimen will be used to perform the following tests: the hematocrit (count of the number and kind of cells in my blood), liver function tests, cholesterol or fat level, blood sugar level, thyroid function, immunologic function, vitamin B12 and other vitamin levels and hormone levels. These tests will be conducted on everyone who consents to participate in the examination. The other 100ml blood specimen will be analyzed at the Centers for Disease Control in Atlanta, Georgia for serum dioxin level. A small amount of blood drawn during this time will not be analyzed immediately but will be frozen and stored at the Centers for Disease Control. This small sample will be kept to test the blood in the future for serum dioxin level.

- f. The urine sample will be used to conduct routine urine chemistries and determine levels of certain enzymes including D-glucuric acid and porphyrin levels.

There will be two urine collections; one, a 12 hour urine, will begin the evening of my arrival, and a second small amount of urine will be collected the next day during my medical examination.

- g. I will undergo tests to evaluate my sensitivity to three allergens commonly present in the environment. This skin test will be performed the evening before the examinations begin and will be read 24 and 48 hours after administration.
- h. A special skin examination by a licensed dermatologist will be conducted. During this examination the technician will take pictures of the front and both sides of the face and of certain marks, scars, sores or other types of skin conditions.
- i. I will be requested to take neurobehavioral and psychological tests which evaluate coordination, memory, mood, and perception. The tests involve answering sets of questions, and doing timed dexterity and coordination tests. It will take approximately three and one-half hours to complete the full set of tests.

I further understand:

My medical examination will be scheduled by the Occupational Health Study Schedulers at the Lovelace Medical Center in Albuquerque, New Mexico. My travel to the examination site, including airplane fares, taxi and automobile mileage, food, lodging, will be paid by the Federal Government. If I choose to travel by automobile, I will be reimbursed at the rate of 20.5 cents per mile up to the cost of round trip air fare. Room and transportation reservations related to the study will be made by Lovelace. I will receive a stipend of \$300 when I complete the interviews and medical tests.

I understand that the total examination will take approximately 12 hours to complete but the examination will be conducted over a two day period. On the evening prior to the first day of the medical examination, I will participate in an orientation meeting which describes the tests and activities that can be expected during the two days of the examination. I understand that I will be expected to fast for 12 hours on the night before the first day of examinations, and to refrain from drinking alcohol. I will also be expected to collect a sample of my urine in a container provided during the inbriefing meeting. Transportation to the Medical Center will be provided by Lovelace.

I understand that my participation is voluntary and that I am free to refuse without penalty, other than loss of the \$300 stipend, to take any of the tests given as part of the study. If I withdraw from the examination entirely before the tests are completed, my meals, lodging and transportation to and from the examination will still be paid by the government.

2. Risks or discomforts:

Any discomforts or risks are described below and, unless noted are minimal: The blood tests will require drawing blood from a vein in the arm, just as is often done on visits to the doctor. Having blood drawn is slightly uncomfortable but poses minimum health risk. There is a slight risk of becoming light-headed when the blood is drawn and/or experiencing transient pain, swelling, bruising and/or an infection at the blood drawing site on my arm. The amount of blood required for these tests will be about 220 milliliters or about 7.0 ounces. For individuals whose pre-screening indicates the possibility of an adverse reaction to this volume of blood withdrawal, 120 milliliters or about 4.0 ounces will be taken. This is about the same amount of blood taken for tests when a patient is admitted to a hospital for a diagnostic evaluation. If the results of your blood tests show that you have a higher than normal amount of sugar in your blood, you will be asked to allow us to repeat the blood sugar test on the following morning. This will involve refraining from eating or drinking anything except water from 10:00 in the evening, until a small amount of blood is drawn the next morning. The amount of blood taken will be approximately one teaspoon.

The neurophysiological evaluation includes: quantitative sensory tests and a nerve conduction velocity test. The quantitative sensory tests are conducted to test the health of nerves in the hands and feet. These tests require the subject to determine the different temperature between two metal pads and to determine the difference in vibration between two vibrating knobs. There is no discomfort or health risk associated with these tests.

The nerve conduction velocity test is conducted to evaluate the ability of the nerve to carry a stimulation from one point to another. The test is performed by electrically stimulating, one at a time, nerves in the arm and the leg. The test requires that an electrode pad be placed on at least two places on the arm or leg to be tested. The sensation is slightly unpleasant for some people, since it feels like a mild electric shock. There is no health risk in nerve conduction testing.

The skin test will be administered by three injections directly under the skin. These injections may be temporarily painful but the risks are minimal. You may experience swelling, itching or redness at the prick site. A very small percentage of the population may experience difficulty breathing and general swelling. All symptoms that occur will be treated by trained medical personnel located on the premises.

If you have any reaction to the test procedures, there will be a physician there whom you can consult. If you have a reaction later, you will be told to contact Dr. William Christensen at (505) 262-7600.

3. Injury from this project is unlikely. But if it results, medical care will be provided by Lovelace Medical Center. If you are injured through negligence of a NIOSH employee or an agent of NIOSH, you may be able to obtain compensation under the Federal Tort Claims Act. If an injury should occur to you as the result of your participation, you should contact: Marie Haring-Sweeney, Project Director, NIOSH (513) 841 4482.
4. If you have questions about this research or your rights as a member of this study, contact; Marie Haring-Sweeney, Project Director, NIOSH, (513) 841-4482, or Dr. Teresa Coons, Lovelace Project Director, (505) 262-7600.

III. USE OF INFORMATION

1. NIOSH's authority for collecting information in this study is the Occupational Safety and Health Act of 1970.
2. You do not have to furnish any information. Nothing will happen to you if you don't answer our questions, except that we may not ask you to continue to participate in the study.
3. The information you and other persons give us will be used by us to help answer research questions about humans exposed to dioxin and what effect that exposure may have on a person's health.
4. The information you provide us is covered by the Privacy Act, a federal law. We will not reveal your information in identifiable form to anyone without your permission, unless it is permitted by the Privacy Act. If requested, the Privacy Act permits the release of information in identifiable form under several specific conditions. All 11 conditions possible are stated on the **BACK SIDE OF THIS SHEET**. These releases are infrequently used, in general. When these kinds of requests occur, each is reviewed by us to ensure that a person would not unreasonably object. The two reasons most often used to seek records subject to the Privacy Act are:
 - (1) When the records are needed to protect the health and safety of other persons.
 - (2) When a researcher (for example, at a university) asks for information and it will be used only for statistical purposes.
5. Your records are also covered by the Freedom of Information Act, a federal law. This law permits persons to request information held in our files. All Freedom of Information requests are reviewed to insure that the release of this information would not be clearly unwarranted invasion of personal privacy.

The Privacy Act, a federal law, prohibits the release of your records from the study without your written permission. However, there are 11 situations written into this law which do permit releasing your information in identifiable form, without your permission. Your records could be released if:

1. They are necessary for PROTECTING THE HEALTH AND SAFETY of other persons.
2. A RESEARCHER uses them only for STATISTICAL RESEARCH.
3. NIOSH OFFICIALS, or groups working with NIOSH, need the records for USES compatible with the purpose for which the information was collected.
4. They are needed by AGENCY PERSONNEL, who need the records in performance of their duties.
5. The release is REQUIRED BY LAW.
6. The BUREAU OF CENSUS needs them for census or survey work.
7. The NATIONAL ARCHIVES needs them for historical purposes.
8. Either House of CONGRESS requests your records.
9. The COMPTROLLER GENERAL needs them for the General Accounting Office.
10. A COURT ORDERS them; or
11. The records are requested under the terms and conditions of the Freedom of Information Act, and their release would not invade your privacy.

IV. SIGNATURES

I have read this consent form and I agree to participate in this study.

PARTICIPANT _____ Age _____
(signature)

Date _____

WITNESS: _____ Date _____
(Signature)

PROTOTYPE INTRODUCTION TO WORKER

Hello, I am (NAME) from Research Triangle Institute. We are conducting a survey for the National Institute for Occupational Safety and Health (NIOSH) on the effects of chemicals on people exposed to them.

NIOSH has given us (your/STUDY MEMBER'S) name as a person who worked in the chemical industry.

I hope you received a letter and fact sheet from NIOSH explaining the study and the purpose of my call/visit. Did you receive this letter?

(IF NO, READ THROUGH LETTER OR GIVE THE LETTER TO THE PERSON.)

(IF YES):

First I need to verify some information to be sure I have the correct person. Under Federal Law, people participating in our surveys do not have to tell us their Social Security Number. However, it is very useful and helps us identify you as the correct person.

(ASK STUDY MEMBER TO VERIFY SOCIAL SECURITY NUMBER, BIRTHDATE, EMPLOYER, ADDRESS, AND DATES OF EMPLOYMENT FROM SECTION A OF THE WORKER CONTROL CARD.)

As the letter explained, the purpose of the study is to determine if the health of these workers has been affected by working around these chemicals. We would like to interview you in person at your home or another place of your choosing, about your work history. The information you provide will be protected from unwarranted exposure by the Privacy Act of 1974. You have the right to refuse to be interviewed or to refuse to answer any specific questions, during the interview, if you choose.

A follow-up of this interview will be a thorough medical examination at a highly regarded medical foundation clinic. Again, you have the right to refuse to participate in this examination but, as we explained in the letter, your participation in the health study will cost you nothing. You will be compensated for your time by a monetary award of \$300.00, to be paid upon completion of the interview and medical examination.

Do you have any questions about the study?

(IF NO):

The interview will take about one hour. Would (suggested day of week and date) be a good day for your interview?

(IF DATE IS AGREEABLE, ESTABLISH TIME OF DAY.)

(IF DATE IS NOT CONVENIENT): Which day is best for you?

(AFTER A DATE IS SET, ESTABLISH THE TIME OF DAY FOR THE INTERVIEW.)

Thank you for agreeing to participate in the interview about your work. We can discuss more about the medical examination after we complete your interview. I look forward to meeting you on (CONFIRM DAY, DATE, AND TIME OF SCHEDULED INTERVIEW).

Good-bye.

Introduction script for comparison persons--initial personal visit:
United States Public Health Service-NIOSH Health Study of Chemical Workers
and Neighborhood Residents

HELLO, MY NAME IS _____. I REPRESENT THE UNITED STATES PUBLIC HEALTH SERVICE AND THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH. WE'RE CONDUCTING A VERY IMPORTANT HEALTH STUDY OF CHEMICAL WORKERS WHO HAVE IN THE PAST MANUFACTURED CERTAIN CHEMICALS LIKE WEED KILLERS. IN ADDITION TO STUDYING THOSE WORKERS, WE ALSO WANT TO STUDY THE HEALTH OF COMMUNITY RESIDENTS WHO LIVE IN THE SAME NEIGHBORHOOD AS THOSE WORKERS. ONLY CERTAIN COMMUNITY RESIDENTS ARE ELIGIBLE TO PARTICIPATE, AND RIGHT NOW I'M VISITING VARIOUS HOMES IN THE NEIGHBORHOOD TO DETERMINE WHO MIGHT BE ELIGIBLE FOR THE STUDY. IF SOMEONE IN YOUR HOUSEHOLD IS ELIGIBLE, THEN I'D LIKE TO FIND OUT WHETHER HE (SHE) IS INTERESTED IN PARTICIPATING. THE STUDY WILL CONSIST OF AN INTERVIEW IN THE HOME, FOLLOWED BY AN EXTENSIVE, FREE MEDICAL EXAMINATION BY A SPECIALIST STAFF AT _____ MEDICAL CENTER. ALL PEOPLE WHO PARTICIPATE WILL HAVE THEIR EXPENSES PAID TO, FROM, AND DURING THE MEDICAL EXAMINATION, AND THEY WILL ALSO BE PAID COMPENSATION FOR THEIR TIME SPENT ON THE EXAMINATION. PEOPLE INVOLVED IN THE STUDY WILL RECEIVE COPIES OF THEIR OWN TEST RESULTS, BUT OTHERWISE THE INDIVIDUAL TEST RESULTS WILL BE CONFIDENTIAL. YOUR PARTICIPATION IS VOLUNTARY AND YOU MAY WITHDRAW AT ANY TIME. I WONDER IF YOU'D BE KIND ENOUGH TO ANSWER A FEW QUESTIONS SO THAT I CAN TELL WHETHER ANYONE IN YOUR HOUSEHOLD IS ELIGIBLE FOR THE MEDICAL STUDY?

(If the person refuses to talk further, thank them and leave.)

(If they agree to answer a few questions, ask:

1. ARE THERE ANY ADULT MALES (ADULT FEMALES) IN THE HOUSEHOLD WHO ARE BETWEEN THE AGES OF _____ AND _____? Yes _____ No _____ If yes, age _____
2. TO WHAT RACE DO THEY BELONG? _____

(If person identifies self as the potentially eligible person, address remaining comments to him/her.)

3. HOW LONG HAVE YOU/HAS THIS MEMBER OF YOUR HOUSEHOLD LIVED IN THIS NEIGHBORHOOD? _____ years _____ months

(If no one in the house is eligible, thank him/her and explain that no one from that household will be able to enroll in the study.

(If eligible and the eligible person is the one to whom you are speaking, ask if you may explain more about the study, if you have not already done so. If the eligible person is not at home, arrange a time when you can return to describe the study and discuss participation.)

(Explanation should contain the information in "STUDY INFORMATION". You should also tell them that you will leave them with A "FACT SHEET" which will give them a written description of the study.)

(If the eligible person declines to participate, try to provide encouragement and explain again the benefits in greater detail: paid expenses, a free and excellent medical examination worth hundreds of dollars, \$100 per day for the two days involved in the examination, and an opportunity to participate in an important public health study. If he still refuses, ask him if you may ask a few questions, since it's important to the study to know something about the persons who refuse. Emphasize that you do not need to know any identifying information such as name, SSN, etc. Administer the REFUSANT QUESTIONNAIRE. Also leave a card with your name and toll free phone number on it to call you if they reconsider.)

(If the person agrees to participate, you should schedule a time for the interview. Explain again that the interview will require about one to one-and-a-half hours to complete, and that if at all possible, it should be conducted privately. Be sure to obtain a telephone number at which the person can be reached, and be sure to leave a toll free number at which a contractor representative can be reached. Explain that the interview will be conducted by two different persons, since it is important to collect information about health and about exposures separately.)PHONE ()-

PHONE ()-

(Thank the person very warmly. Every interaction should be maximally courteous and positive, whenever possible.)

NIOSH OCCUPATIONAL HEALTH STUDY
WORKER/REFERENT REFUSANT QUESTIONNAIRE

2/23/87

PERSON ID NUMBER

--	--	--	--

INTERVIEWER ID NUMBER

--	--	--	--	--	--	--	--

DATE OF FINAL CONTACT

--	--

MONTH

--	--

DATE

--	--

YEAR

WR1. WHAT IS THIS PERSON'S CLASSIFICATION?

WORKER.....01

REFERENT.....02

WR2. WHAT IS THIS PERSON'S SEX?

MALE.....01

FEMALE.....02

WR3. WHAT IS THIS PERSON'S RACE? (Do you consider yourself to be white, black, Asian, American Indian, or something else?)

WHITE.....01

BLACK.....02

ORIENTAL (ASIAN OR PACIFIC ISLANDER)....03

AMERICAN INDIAN (ALASKAN NATIVE).....04

OTHER.....05

SPECIFY: _____

DON'T KNOW.....94

WR4. IS THIS PERSON OF HISPANIC (SPANISH) ORIGIN OR DESCENT? (Are you of Hispanic (Spanish) origin or descent?)

YES.....01

NO.....02

DON'T KNOW.....94

WR5. HOW MANY YEARS HAS THIS PERSON LIVED AT THEIR CURRENT ADDRESS? (How many years have you lived at your current address?)

YEARS

DON'T KNOW.....94

WR6. WHAT IS THIS PERSON'S EDUCATIONAL LEVEL? (What was the highest grade in school which you completed?)

NO FORMAL SCHOOLING.....01

1 TO 8 YEARS (GRADE SCHOOL)...02

9 TO 12 YEARS (HIGH SCHOOL)...03

AFTER HIGH SCHOOL
VOCATIONAL OR TECHNICAL.....04

SOME COLLEGE,
GRADUATE, POSTGRADUATE.....05

DON'T KNOW.....94

WR7. WHAT IS THE TOTAL INCOME LEVEL OF THE HOUSEHOLD IN WHICH THIS PERSON LIVES? (What is the total income for all people in your household? Is it. . .)

less than \$10,000.....01

\$10,000 - \$19,999.....02

\$20,000 - \$29,999.....03

\$30,000 - \$39,999.....04

\$40,000 - \$49,999.....05

\$50,000 or more.....06

DON'T KNOW.....94

WR8. WHAT IS THE MAIN REASON FOR THIS PERSON NOT WANTING TO PARTICIPATE IN THE SURVEY? (What is the main reason you do not want to participate in this survey?)

- NO TIME.....01
- NOT INTERESTED.....02
- DOES NOT LIKE MEDICAL TESTING.....03
- TOO ILL TO RESPOND.....04
- TOO ILL TO TRAVEL.....05
- TOO FAR TO TRAVEL.....06
- CAN'T GET OR TAKE TIME OFF WORK.....07
- DOES NOT WANT TO GET INVOLVED.....08
- PERSONAL REASONS (NOT SPECIFIED).....09
- ALREADY TAKING PART IN SIMILAR STUDY....10
- OTHER (SPECIFY).....11

DON'T KNOW.....94

WR9. IF POSSIBLE ASK: I know you said you could not participate, but could you answer just a few questions so we will know some very basic information about you?

- YES.....01 (GO ON TO QUESTIONS 10-14 AND IF POSSIBLE GET INFORMATION ON QUESTIONS 3-8 USING THE ALTERNATE WORDING PROVIDED)
- NO.....02 (THANK AND TERMINATE)

WR10. Compared to other people your age, would you say your health is excellent, good, fair, or poor?

- EXCELLENT.....01
- GOOD.....02
- FAIR.....03
- POOR.....04
- DON'T KNOW.....94
- REFUSED.....97

WR11. Has a doctor ever told you that you have/had?

- | | YES | NO | DON'T
KNOW | REFUSED |
|---|----------|----------|---------------|---------|
| a. heart disease..... | .01..... | .02..... | .94..... | .97 |
| b. cancer..... | .01..... | .02..... | .94..... | .97 |
| c. IF YES TO CANCER: What type of cancer? | | | | |

	<u>TYPE</u>	<u>OFFICE USE</u>				
1)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				
2)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				
3)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				
4)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				

WR12. How many children have you (fathered/had)?

CHILDREN

--	--

- a. IF ANY CHILDREN: Did any of your children have a birth defect?
- YES.....01
NO.....02)
DON'T KNOW.....94 } → GO TO WR13
REFUSED.....97)

b. IF BIRTH DEFECTS: What were the birth defects?

	<u>TYPE</u>	<u>OFFICE USE</u>				
1)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				
2)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				
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4)	_____	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				

WR13. Have you ever (fathered/had) a pregnancy that ended in a miscarriage?

YES.....01

NO.....02 Y

DON'T KNOW.....94 } + GO TO WR14

REFUSED.....97 J

a. IF MISCARRIAGE(S): How many?

MISCARRIAGES

WR14. Please tell me the types of jobs you have held for 3 years or more including part-time jobs?

	<u>JOB DESCRIPTION</u>	<u>YEARS ON JOB</u>	<u>OFFICE USE</u>	
1	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
2	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
3	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
4	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
5	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
6	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
7	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
8	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
9	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
10	_____	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>

NIOSH OCCUPATIONAL HEALTH STUDY FACT SHEET

WHAT IS THE NIOSH OCCUPATIONAL HEALTH STUDY?

- The NIOSH Occupational Health Study is a scientific research study about the health of people who worked with chemical-herbicides.
- The purpose of the study is to determine if people who worked with chemical-herbicides have more health problems than people who did not work with chemical-herbicides.
- More than 1000 people will participate in the study.

WHO IS CONDUCTING THE STUDY?

- The National Institute for Occupational Safety and Health (NIOSH), a part of the Centers for Disease Control, is conducting the study.
- Two private research organizations are collecting the study information:
 - Lovelace Medical Foundation in Albuquerque, New Mexico is the prime contractor responsible for conducting the medical examinations for NIOSH.
 - Research Triangle Institute is the subcontractor to Lovelace Medical Foundation and is responsible for conducting the in-home interviews.

WHAT ARE THE BENEFITS TO ME?

Your participation in the study will give you:

- The opportunity to have a thorough medical examination, valued at hundreds of dollars, but at no cost to you.
- \$300.00 in cash for completing the medical examination.
- Transportation to and from Albuquerque, meals and lodging arranged by Lovelace Medical Foundation and paid in full by NIOSH.
- An opportunity to enjoy sightseeing, shopping, and dining in sunny Albuquerque.
- A summary of all results of your medical tests. If you request, we will send the results to your personal physician.

WHY SHOULD I TAKE PART IN THE STUDY?

- This a very important study whose findings are of great interest to:
 - workers involved in the production of chemical-herbicides
 - farmers who applied chemical-herbicides to their crops
 - people who live in communities contaminated with chemical-herbicides
- You will be performing a service to yourself by obtaining a complete medical examination at no charge.

HOW WAS I SELECTED?

- All people who worked at the Diamond Alkali plant in Newark, New Jersey will be studied by NIOSH. Your name was randomly chosen as one of the first 80 people to be invited to participate in the study.

WHAT WILL MY PARTICIPATION INVOLVE?

- An hour-long INTERVIEW, conducted in your home or another place of your choice by an RTI interviewer. Prior to the in-home interview, you will be asked to read and sign a consent form agreeing to complete this interview.
- A two-day, comprehensive MEDICAL EXAMINATION at Lovelace Medical Foundation in Albuquerque. Prior to the medical examination, you will be asked to read and sign a separate consent form agreeing to this medical examination.
- Your wife and/or former wives will be asked to participate in a half-hour telephone interview about their pregnancy history and childbearing experiences. They will not be offered a medical exam.
- Your participation in the study is voluntary, and you may refuse to answer any question or stop participating at any time.

WHAT ARE THE INTERVIEW AND MEDICAL EXAMINATION ABOUT?

- The INTERVIEW covers your health and job experiences.
- The MEDICAL EXAMINATION includes a thorough review of your past medical history and examination of your heart, lungs, blood and other organ systems. The RTI interviewer will show a videotape that provides information about the medical examination. Answers to other questions about the medical examination may be obtained from Lovelace Medical Foundation by calling Dr. Teresa Coons toll-free at 1-(800)-843-8387 between 8:30 a.m. and 5:00 p.m., Mountain time.

WILL MY PRIVACY AND OTHER RIGHTS BE PROTECTED?

Your privacy is protected:

- from unwarranted disclosure by the Privacy Act of 1974,
- from unwarranted invasion of personal privacy by the Freedom of Information Act.
- Knowledge about who participated and their answers will be kept confidential. The results of the study will be presented in summary form so that no individual can be identified.

WHO SHOULD I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY?

- Marie Haring Sweeney of NIOSH
Collect: 513-841-4411
8:00 a.m. to 4:30 p.m. (ET)
- Kirk Pate of RTI
Toll-free: 1-800-334-8571
9:00 a.m. to 5:00 p.m. (ET)
- Diana Kiel of New Jersey Department of Health
Collect: 609-292-8812
9:00 a.m. to 4:30 p.m. (ET)

NIOSH OCCUPATIONAL HEALTH STUDY
FACT SHEET

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 - workers involved in the production of chemical-herbicides
 - farmers who applied chemical-herbicides to their crops
 - people who live in communities contaminated with chemical-herbicides
- You will be performing a service to yourself by obtaining a complete medical examination at no charge.

HOW WAS I SELECTED?

You were randomly selected from people in your community and invited to participate in the study because:

- You live in the same community as a worker and are the same age, race, and sex as the worker.
- You never worked in the production of chemical-herbicides.

WHAT WILL MY PARTICIPATION INVOLVE?

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**FACT SHEET
USPHS-NIOSH HEALTH STUDY**

INTRODUCTION

--The United States Public Health Service and the National Institute for Occupational Safety and Health (NIOSH) are conducting this study of former and present chemical manufacturing workers and of similar persons living in their community, in conjunction with several state health departments

--You are being invited to participate so that we can evaluate your health and determine whether you have been exposed to certain chemicals or medications

PURPOSE OF THE STUDY

--To determine whether there is a relationship between illness and exposure to certain chemicals like herbicides and pesticides

WHAT WILL BE DONE DURING THE STUDY

--You will first be interviewed in your own home by two trained interviewers who will ask you detailed information about your health, your work, and various personal habits, such as smoking and alcohol use. These interviewers are obliged to keep all information you give to them strictly confidential. The interview is expected to take about one-and-one-half hours.

--Following the interview, within a few weeks, we will schedule at your convenience your medical examination at the _____ medical center. We will arrange for your travel or reimburse you at the rate of 20.3¢/mile if you choose to drive your own car. We will also make a room reservation for you at the _____ motel near the medical center, where you will stay for two nights, at our expense. In addition, you will be provided with meals. It is our intention that you incur no personal expense during the conduct of the medical examination and that you be compensated for the time you spend.

On the evening of your arrival prior to the first day of the medical examination, you will participate in an orientation meeting which describes in detail the sorts of tests and activities you can expect during the next day and a half. We will ask that you fast for 12 hours on the first night preceding your medical examination (7 PM to 7 AM) so that your blood can be drawn when you have not consumed any calories for 12 hours. You should also collect your first urine specimen on that morning in a container that will be provided. You will be transported by van to the medical center, where a physician or trained lab technician will obtain a blood sample from you. After that, we will offer you breakfast before proceeding with the rest of the testing.

--Physicians and trained technicians from our research team will examine you and administer several special tests. These will include a general medical exam by a trained internist, a special neurological exam, and a special skin exam by a dermatologist--the sort of physical examinations you would receive if you went to a specialist of your own choice. In addition, special tests your nervous system function and lungs will be conducted. The blood and urine collected from you will provide information about your liver, metabolism,

immune system, and blood forming organs. The only uncomfortable parts of the examinations may be the blood drawing, and the test called nerve conduction tests, in which a mild electric stimulation is delivered to a nerve in the arm and in the leg in order to test its function. None of the tests poses any risk to you, but they will provide you and us with valuable information about your health.

--The medical testing will take about 10 hours, which will require that you stay overnight again between the first and the second day.

--Travel expenses, food, and lodging will be paid by the USPHS.

--\$200 will be paid to you in partial compensation for the time required for your participation in the medical examination.

--Confidentiality of your test results will be strictly maintained within the limitations of the Privacy Act of 1974. The exceptions to this Act are detailed in the consent form which will be brought with the interviewers who come to your home to conduct your interview.

BENEFITS TO YOU

--You will receive a free health review, an extensive physical examination, and special medical testing worth about \$500

--You will be fully informed of your test results

--Your test results will be sent to a doctor of your choosing, if you so request

--You will be participating in an important public health study and making a contribution to answering important public health questions about the health effects of chemicals.

RESEARCH TRIANGLE INSTITUTE

Center for Survey Research

Dear (Name of Wife or Former Wife) :

Thank you for agreeing to participate in the public health study sponsored by the National Institute for Occupational Safety and Health. As discussed with a telephone interviewer from the Research Triangle Institute, enclosed is a consent form for each hospital or physician who has medical information concerning your reproductive experiences or the health of your children. The consent form will allow us to look at medical records on your reproductive experiences and your children's health. The information will also allow us to evaluate these health records in light of your husband's or former husband's exposure to certain chemicals.

Please sign and date the consent form and return it in the postage paid envelope provided.

If you have questions, please do not hesitate to call me toll-free at (800) 334-8571 or Dr. Teresa Schnorr collect at (513) 841-4481 between 8:00 a.m. to 5:00 p.m. Eastern standard time.

Sincerely,

Kirk Pate
Project Director

DKP/cs

Enclosure

RESEARCH TRIANGLE INSTITUTE

Center for Survey Research

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Sincerely,

Kirk Pate
Project Director

DKP/cs

Enclosure

Hello, my name is _____ . I am calling from the Research Triangle Institute in North Carolina. We are working on a health study, conducted by NIOSH, of chemical-herbicide manufacturing workers and community residents. The study is called the NIOSH Occupational Health Study. The purpose of the study is to examine whether work with chemicals affects the pregnancies among the wives (and former wives) of men in the study. Did you receive a letter explaining the study from one of our field interviewers or by mail?

(IF NO, READ THROUGH LETTER, THEN CONTINUE. IF YES, CONTINUE.)

As the letter explained, the purpose of the study is to determine if the reproductive health of these men is affected. Since women often remember details about their pregnancies better than their husbands, we would like to interview you about your childbearing experiences and other factors in you life that might have affected them. The information you provide will be protected from unwarranted disclosure by the Privacy Act of 1974. You have the right to refuse to be interviewed or to refuse to answer any specific questions during the interview if you choose.

Do you have any questions about the letter or the study in general?

(IF NO) The interview will take about 45 minutes. Is now a good time for you?

(IF NO) What would be a good time for me to call back?

NIOSH OCCUPATIONAL HEALTH STUDY
02/10/87

GENERAL PHYSICAL EXAM

PARTICIPANT ID #: _____ NAME: _____

2) DATE: _____

3) EXAMINATION STATUS: _____ (1-Complete; 2-Partially Complete;
9-Refused)

4) SEX: _____ (1-MALE; 2-FEMALE)

5) NURSE ID #: _____ 6) TIME: _____

VITAL SIGNS:

7) HEIGHT: [] CM	12) BP SUPINE - RT [] MMHG
8) WEIGHT: [] KG	13) BP SUPINE - LT [] MMHG
9) PULSE RATE [] /MIN	14) BP SITTING - RT [] MMHG
10) PULSE REGULAR [] (1-Yes; 2-No)	15) BP SITTING - LT [] MMHG
11) RESPIRATION [] /MIN	16) BP STANDING- RT [] MMHG
	17) BP STANDING- LT [] MMHG

*****7-NOT APPLICABLE; 8-DON'T KNOW; 9-REFUSED*****

18) PHYSICIAN ID#: _____ 19) TIME: _____

A. 1) SKULL [] (1-Normal; 2-Abnormal)

IF ABNORMAL, DESCRIBE BELOW

B. EYES

1) GLOBE MISSING [] (1-No; 2-YesR; 3-YesL;
4-Yes/Both)

2) EYELIDS/CONJUNCTIVAL ABNORMALITY [] (1-No; 2-Yes)

IF YES, THEN SPECIFY: (1-NO; 2-R; 3-L; 4-BOTH)

- 3) ENTROPION []
- 4) ECTROPION []
- 5) XANTHELASMA []
- 6) PALPEBRAL EDEMA []
- 7) INFLAMMATION []
- 8) PALPEBRAL/PERIORBITAL MASSES UPPER [] LOWER []
MEDIAL [] LATERAL []
- 9) CONJUNCTIVAL DISCHARGE, ERYTHEMA []
- 10) CONJUNCTIVAL MASS []

11) CORNEAL/MEDIAL ABNORMALITIES [] (1-No; 2-Yes)

IF YES, THEN SPECIFY: (1-No; 2-R; 3-L; 4-Both)

- 12) SCARRING []
- 13) CATARACT []
- 14) SCLERAL ICTERUS []

15) RETINAL ABNORMALITIES [] (1-No; 2-Yes)

IF YES, THEN SPECIFY: (1-No; 2-R; 3-L; 4-Both)

- 16) A-V NICKING []
- 17) ARTERIOLAR SPASM []
- 18) EXUDATES []
- 19) LIGHT REFLEX []
- 20) PAPILLEDEMA []
- 21) CUPPING []
- 22) DISC PALLOR []
- 23) HEMORRHAGES []

24) LID LAG [] (1-NO; 2-YES)

C. EARS

1) EAR CANALS [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN SPECIFY: (1-No; 2-R; 3-L; 4-Both)

- 2) CERUMEN IMPACTED []
- 3) INFLAMMATION []

4) MIDDLE EAR [] (1-Normal; 2-Abnormal; 8- Don't Know)

IF ABNORMAL, THEN SPECIFY: (1-No; 2-R; 3-L; 4-Both)

- 5) DRUM PERFORATED []
- 6) DRUM RETRACTED []
- 7) DRUM SCARRED []
- 8) DRUM BULGING []
- 9) DRUM INFLAMED []

D. 1) NOSE [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN SPECIFY: (1-No; 2-Yes)

- 2) PERFORATION OF SEPTUM []
- 3) NASAL POLYPS []
- 4) ULCERATION []
- 5) BLEEDING []
- 6) MUCOSA [] IF 2, THEN GO TO Q6A

- 6A) INJECTED []
- 6B) PALE []

7) DISCHARGE [] IF 2, THEN GO TO 7A

- 7A) CLEAR []
- 7B) MUCOPURULENT []

E. 1) THROAT [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN SPECIFY:

- 2) PHARYNGITIS [] (1-No; 2-Yes)
- 3) TONSILS [] (1-Normal; 2-Enlarged;
3-Abscessed; 4-Both enlarged and
abscessed; 5-Exudate present;
6-Absent)

F. MOUTH

- 1) DENTAL STATUS [] (1-Good; 2-Fair; 3-Poor;
4-Edentulous)
- 2) DENTURES WORN [] (1-No; 2-Yes)
- 3) ULCERS [] (1-No; 2-Yes)
- 4) PLAQUES [] (1-No; 2-Yes)
- 5) MASS [] (1-No; 2-Yes)

IF "MASS" YES, THEN DESCRIBE

- 6) GLOSSITIS [] (1-No; 2-Yes)
7) GUMS [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN SPECIFY: (1-No; 2-Yes;)

- 8) GINGIVITIS []
9) HYPERTROPHY/HYPERPLASIA []

- G. 1) SINUSES [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN SPECIFY: (1-Normal; 2-R Tender;
3-L Tender; 4-Both Tender)

- 2) FRONTAL []
3) MAXILLARY []

- H. 1) SALIVARY GLANDS [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN SPECIFY: (1-No; 2-R; 3-L; 4-Both)

- 2) SUBMENTAL []

IF ABNORMAL:

- 3) ENLARGED []
4) TENDER []
5) MASS []

- 6) PAROTID []

IF ABNORMAL:

- 7) ENLARGED []
8) TENDER []
9) MASS []

- 10) SUBLINGUAL []

IF ABNORMAL:

- 11) ENLARGED []
12) TENDER []
13) MASS []

I. NECK

- 1) TRACHEA [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN

- 2) DEVIATED [] (1-Normal; 2-To R; 3-To L)
3) AIR SOUNDS [] (1-Normal; 2-Stridor)
4) VOICE [] (1-Normal; 2-Hoarse)

- 5) THYROID [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN

- 6) SIZE [] (1-Normal; 2-Large)
7) TENDERNESS [] (1-No; Yes)
8) NODULES [] (1-Absent; 2-Solitary;
3-Multiple)

- 9) CAROTID PULSES [] (1-Normal; 2-Reduced;
3-Increased)

- 10) NECK MASSES OTHER THAN
ENLARGED LYMPH NODES [] (1-No; 2-Yes)

IF YES, THEN DESCRIBE BELOW

J. CHEST

- 1) EXCURSION SYMMETRICAL [] (1-Yes; 2-Decreased R;
3-Decreased L)
2) SHAPE [] (1-Normal; 2-Pectus Excavatum; 3-Pectus
Carinatum; 4-Other Deformity)

IF 4, THEN SPECIFY

- 3) EXPANSION [] (1-Normal; 2-Fair; 3-Poor)

4) **RESONANCE** [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN

5) **HYPERRESONANT** [] (1-No; 2-R; 3-L; 4-Bilateral)

6) **DULLNESS ZONES** [] (1-Absent; 2-Present)

IF PRESENT, THEN 1-No; 2-Yes

7) **ANTERIOR** [] **IF YES, THEN**

RIGHT: 8) Upper [] 9) Middle [] 10) Lower []

LEFT: 11) Upper [] 12) Middle [] 13) Lower []

14) **POSTERIOR** [] **IF YES, THEN**

RIGHT: 15) Upper [] 16) Middle [] 17) Lower []

LEFT: 18) Upper [] 19) Middle [] 20) Lower []

21) **DIMINISHED BREATH SOUNDS** [] (1-Absent; 2-Present)

IF PRESENT, THEN (1-No; 2-Yes)

22) **ANTERIOR** [] **IF YES, THEN**

RIGHT: 23) Upper [] 24) Middle [] 25) Lower []

LEFT: 26) Upper [] 27) Middle [] 28) Lower []

29) **POSTERIOR** [] **IF YES, THEN**

RIGHT: 30) Upper [] 31) Middle [] 32) Lower []

LEFT: 33) Upper [] 34) Middle [] 35) Lower []

36) **ADVENTITIAL SOUNDS** [] (1-Absent; 2-Present)
(IF 1, SKIP TO Q67)

IF PRESENT, THEN

37) **CRACKLES** [] (1-No; 2-Yes)
(IF 1, SKIP TO Q52)

IF PRESENT, THEN

38) **ANTERIOR** [] (1-No; 2-Yes)

**IF YES, THEN ENTER CODE FOR PREDOMINANT SOUND IN
APPROPRIATE REGION(S)** (1-Absent; 2-Fine; 3-Medium;
4-Coarse)

RIGHT: 39) Upper [] 40) Middle [] 41) Lower []

LEFT: 42) Upper [] 43) Middle [] 44) Lower []

NIOSH OCCUPATIONAL HEALTH STUDY
02/10/87

45) POSTERIOR [] (1-No; 2-Yes)

IF YES, THEN ENTER CODE FOR PREDOMINANT SOUND IN
APPROPRIATE REGION(S) (1-Absent; 2-Fine; 3-Medium;
4-Coarse)

RIGHT: 46) Upper [] 47) Middle [] 48) Lower []
LEFT: 49) Upper [] 50) Middle [] 51) Lower []

52) WHEEZES [] (1-Absent; 2-Present)
(IF 1, SKIP TO Q67)

IF PRESENT, THEN (1-No; 2-Yes)

53) ANTERIOR [] (1-No; 2-Yes)

IF YES, THEN (1-No; 2-Yes)

RIGHT: 54) Upper [] 55) Middle [] 56) Lower []
LEFT: 57) Upper [] 58) Middle [] 59) Lower []

60) POSTERIOR [] (1-No; 2-Yes)

IF YES, THEN (1-No; 2-Yes)

RIGHT: 61) Upper [] 62) Middle [] 63) Lower []
LEFT: 64) Upper [] 65) Middle [] 66) Lower []

67) PLEURAL FRICTION RUB [] (1-Absent; 2-Present)

IF PRESENT, THEN (1-No; 2-Yes)

68) ANTERIOR [] IF YES, THEN (1-No; 2-Yes)

RIGHT: 69) Upper [] 70) Middle [] 71) Lower []
LEFT: 72) Upper [] 73) Middle [] 74) Lower []

75) POSTERIOR [] IF YES, THEN (1-No; 2-Yes)

RIGHT: 76) Upper [] 77) Middle [] 78) Lower []
LEFT: 79) Upper [] 80) Middle [] 81) Lower []

K. HEART

1) INCREASED PRECORDIAL IMPULSE [] (1-No; 2-Palpable;
3-Visual; 4-Both)

2) LOCATION OF PRECORDIAL IMPULSE [] (1-Normal; 2-Dis-
placed Laterally;
3-Displaced In-
feriorly; 4-Dis
placed Both)

3) THRILL [] (1-No; 2-Yes)

4) ABNORMAL SOUNDS [] (1-No; 2-Yes)

IF NO, THEN SKIP TO PAGE 13, ITEM #64;
IF YES THEN:

5) MURMURS [] (1-No; 2-Yes)

IF NO, THEN SKIP TO PAGE 12, ITEM #57;
IF YES THEN:

6) SYSTOLIC MURMUR(S) [] (1-No; 2-Yes)

IF NO, THEN SKIP TO PAGE 9, ITEM #29;
IF YES THEN:

7) NUMBER OF SYSTOLIC MURMURS PRESENT [] (1, 2, 3)

IF ONLY ONE (1) SYSTOLIC MURMUR PRESENT, ENTER:

- 8) INTENSITY [] (1-6)
- 9) PITCH [] (1-Low; 2-Medium; 3-High)
- 10) CONFIGURATION [] (1-Crescendo; 2-Decrescendo;
3-Crescendo-decrescendo;
4-Plateau)
- 11) TIMING [] (1-Midsystolic; 2-Holosystolic
3-Early Systolic; 4-Late
Systolic)
- 12) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS;
2-Base of Neck; 3-2nd/3rd L ICS;
4-4th/5th L ICS; 5-3rd/4th R
ICS; 6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify

IF 8, SPECIFY

13. RADIATION [] (1-Absent; 2-Present)

IF PRESENT, THEN (14) [] (1-2nd R ICS; 2-Base
of Neck; 3-2nd/3rd L
ICS; 4-4th/5th L ICS;
5-3rd/4th R ICS;
6-Epigastrium;
7-Cardiac Apex; 8-Other,
Specify Next Page

IF 8, SPECIFY

FOR A SECOND SYSTOLIC MURMUR, ENTER:

- 15) INTENSITY [] (1-6)
16) PITCH [] (1-Low; 2-Medium; 3-High)
17) CONFIGURATION [] (1-Crescendo; 2-Decrescendo;
3-Crescendo-decrescendo;
4-Plateau)

18) TIMING [] (1-Midsystolic; 2-Holosystolic
3-Early Systolic; 4-Late
Systolic)

19) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS;
2-Base of Neck; 3-2nd/3rd L ICS;
4-4th/5th L ICS; 5-3rd/4th R
ICS; 6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify

IF 8, SPECIFY

- 20) RADIATION [] (1-Absent; 2-Present)

IF PRESENT, THEN (21) [] (1-2nd R ICS; 2-Base of
Neck; 3-2nd/3rd L ICS;
4-4th/5th L ICS;
5-3rd/4th R ICS;
6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify

IF 8, SPECIFY

FOR A THIRD SYSTOLIC MURMUR, ENTER:

- 22) INTENSITY [] (1-6)
23) PITCH [] (1-Low; 2-Medium; 3-High)
24) CONFIGURATION [] (1-Crescendo; 2-Decrescendo;
3-Crescendo-decrescendo;
4-Plateau)

25) TIMING [] (1-Midsystolic; 2-Holosystolic
3-Early Systolic; 4-Late
Systolic)

- 26) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS;
2-Base of Neck; 3-2nd/3rd L ICS;
4-4th/5th L ICS; 5-3rd/4th R
ICS; 6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify

IF 8, SPECIFY

- 27) RADIATION [] (1-Absent; 2-Present)

IF PRESENT, THEN (28) [] (1-2nd R ICS;
2-Base of Neck; 3-2nd/3rd L
ICS; 4-4th/5th L ICS;
5-3rd/4th R ICS; 6-Epigastrium;
7-Cardiac Apex; 8-Other,
Specify

IF 8, SPECIFY

- 29) DIASTOLIC MURMURS [] (1-No; 2-Yes)

IF NO, THEN SKIP TO PAGE 12, ITEM #52;

IF YES, THEN GO TO PAGE 10, ITEM #30

- 30) NUMBER OF DIASTOLIC MURMURS PRESENT [] 1, 2, 3.

IF ONLY ONE (1) DIASTOLIC MURMUR PRESENT, ENTER:

- 31) INTENSITY [] (1-6)
32) PITCH [] (1-Low; 2-Medium; 3-High)
33) CONFIGURATION [] (1-Crescendo; 2-Decrescendo;
3-Crescendo-Decrescendo;
4-Plateau)
34) TIMING [] (1-Early Diastolic; 2-Mid
Diastolic; 3-Late
Diastolic (Presystolic))
35) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS;
2-Base of neck; 2nd/3rd L
ICS; 4-4th/5th L ICS;
5-3rd/4th R ICS;
6-Epigastrium; 7-Cardiac Apex;
8-Other, Specify:

IF 8, SPECIFY

36) RADIATION [] (1-Absent; 2-Present)

IF PRESENT, THEN (37) [] (1-2ND R ICS; 2-Base of neck; 3-2nd/3rd L ICS; 4-4th/5th R ICS; 5-3rd/4th R ICS; 6-Epigastrium; 7-Cardiac Apex; 8-Other, Specify:

IF 8, SPECIFY

FOR A SECOND DIASTOLIC MURMUR, ENTER:

- 38) INTENSITY [] (1-6)
39) PITCH [] (1-Low; 2-Medium; 3-High)
40) CONFIGURATION [] (1-Crescendo; 2-Decrescendo; 3-Crescendo-Decrescendo; 4-Plateau)
41) TIMING [] (1-Early Diastolic; 2-Mid Diastolic; 3-Late Diastolic (Presystolic))
42) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS; 2-Base of neck; 3-2nd/3rd L ICS; 4-4th/5th L ICS; 5-3rd/4th R ICS; 6-Epigastrium; 7-Cardiac Apex; 8-Other, Specify:

IF 8, SPECIFY

43) RADIATION [] (1-Absent; 2-Present)

IF PRESENT, THEN (44) [] (1-2ND R ICS; 2-Base of neck; 3-2nd/3rd L ICS; 4-4th/5th R ICS; 5-3rd/4th R ICS; 6-Epigastrium; 7-Cardiac Apex 8-Other, Specify:

IF 8, SPECIFY

FOR A THIRD DIASTOLIC MURMUR, ENTER:

- 45) INTENSITY [] (1-6)
46) PITCH [] (1-Low; 2-Medium; 3-High)
47) CONFIGURATION [] (1-Crescendo; 2-Decrescendo;
3-Crescendo-Decrescendo;
4-Plateau)
48) TIMING [] (1-Early Diastolic; 2-Mid
Diastolic; 3-Late Diastolic
(Presystolic))
49) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS;
2-Base of neck; 3-2nd/3rd L
ICS; 4-4th/5th L ICS;
5-3rd/4th R ICS;
6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify:

IF 8, SPECIFY

- 50) RADIATION [] (1-Absent; 2-Present)
IF PRESENT, THEN (51) [] (1-2ND R ICS; 2-Base of
neck; 3-2nd/3rd L ICS;
4-4th/5th R ICS;
5-3rd/4th R ICS;
6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify:

IF 8, SPECIFY

- 52) CONTINUOUS MURMURS [] (1-No; 2-Yes)

IF NO, THEN SKIP TO ITEM #57;
IF YES, THEN

- 53) INTENSITY [] (1-6)
54) SITE OF MAXIMAL INTENSITY [] (1-2nd R ICS;
2-Base of neck; 3-2nd/3rd L
ICS; 4-4th/5th L ICS;
5-3rd/4th R ICS;
6-Epigastrium; 7-Cardiac
Apex; 8-Other, Specify:

IF 8, SPECIFY

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02/10/87

55) RADIATION [] (1-Absent; 2-Present)

IF PRESENT, THEN (56) [] (1-2ND R ICS; 2-Base of
neck; 3-2nd/3rd L ICS;
4 - 4th/5th L ICS;
5 - 3rd/4th R ICS;
6-Epigastrium;
7-Cardiac Apex;
8-Other, Specify:

IF 8, SPECIFY

57) SYSTOLIC CLICK [] (1-Absent; 2-Present)

IF PRESENT, THEN

58) MULTIPLE [] (1-No; 2-Yes)

59) TIMING [] (1-Early Systolic; 2-Mid-systolic;
3-Late Systolic)

60) GALLOP [] (1-Absent; 2-Present)

IF PRESENT, THEN

61) TIMING [] (1-atrial gallop (Presystolic);
2-ventricular diastolic gallop;
3-summation gallop)

62) VARIES WITH INSPIRATION [] (1-No; 2-Louder
During Expiration; 3-Louder
During Inspiration)

63) PERICARDIAL FRICTION RUB [] (1-Absent; 2-Present)

64) OTHER CARDIAC ABNORMALITY [] (1-No; 2-Yes)

IF YES, DESCRIBE BELOW:

L. BREAST (MALES ONLY)

1) PRESENCE [] (1-BOTH; 2-R; 3-L; 4-NEITHER)

2) GYNecomastia [] (1-Absent; 2-Present)

3) NIPPLE DISCHARGE [] (1-Absent; 2-Present)

4) MASSES [] (1-NO; 2-YES)

5) LEFT [] (1-NO; 2-YES)

6) QUADRANT [] (1-AXILLA; 2-UPPER OUTER;
3-UPPER INNER; 4-LOWER INNER)

7) SIZE [] CM

8) RIGHT [] (1-NO; 2-YES)

9) QUADRANT [] (AXILLA; 2-UPPER OUTER; 3-UPPER
INNER; 4-LOWER INNER)

10) SIZE [] CM

M. ABDOMEN

1) **VISIBLE ABNORMALITY** [] (1-No; 2-Yes)

IF YES, THEN (1-No; 2-Yes)

2) **ASCITES** []

2a) **IF YES, RECORD SHIFTING DULLNESS IN CM** []

3) **MASS** []

4) **SPIDERS** []

4a) **IF YES, DESCRIBE BELOW**

5) **PALPABLE MASS** [] (1-No; 2-Yes)

IF YES, THEN (1-No; 2-Yes)

6) **RUQ** []

7) **LUQ** []

8) **RLQ** []

9) **LLQ** []

10) **SUPRAPUBIC** []

IF THERE IS AN ABDOMINAL MASS, THEN DESCRIBE BELOW

11) **TENDERNESS** [] (1-No; 2-Yes)

IF YES, THEN (1-No, 2-Yes)

12) **RUQ** []

13) **LUQ** []

14) **RLQ** []

15) **LLQ** []

16) **SUPRAPUBIC** []

17) **DIFFUSE TENDERNESS** [] (1-No; 2-Yes)

18) **REBOUND TENDERNESS** [] (1-No; 2-Yes)

19) **PERCUSSION TENDERNESS** [] (1-No; 2-Yes)

NIOSH OCCUPATIONAL HEALTH STUDY
02/10/87

20) PALPABLE LIVER [] (1-No; 2-Yes)

IF YES, THEN

21) RECORD cm BELOW RCM
(R MIDCLAVICULAR LINE) [] CM

22) LIVER EDGE [] (1-Sharp; 2-Rounded)

23) LIVER CONSISTENCY [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN (1-No; 2-Yes)

24) HARD []

25) NODULAR []

26) PERCUSSIBLE LIVER SIZE IN R MID-CLAVICULAR LINE [] CM

27) SPLEEN PALPABLE [] (1-No; 2-Yes)

28) CVA TENDERNESS [] (1-No; 2-R; 3-L; 4-Both)

29) BROIT [] (1-No; 2-Yes)

IF YES, THEN (1-No; 2-Yes)

30) AORTIC [] 31) R FEMORAL [] 32) L FEMORAL []
33) R CAROTID [] 34) L CAROTID []

35) HERNIA [] (1-No; 2-Yes)

IF YES, THEN (1-Absent; 2-Reducible; 3-Not Reducible)

36) UMBILICAL [] 37) R INGUINAL []
38) L INGUINAL [] 39) INCISIONAL []

N. GENITAL (MALES ONLY)

1) PUBIC HAIR [] (1-Normal male pattern; 2-Decreased)

2) PENIS [] (1-Normal; 2-Abnormal)

3) DISCHARGE [] (1-No; 2-Yes)

4) PHIMOSIS [] (1-No; 2-Yes)

5) R TESTIS [] ml

6) L TESTIS [] ml

INDICATE 1-No; 2-R; 3-L; 4-Bilateral for the following:

- 7) EPIDIDYMIS THICKENED/TENDER []
 - 8) VARICOCELE []
 - 9) SCROTAL MASS [] IF OTHER THAN 1, DESCRIBE BELOW
-

10) PROSTATE [] (1-Normal; 2-Abnormal)
IF ABNORMAL, THEN (1-No; 2-Yes)

- 11) DIF ENLARGED []
- 12) ATROPHIC []
- 13) NODULE []
- 14) SOFT CONSISTENCY []
- 15) TENDER []

O. 1) RECTAL [] (1-Normal; 2-Abnormal) (MALES ONLY)

IF ABNORMAL, THEN (1-No; 2-Yes)

- 2) HEMORRHOIDS []
 - 3) ANAL FISSURE []
 - 4) RECTAL MASS [] IF YES, THEN DESCRIBE BELOW
-

5) ANAL SPHINCTER TONE [] (1-Normal; 2-Decreased)

6) STOOL [] (1-Sample taken for occult blood testing; 2-No stool present)

P. EXTREMITIES

1) ABSENCE [] (1-No; 2-Yes)

IF YES, THEN (1-No; 2-R; 3-L; 4-R and L)

- 2) FINGER []
- 3) TOE []
- 4) ARM []
- 5) LEG []

6) CLUBBING FINGERS [] (1-No; 2-Yes)

7) CLUBBING TOES [] (1-No; 2-Yes)

8) EDEMA [] (1-No; 2-Yes)

IF YES, THEN INDICATE SEVERITY (0-4)

9) PEDAL [] 10) PRETIBIAL [] 11) ANKLE []
12) PRESACRAL [] 13) FACIAL []

14) ACROCYANOSIS [] (1-No; 2-Yes)

15) VARICOSE LEG VEINS [] (1-No; 2-R; 3-L; 4-Both)

16) LEG VEINS INFLAMED [] (1-No; 2-R; 3-L; 4-Both)

17) SOFT TISSUE MASSES OF EXTREMITIES [] (1-No; 2-Yes)

IF YES, DESCRIBE BELOW

18) RANGE OF MOTION [] (1-Normal; 2-Decreased)

IF DECREASED, THEN (1-Normal; 2-Decreased)

19) R SHOULDER []	20) L SHOULDER []
21) R ELBOW []	22) L ELBOW []
23) R WRIST []	24) L WRIST []
25) R HIP []	26) L HIP []
27) R KNEE []	28) L KNEE []
29) R ANKLE []	30) L ANKLE []

31) STRAIGHT LEG RAISING [] (1-Normal; 2-Limited by back pain; 3-Limited by thigh pain; 4-Limited by muscle stiffness)

32) JOINT SWELLING [] (1-No; 2-Yes)

IF YES, THEN (1-NO; 2-HARD; 3-NODULAR; 4-ERYTHEMATOUS;
5-FLUCTUANT; 6-PAINFUL)

33) R KNEE []	34) L KNEE []
35) R ANKLE []	36) L ANKLE []
37) R FINGERS []	38) L FINGERS []

Q. 1) SPINE [] (1-Normal; 2-Abnormal)

IF ABNORMAL, THEN (1-No; 2-Yes)

2) SCOLIOSIS	[]	3) KYPHOSIS	[]
4) DECREASED ROM	[]	5) TENDERNESS	[]
6) PELVIC TILT	[]		

R. 1) LYMPH NODES [] (1-Normal; 2-Abnormal)

IF ABNORMAL:

RECORD SIZE OF LARGEST NODE OR MASS IN CM IF CONFLUENT	IF ABNORMAL, THEN DESCRIBE AS:	TENDER	FIRM	FIXED	CONFLUENT
		(1-No; 2-Yes)			

2) CERVICAL [] (1-Normal; 2-Abnormal)					
IF ABN: 3) [] cm	4) []	5) []	6) []	7) []	

8) OCCIPITAL [] (1-Normal; 2-Abnormal)					
IF ABN: 9) [] cm	10) []	11) []	12) []	13) []	

14) SUPRACLAVICULAR [] (1-Normal; 2-Abnormal)					
IF ABN: 15) [] cm	16) []	17) []	18) []	19) []	

20) AXILLARY [] (1-Normal; 2-Abnormal)					
IF ABN: 21) [] cm	22) []	23) []	24) []	25) []	

26) EPITROCHLEAR [] (1-Normal; 2-Abnormal)					
IF ABN: 27) [] cm	28) []	29) []	30) []	31) []	

32) INGUINAL [] (1-Normal; 2-Abnormal)					
IF ABN: 33) [] cm	34) []	35) []	36) []	37) []	

38) COMPLETION TIME []

39) SIGNATURE OF PHYSICIAN: _____

(RECORD COMMENTS TO THE DIAGNOSTICIAN ON NEXT PAGE)

NIOSH OCCUPATIONAL HEALTH STUDY
02/11/87

DERMATOLOGY EXAM

1. PARTICIPANT ID# _____ NAME _____

2. DATE: _____ 3. START TIME: _____

4. EXAMINATION STATUS: _____
(1-COMPLETE; 2-PARTIALLY COMPLETE; 9-REFUSED)

5. PHYSICIAN ID: _____ 6. PHOTOGRAPHER ID: _____

A. HYPERPIGMENTATION [] 1-ABSENT; 2-PRESENT

1. OF SKIN (ACNE AREA ONLY) [] 1-ABSENT; 2-PRESENT

a. | | | | | f. | | | | |

b. | | | | | g. | | | | |

c. | | | | | h. | | | | |

d. | | | | | i. | | | | |

e. | | | | | j. | | | | |

2. OF CONJUNCTIVAE [] 1-ABSENT; 2-PRESENT

3. OF ORAL MUCOSA [] 1-ABSENT; 2-PRESENT

4. OF NAIL BEDS [] 1-ABSENT; 2-PRESENT

*** B. ACNEIFORM DISEASE [] 1-ABSENT; 2-PRESENT

1. ACNE VULGARIS [] 1-ABSENT; 2-PRESENT

a. | | | | | f. | | | | |

b. | | | | | g. | | | | |

c. | | | | | h. | | | | |

d. | | | | | i. | | | | |

e. | | | | | j. | | | | |

ACNEIFORM DISEASE (CONTINUED)

2. ACNE CONGLOBATA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

3. DISSECTING CELLULITIS OF SCALP [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

4. HIDRADENITIS SUPPURATIVA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

5. ACNE ROSACEA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

ACNEIFORM DISEASE (CONTINUED)

6. PERIORAL DERMATITIS [] 1-ABSENT; 2-PRESENT

7. FAVRE-RACOUCHOT DISEASE [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

8. CHLORACNE [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

9. ACNEIFORM DISEASES NOT ELSEWHERE CLASSIFIED []
1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

**** C. ACNEIFORM LESIONS [] 1-ABSENT; 2-PRESENT
(IF PRESENT, ENTER A FIVE DIGIT CODE;
THE LAST DIGIT BEING THE SEVERITY INDEX)

1. OPEN COMEDONE (blackhead) 1-ABSENT; 2-PRESENT

a.	f.
b.	g.
c.	h.
d.	i.
e.	j.

2. CLOSED COMEDONE (whitehead) (\leq 2mm) []
1-ABSENT; 2-PRESENT

a.	f.
b.	g.
c.	h.
d.	i.
e.	j.

3. SMALL CYSTS (3-10mm) [] 1-ABSENT; 2-PRESENT

a.	f.
b.	g.
c.	h.
d.	i.
e.	j.

ACNEIFORM LESIONS (CONTINUED)

4. PAPULE INFLAMED ($\leq 10\text{mm}$) [] 1-ABSENT; 2-PRESENT

a.	f.
b.	g.
c.	h.
d.	i.
e.	j.

5. PUSTULES ($\leq 10\text{mm}$) [] 1-ABSENT; 2-PRESENT

a.	f.
b.	g.
c.	h.
d.	i.
e.	j.

6. NODULES OR CYSTS, NON INFLAMED ($> 10\text{mm}$) []
1-ABSENT; 2-PRESENT

a.	f.
b.	g.
c.	h.
d.	i.
e.	j.

ACNEIFORM LESIONS (CONTINUED)

7. NODULES OR CYSTS, INFLAMED (> 10mm) []
1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

8. ACNE SCARS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

9. ACNEIFORM LESIONS NOT ELSEWHERE CLASSIFIED []
1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

**** D. LESIONS SUGGESTIVE OF PORPHYRIA CUTANEA TARDA
AND LIVER DISEASE [] 1-ABSENT; 2-PRESENT

1. FACIAL HIRSUTISM [] 1-ABSENT; 2-PRESENT

IF PRESENT, PLEASE JUSTIFY UNDER "COMMENTS", SECTION D.1.

LESIONS SUGGESTIVE OF PORPHYRIA CUTANEA TARDA (CONTINUED)

2. HIRSUTISM ELSEWHERE ON THE BODY SURFACE []
1-ABSENT; 2-PRESENT
IF PRESENT, PLEASE JUSTIFY UNDER "COMMENTS" SECTION D.1.
3. VESICLES, BLISTERS OR SUPERFICIAL EROSIONS ON
DORSAL HANDS [] 1-ABSENT; 2-PRESENT
4. VESICLES, BLISTERS OR SUPERFICIAL EROSIONS ON SUN
EXPOSED SURFACES OTHER THAN DORSAL HANDS []
1-ABSENT; 2-PRESENT
5. ATROPHIC SCARS WITH MILIA ON DORSAL HANDS []
1-ABSENT; 2-PRESENT
6. ATROPHIC SCARS WITHOUT MILIA ON DORSAL HANDS []
1-ABSENT; 2-PRESENT
7. MOTTLED HYPERPIGMENTATION OF SUN EXPOSED AREAS []
1-ABSENT; 2-PRESENT
8. SCLERODERMOID PLAQUES OF SUN EXPOSED AREAS []
1-ABSENT; 2-PRESENT
9. SPIDER TELANGECTASIAS [] 1-ABSENT; 2-PRESENT
 - a. | | | | |
 - b. | | | | |
 - c. | | | | |
 - d. | | | | |
 - e. | | | | |
 - f. | | | | |
 - g. | | | | |
 - h. | | | | |
 - i. | | | | |
 - j. | | | | |

LESIONS SUGGESTIVE OF PORPHYRIA CUTANEA TARDA (CONTINUED)

10. PALMAR ERYTHEMA [] 1-ABSENT; 2-PRESENT

11. SCLERAL ICTERUS [] 1-ABSENT; 2-PRESENT

12. JAUNDICE OF SKIN [] 1-ABSENT; 2-PRESENT

13. PORPHYRIA CUTANEA TARDA LESIONS NOT ELSEWHERE CLASSIFIED
[] 1-ABSENT; 2-PRESENT

a. | | | | |

f. | | | | |

b. | | | | |

g. | | | | |

c. | | | | |

h. | | | | |

d. | | | | |

i. | | | | |

e. | | | | |

j. | | | | |

IF PRESENT JUSTIFY UNDER "COMMENT" SECTION D.11.

E. CUTANEOUS NEOPLASMS AND THEIR PRECURSORS []
1-ABSENT; 2-PRESENT

1. GENERAL ACTINIC DAMAGE [] 1-ABSENT; 2-PRESENT
(IF PRESENT, ENTER A FIVE DIGIT CODE
THE LAST DIGIT BEING THE SEVERITY INDEX)

A. SOLAR ELASTOSIS [] 1-ABSENT; 2-PRESENT

a. | | | | |

f. | | | | |

b. | | | | |

g. | | | | |

c. | | | | |

h. | | | | |

d. | | | | |

i. | | | | |

e. | | | | |

j. | | | | |

CUTANEOUS NEOPLASMS (CONTINUED)

B. ACTINIC KERATOSES [.] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

C. POIKILODERMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

2. SPECIFIC LESIONS [] 1-ABSENT; 2-PRESENT

**** A. SQUAMOUS CELL CARCINOMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

**** B. BASAL CELL EPITHELIOMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

CUTANEOUS NEOPLASMS (CONTINUED)

**** C. MALIGNANT MELANOMA [] 1-ABSENT; 2-PRESENT

- | | | | |
|----|---------|----|---------|
| a. | _ _ _ _ | f. | _ _ _ _ |
| b. | _ _ _ _ | g. | _ _ _ _ |
| c. | _ _ _ _ | h. | _ _ _ _ |
| d. | _ _ _ _ | i. | _ _ _ _ |
| e. | _ _ _ _ | j. | _ _ _ _ |

**** D. MYCOSIS FUNGOIDES [] 1-ABSENT; 2-PRESENT

- | | | | |
|----|---------|----|---------|
| a. | _ _ _ _ | f. | _ _ _ _ |
| b. | _ _ _ _ | g. | _ _ _ _ |
| c. | _ _ _ _ | h. | _ _ _ _ |
| d. | _ _ _ _ | i. | _ _ _ _ |
| e. | _ _ _ _ | j. | _ _ _ _ |

**** E. DERMATOFIBROSARCOMA [] 1-ABSENT; 2-PRESENT

- | | | | |
|----|---------|----|---------|
| a. | _ _ _ _ | f. | _ _ _ _ |
| b. | _ _ _ _ | g. | _ _ _ _ |
| c. | _ _ _ _ | h. | _ _ _ _ |
| d. | _ _ _ _ | i. | _ _ _ _ |
| e. | _ _ _ _ | j. | _ _ _ _ |

**** F. LENTIGO MALIGNA [] 1-ABSENT; 2-PRESENT

- | | | | |
|----|---------|----|---------|
| a. | _ _ _ _ | f. | _ _ _ _ |
| b. | _ _ _ _ | g. | _ _ _ _ |
| c. | _ _ _ _ | h. | _ _ _ _ |
| d. | _ _ _ _ | i. | _ _ _ _ |
| e. | _ _ _ _ | j. | _ _ _ _ |

CUTANEOUS NEOPLASMS (CONTINUED)

G. DYSPLASTIC NEVI [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

H. LEUKOPLAKIA OF ORAL CAVITY [] 1-ABSENT; 2-PRESENT

I. MALIGNANT OR PREMALIGNANT LESIONS NOT ELSEWHERE CLASSIFIED. [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

F. SKIN INFECTIONS [] 1-ABSENT; 2-PRESENT

1. WARTS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

2. HERPES SIMPLEX [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

SKIN INFECTIONS (CONTINUED)

3. HERPES ZOSTER [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

4. MOLLUSCUM CONTAGIOSUM [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

5. TINEA VERSICOLOR [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

6. TINEA UNGUIUM [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

SKIN INFECTIONS (CONTINUED)

7. TINEA CORPORIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

8. CANDIDIASIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

9. SCABIES [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

10. IMPETIGO [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

SKIN INFECTION

11. ERYTHRASMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

12. PITTED KERATOLYSIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

13. FOLLICULITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

14. FURUNCLES OR CARBUNCLES [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

SKIN INFECTIONS (CONTINUED)

15. PARONYCHIA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

16. SKIN INFECTIONS NOT ELSEWHERE CLASSIFIED []
1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

G. ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS []
1-ABSENT; 2-PRESENT

1. URTICARIA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

2. ERYTHEMA MULTIFORME [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS (CONTINUED)

3. ERYTHEMA NODOSUM [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

4. LEUKOCYTOCLASTIC VASCULITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

5. CUTANEOUS LUPUS ERYTHEMATOSUS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

6. SYSTEMIC LUPUS ERYTHEMATOSUS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS (CONTINUED)

7. DERMATOMYOSITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

8. SCLERODERMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

9. ALOPECIA AREATA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

10. VITILIGO [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS (CONTINUED)

11. DERMATITIS HERPETIFORMIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

12. PEMPHIGUS OR BULLOUS PEMPHIGOID [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

13. LICHEN PLANUS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

14. SARCOIDOSIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS (CONTINUED)

15. GRANULOMA ANNULARE [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

16. ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS NOT ELSEWHERE CLASSIFIED [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

H. MISCELLANEOUS CONDITIONS [] 1-ABSENT; 2-PRESENT

1. PSORIASIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

MISCELLANEOUS CONDITIONS (CONTINUED)

2. SEBORRHEIC DERMATITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

3. ATOPIC DERMATITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

4. DYSHIDROTIC ECZEMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

5. NUMULAR ECZEMA [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

MISCELLANEOUS CONDITIONS (CONTINUED)

6. CONTACT DERMATITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

7. PHOTSENSITIVE DERMATITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

8. ASTEATOTIC ECZEMA OR XEROSIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

9. STATIS DERMATITIS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

MISCELLANEOUS CONDITIONS (CONTINUED)

10. PEYRONIE'S DISEASE [] 1-ABSENT; 2-PRESENT

11. DUPUYTREN'S CONTRACTURE [] 1-ABSENT; 2-PRESENT

12. EPIDERMAL INCLUSION CYST [] 1-ABSENT; 2-PRESENT

a. | | | | |

f. | | | | |

b. | | | | |

g. | | | | |

c. | | | | |

h. | | | | |

d. | | | | |

i. | | | | |

e. | | | | |

j. | | | | |

13. LIPOMA [] 1-ABSENT; 2-PRESENT

a. | | | | |

f. | | | | |

b. | | | | |

g. | | | | |

c. | | | | |

h. | | | | |

d. | | | | |

i. | | | | |

e. | | | | |

j. | | | | |

14. DERMATOFIBROMA [] 1-ABSENT; 2-PRESENT

a. | | | | |

f. | | | | |

b. | | | | |

g. | | | | |

c. | | | | |

h. | | | | |

d. | | | | |

i. | | | | |

e. | | | | |

j. | | | | |

MISCELLANEOUS CONDITIONS (CONTINUED)

15. MISCELLANEOUS [] 1-ABSENT; 2-PRESENT

- | | |
|----|----|
| a. | f. |
| b. | g. |
| c. | h. |
| d. | i. |
| e. | j. |

I. PROCEDURES DONE

- 1. FUNGAL CULTURE [] 1-NO; 2-YES
- 2. KOH [] 1-NO; 2-YES
- 3. WOOD'S LIGHT [] 1-NO; 2-YES

J. IF REFERRAL FOR FOLLOW UP EXAMINATION OR BIOPSY IS INDICATED
PLEASE RECORD UNDER APPROPRIATE "COMMENTS" SECTION.

A. HYPERPIGMENTATION: _____

B. ACNEIFORM DISEASE: _____

C. ACNEIFORM LESIONS: _____

D. LESIONS SUGGESTIVE OF PORPHYRIA CUTANEA TARDA AND LIVER
DISEASE: _____

D1. HIRSUTISM PRESENT: _____

D11. PORPHYRIA CUTANEA TARDA NOT ELSEWHERE CLASSIFIED:

E. CUTANEOUS NEOPLASMS: _____

F. SKIN INFECTIONS: _____

G. ALLERGIC, AUTOIMMUNE OR IMMUNOLOGIC DISORDERS: _____

H. MISCELLANEOUS CONDITIONS: _____

NIOSH OCCUPATIONAL HEALTH STUDY
02/11/87

COMMENTS TO THE DIAGNOSTICIAN: _____

SIGNATURE OF DR. _____

NIOSH OCCUPATIONAL HEALTH STUDY
02/09/87

NEUROLOGICAL EXAMINATION

1. PARTICIPANT ID# _____ NAME _____
 2. EXAM DATE _____ 3. START TIME _____
 4. PHYSICIAN ID _____
 5. EXAM STATUS _____ 1=complete; 2=partially complete; 9=refused

NOTE: IF A "7" IS ENTERED PLEASE INDICATE THE REASON
(E.G. MISSING LIMB) IN THE APPROPRIATE "COMMENTS" SECTION.

*****7-NOT APPLICABLE; 8-DON'T KNOW; 9-REFUSED*****

A: CRANIAL NERVES

- | RT | LT | |
|-----------|--------------|--|
| 1) _____ | 2) _____ | SMELL (1-Normal; 2-Abnormal) |
| 3) _____ | 4) _____ | VISUAL FIELD (1-Normal; 2-Abnormal)
If ABNORMAL, indicate quadrant. |
| | 5) RT _____ | |
| | 6) LT _____ | |
| 7) _____ | 8) _____ | OPTIC DISC (1-Normal; 2-Atrophy;
3-Papilledema; 4-Other - Specify) |
| | 9) RT _____ | |
| | 10) LT _____ | |
| 11) _____ | 12) _____ | PUPIL SIZE (MM) |
| 13) _____ | 14) _____ | LIGHT REACTION (1-Normal; 2-Sluggish;
3-None) |
| 15) _____ | 16) _____ | PTOSIS (1-Absent; 2-Partial; 3-Complete) |
| 17) _____ | 18) _____ | OCCULAR MOBILITY (1-Normal; 2-Strabismus;
3-Dysmetria; 4-Nerve/Muscle/Gaze
Paresis; 5-Other - Specify) |

A: CRANIAL NERVES (CONTINUED)

19) RT _____

20) LT _____

RT LT

21) _____ 22) _____ NYSTAGMUS (1-None; 2-Horizontal; 3-Vertical;
4-Rotary; 5-Other-Specify)

23) RT _____

24) LT _____

25) _____ JAW STRENGTH (1-Normal; 2-Weak RT; 3-Weak LT;
4-Both Weak RT & LT; 5-Other - Specify)

26) SPECIFY: _____

27) _____ JAW JERK (1-Normal; 2-Increased)

28) _____ FACIAL PAIN PERCEPTION (1-Normal; 2-Abnormal)

If ABNORMAL, then (1-Normal; 2-Increased;
3-Decreased; 4-Absent;
5-Other - Specify)

RT LT

29) _____ 30) _____ OPHTHALMIC

31) _____ 32) _____ MAXILLARY

33) _____ 34) _____ MANDIBULAR

35) SPECIFY: _____

36) _____ 37) _____ CORNEAL REFLEX (1-Normal; 2-Decreased;
3-Absent; 4-Other - Specify)

38) RT _____

39) LT _____

40) _____ 41) _____ FACIAL MUSCLES (1-Normal; 2-Upper Motor
Neuron Weakness; 3-Lower Motor Neuron
Weakness; 4-Tics; 5-Chorea; 6-Other-
Specify)

42) SPECIFY: _____

A: CRANIAL NERVES (CONTINUED)

RT LT

43) _____ 44) _____ PALATE MOTION WITH PHONATION (1-Normal;
2-Absent; 3-Deviates Right; 4-Deviates
Left; 5-Palatal Myoclonus; 6-Other-
Specify)

45) SPECIFY: _____ -

46) _____ GAG REFLEX (1-Normal; 2-Dep. Rt; 3-Dep. Lt;
4-Both Rt & Lt; 5-Other-Specify)

47) SPECIFY: _____ -

48) _____ 49) _____ ACCESSORY NERVES (1-Normal; 2-Weak SCM;
3-Weak Trap; 4-Both Weak; 5-Other -
Specify)

50) RT _____

51) LT _____

52) _____ 53) _____ TONGUE MOTION (1-Normal; 2-Weakness
right side of tongue; 3-Weakness left
side of tongue; 4-Other - Specify)

54) RT _____

55) LT _____

56) _____ OTHER CRANIAL CONDITION (1-Absent; 2-Present)

If PRESENT, specify.

57) SPECIFY: _____

B: MUSCLE GROUP

(5 = nl; 4 = slight weakness; 3 = overcome gravity only;
2 = ROM w/o gravity; 1 = twitch; 0 = absent)

RT

LT

NECK

1. _____ 2. _____ FLEXORS OF HEAD
3. _____ 4. _____ EXTENSORS OF HEAD

UPPER EXTREMITIES

5. _____ 6. _____ DELTOIDS
7. _____ 8. _____ BICEPS
9. _____ 10. _____ BRACHIORADIALIS
11. _____ 12. _____ TRICEPS
13. _____ 14. _____ WRIST EXTENSORS
15. _____ 16. _____ WRIST FLEXORS
17. _____ 18. _____ OPPONENS POLLICIS
19. _____ 20. _____ INTEROSSEI
21. _____ 22. _____ FINGER EXTENSORS

LOWER EXTREMITIES

23. _____ 24. _____ PSOAS
25. _____ 26. _____ QUADRICEPS
27. _____ 28. _____ HAMSTRINGS
29. _____ 30. _____ DORSI/PLANTAR FLEXION FEET
31. _____ 32. _____ DORSI/PLANTAR FLEXION GREAT TOE
33. _____ ATROPHY (1= absent; 2= present)
IF PRESENT, DESCRIBE

B: MUSCLE GROUP (CONTINUED)

33a. _____

34. _____ FASICULATIONS (1=absent; 2= present)
IF PRESENT, DESCRIBE

34a. _____

35. COMMENTS _____

C: TENDON REFLEXES
(5 = clonus; 4 = increased [wnl]; 3 = nl; 2 = decreased;
1 = absent)

RT	LT	
1. _____	2. _____	BICEPS
3. _____	4. _____	QUADRICEPS
5. _____	6. _____	ACHILLES

7. COMMENTS _____

D: SENSORY
(1 = nl; 2 = impaired; 3 = absent)

TOUCH (UPPER EXTREMITY)

RT	LT	
1. _____	2. _____	DORSAL DISTAL INDEX FINGER
3. _____	4. _____	DORSAL PROXIMAL PHALANX OF INDEX FINGER
5. _____	6. _____	DORSAL WRIST
7. _____	8. _____	MID FOREARM
9. _____	10. _____	BICEPS TENDON

D: SENSORY (CONTINUED)

TOUCH (LOWER EXTREMITY)

RT	LT	
11. _____	12. _____	DORSAL DISTAL GREAT TOE
13. _____	14. _____	MID DORSAL FOOT
15. _____	16. _____	ANKLE (DORSAL SURFACE)
17. _____	18. _____	MID SHIN
19. _____	20. _____	KNEE

PIN (UPPER EXTREMITY)

RT	LT	
21. _____	22. _____	DORSAL DISTAL INDEX FINGER
23. _____	24. _____	DORSAL PROXIMAL PHALANX OF INDEX FINGER
25. _____	26. _____	DORSAL WRIST
27. _____	28. _____	MID FOREARM
29. _____	30. _____	BICEPS TENDON

PIN (LOWER EXTREMITY)

RT	LT	
31. _____	32. _____	DORSAL DISTAL GREAT TOE
33. _____	34. _____	MID DORSAL FOOT
35. _____	36. _____	ANKLE (DORSAL SURFACE)
37. _____	38. _____	MID SHIN
39. _____	40. _____	KNEE

POSITION (UPPER EXTREMITY)

RT	LT	
41. _____	42. _____	INDEX FINGER

D: SENSORY (CONTINUED)

POSITION (LOWER EXTREMITY)

RT

LT

43. _____ 44. _____ GREAT TOE

VIBRATORY

RT

LT

45. _____ 46. _____ INDEX FINGER PAD

47. _____ 48. _____ HEAD OF RADIUS

49. _____ 50. _____ GREAT TOE PAD

51. _____ 52. _____ LATERAL MALEOLUS

53. COMMENTS _____

E: STATION

(1 = normal; 2 = unstable)

1. _____ STATION, EYES OPEN

2. _____ STATION, EYES CLOSED

GAIT

(1 = normal; 2 = abnormality present)

3. _____ STIFF LEGGED

4. _____ ARM SWING

5. _____ SWAY

6. _____ BROAD BASE

7. _____ FOOT DROP

E: STATION (CONTINUED)

8. _____ SUDDEN TURN (1= smooth; 2= unsteady; 3=falls)
9. _____ TOE WALK (20') (1= maintains; 2= sinks to
heels; 3= can't do)
10. _____ HEEL WALK (20') (1= maintains; 2= sinks to
soles; 3= can't do)
11. _____ TANDEM WALK (20') (1= nl; 2= sways; 3= can't do)

12. COMMENTS _____

F: COORDINATION

(1= nl; 2= dysrhythmic; 3= very clumsy)

RT

LT

1. _____ 2. _____ RAPID HAND ROTATION
3. _____ 4. _____ INDEX FINGER TO THUMB
5. _____ 6. _____ TOE TAPPING

G: TREMOR

(1= nl; 2= slight tremor; 3= severe tremor)

RT

LT

1. _____ 2. _____ HANDS AT REST
3. _____ 4. _____ HANDS, OUTSTRETCHED
5. _____ 6. _____ FINGER TO NOSE
7. _____ 8. _____ HEEL TO SHIN

9. COMMENTS _____

COMMENTS TO DIAGNOSTICIAN (FREE TEXT)

NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH

PROJECT TITLE: STUDY OF PERSISTENT HEALTH EFFECTS OF CHEMICAL-HERBICIDE
WORKERS AND COMMUNITY RESIDENTS OF UNKNOWN EXPOSURE

MANUAL FOR ELECTROPHYSIOLOGICAL AND QUANTITATIVE SENSORY TESTING PROCEDURES

JOSEPH C. AREZZO, PH.D.
MONA S. LITWAK
DEPARTMENTS OF NEUROSCIENCE AND NEUROLOGY
ALBERT EINSTEIN COLLEGE OF MEDICINE

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TABLE OF CONTENTS:

I. INTRODUCTION 3

II. ELECTROPHYSIOLOGICAL PROCEDURES 4

- A. EQUIPMENT 4
- B. NERVES AND END POINTS TO BE ASSESSED 4
- C. METHODS 5
 - 1. Electrodes 5
 - 2. Skin temperature control 5
 - 3. Averaging 6
 - 4. Stimulation 6
 - 5. Environment 6
 - 6. Specific nerves 6
 - A) Median Sensory 6
 - B) Median Motor 7
 - C) Ulnar Sensory 7
 - D) Peroneal Motor 7
 - E) Sural Sensory 8
- D. TECHNICAL CONCERNS 8
- E. NORMAL VALUES 9

III. VIBRATION THRESHOLD 9

- A. EQUIPMENT 9
- B. TESTING PROCEDURE 10
- C. TESTING ALGORITHM 11
- D. TECHNICAL CONCERNS 11
- E. DATA ANALYSIS PROCEDURE 12
- F. NORMAL VALUES 12

IV. THERMAL THRESHOLD 12

- A. EQUIPMENT 12
- B. TESTING PROCEDURE 13
- C. TESTING ALGORITHM 13
- D. TECHNICAL CONCERNS 13
- E. DATA ANALYSIS PROCEDURE 14
- F. NORMAL VALUES 14

V. DATA INTERPRETATION 14

VI. ADDITIONAL INFORMATION REQUIRED 15

I. INTRODUCTION

Toxic abnormalities of nervous system function are usefully divided into rapidly acting, usually reversible conditions (e.g. produced by anesthesia, ethanol, narcotics, cholinesterase inhibitors, etc.) and those associated with persistent dysfunction resulting from the disruption of cellular elements. The latter group, which are the target of this study, must be further divided with regard to the cellular element involved. The most common reaction of the nervous system to exposure to exogenous neurotoxins is a distal axonopathy. This condition is characterized by distal, retrograde axonal degeneration (dying back) and is heralded by sensory loss in a stocking and glove distribution. The largest and longest axons are often initially affected and therefore the loss of vibration sense is an early and reliable clinical sign. Toxic myelinopathies (e.g. produced by hexachlorophene, acetyl ethyl tetramethylpyrrolidine, etc.) are less common and are associated with bubbling of myelin sheaths, principally at the nodes. Myelinopathies can differentially affect PNS and CNS fibers, often result in spasticity, weakness, as well as paresthesia. Toxic neuropathies, (e.g. produced by pyridoxine, organic and inorganic mercury compounds, arsenic, etc.) principally affecting dorsal root and autonomic ganglia, can affect distal and proximal sites simultaneously, and are characterized by sudden onset and multiple sites of dysfunction.

The pattern of neurotoxic insult, if indeed one is present, associated with low level, long term exposure to herbicides is not clearly defined. In this regard the literature contains numerous conflicting reports concerning signs, symptoms and electrophysiological correlates. The dysfunctions that have been reported tend to be relatively subtle. A screening program, such as that called for in this study, must therefore be both broad based and sensitive. A broad based approach requires assessment of multiple nerves in both the upper and lower limbs, assessment of both distal and proximal segments within individual nerves, assessment of both motor and sensory function, and assessment of both myelinated and unmyelinated fibers. The electrophysiology should include measures that are sensitive to both axonal loss (e.g. reduction in amplitude of compound action potential) and myelin loss (e.g. slowed conduction velocities, prolonged long latency responses). The sensitivity of the measures can be enhanced by rigorous quality control in all phases of testing and by careful consideration of confounding variables such as alternative causes for dysfunction (i.e. carpal tunnel syndrome).

The electrophysiological and quantitative sensory testing procedures outlined in the present document are designed to be used in concert with a clinical neurological exam to detect the presence of peripheral neuropathy. The electrophysiological measures specifically target the distal nerve segment of both the upper and lower limbs. Dysfunction in these regions is characteristic of a number of peripheral neuropathies including those associated with exposure to exogenous neurotoxins. Vibration threshold is a measure of the integrity of the distal portion of the long and large diameter axons that innervate the Pacinian and Meissner corpuscles in both hands and feet. This measure has proved a particularly sensitive index of

toxic distal axonopathy. The assessment of thermal thresholds provides a measure of function within the small A-delta and unmyelinated C fibers of the peripheral nerve. Dysfunction in these fibers is prominent in peripheral neuropathies associated with diabetes, kidney failure and some neurotoxins.

II. ELECTROPHYSIOLOGICAL PROCEDURES

A. EQUIPMENT

Minimal requirements include:

1. EMG machine with the following features:
 - a. Two channel differential amplification
 - b. Averaging capability
 - c. Internal cursor for time and amplitude measurements
 - d. Stimulus isolation unit for generation of stimulus pulses

These features are found in standard electrophysiological and EMG equipment provided by the major manufactures including: Nicolet, Teca and Disa.

2. Digital thermometer with surface probes, accurate to 0.1 ° C.
3. Equipment capable of raising limb temperature 5.0 ° C. in 15 min. This can be accomplished using either a dry or wet heat blanket, or a radiant lamp.

B. NERVES OR END POINTS TO BE ASSESSED

All electrophysiological procedures should be performed unilaterally and on the same side for both upper and lower limbs. The non-dominant limb should be used unless contraindicated by localized pathology (e.g. injuries, history of entrapment, etc.).

All latencies must be measured from the onset of stimulation to the onset of the initial negative deflection in the evoked response (i.e. onset of depolarization). Latency measurements must be assessed using a computer cursor and must be recorded to the nearest 0.1 msec. All amplitudes must be measured from the baseline (pre-stimulus if available) to the peak of the negativity. Amplitude measurements must also be assessed using a computer cursor and must be recorded to the nearest 0.1 mv for motor responses and the nearest 0.1 uv for sensory responses. All distances must be measured in millimeters and recorded to the nearest 1.0 mm.

Motor nerve conduction velocity (NCV) is defined as the distance between the stimulating cathodes divided by the latency difference to the onset of the M-wave response following stimulation at a proximal and distal site. Proximal sensory NCV is defined as the distance between the stimulating cathodes divided by the latency difference to the onset of initial negative component following stimulation at a proximal and distal

site. Distal sensory NCV is defined by dividing the distance between the distal stimulating cathode by the absolute latency of the initial negative component of the distal sensory response.

The following measures will be collected:

1. Median Sensory (antidromic)
 - a) NCV of forearm segment
 - b) NCV of distal segment (wrist to interdigital cleft)
 - c) NCV segment from palm to index finger and palm to wrist (in selected subjects)
 - d) amplitude of compound sensory response for distal stimulation
2. Median Motor (orthodromic)
 - a) NCV of forearm segment
 - b) M-wave amplitude for distal stimulation
3. Ulnar Sensory (antidromic)
 - a) NCV of distal segment (wrist to interdigital cleft)
 - b) amplitude of compound sensory response
4. Peroneal Motor (orthodromic)
 - a) NCV of distal segment (knee to ankle)
 - b) M-wave amplitude
 - c) absolute latency of the F-wave response for distal stimulation (fastest of at least 10 responses)
5. Sural Sensory (antidromic)
 - a) NCV segment from mid-calf to ankle
 - b) amplitude of compound sensory response

C. METHODS

1. Electrodes:

All stimulating and recording electrodes should be applied to the skin surface. Ring electrodes, which encircle the finger, are recommended for median sensory and ulnar sensory nerves.

- a) clean the skin with a suitable solvent, e.g. acetone
- b) lightly abrade the skin with electrode paste
- c) apply a conducting medium, e.g. electrode jelly, between the electrode and the skin

2. Skin temperature control:

Skin temperature should be maintained at 33.0 ° C. for the upper limb and 32.0 ° C. for the lower limb, plus or minus 1.0 ° C, throughout testing. Skin temperature should be measured prior to testing at sites midway between the stimulating and recording electrodes for each limb. Temperature should be monitored and adjusted during testing using either a feedback controlled infrared radiant heater or a temperature controlled blanket wrap.

3. Averaging:

All measurements should be taken from a computer averaged signal using internal cursors. This averaging technique will enhance the signal to noise ratio and facilitate accurate measurement of response onset. When measuring the M-wave response averaging 3 to 5 stimuli should be sufficient, for sensory response between 10 and 32 stimuli should be averaged.

4. Stimulation:

All testing should be done with the subject carefully isolated from ground using a professional stimulus isolation unit. Stimulus intensity varies as a function of the specific nerve and site of stimulation; the intensity should be adjusted according to the guidelines below.

5. Environment:

All testing should be done in a quiet room with the subject in a comfortable reclining position.

6. Specific Nerves:

A) Median Sensory

- 1) Position the active ring electrode on the index finger, 1.0 cm distal to the interdigital cleft.
- 2) Position the reference electrode on the same index finger 2.0 cm distal to the active lead.
- 3) Place the ground between the active electrode and the point of stimulation.
- 4) When stimulating at the wrist, position the stimulating cathode over the median nerve 2.0 cm proximal to the distal wrist crease. For best results, the electrodes should be positioned between the P. longus and F. carpi radialis tendons. There should be a minimal separation of 2.0 cm between the anode and cathode and the anode should be 2.0 cm further proximal than the cathode.
- 5) When stimulating at the elbow, position the stimulating cathode over the median nerve at the elbow crease.
- 6) Stimulus duration should be 0.2 msec.
- 7) Stimulus intensity should be adjusted to produce a brief twitch of the abductor pollicis muscle. This should be super-maximal for the compound sensory negativity.
- 8) Stimulus rate should be 1 per/sec.
- 9) In subjects suspected to have carpal tunnel syndrome (ratio of distal ulnar/distal median greater than 1.25) the following additional assessments will be required:
 - a. Distal-palmar NCV
 - i. recording electrodes remain at positions described above
 - ii. stimulating electrodes are positioned at a mid-palm site with cathode distal to the anode
 - iii. ground is positioned between the stimulating and

recording electrodes

- iv. stimulus duration is reduced to 0.1 msec and stimulus intensity remains at supramaximal levels

b. Trans-carpal NCV

- i. recording electrodes are positioned at the wrist with the active lead distal and the reference 2.0 cm proximal
- ii. stimulating electrodes are positioned with the cathode at the same point as described for distal-palmar stimulation and the anode further distal

B) Median Motor

- 1) Position the active recording electrode over the motor endplate of the abductor pollicis brevis.
- 2) Position the reference ring electrode on the same thumb at least 2.0 cm distal to the active lead.
- 3) Place the ground between the distal stimulation site and the active recording lead.
- 4) The distal and proximal stimulation sites are identical to those used for median sensory stimulation
- 5) Stimulus duration should be 0.2 msec.
- 6) Stimulus intensity should be supra-maximal for M-wave amplitude.
- 7) Stimulus rate should be 1 per/sec.

C) Ulnar Sensory

- 1) Position the active ring electrode around the 5th digit, 1.0 cm distal to the interdigital cleft.
- 2) Position the reference electrode 2.0 cm further distally on the same finger.
- 3) Place the ground on the palm of the hand.
- 4) Position the stimulating cathode over the flexor carpi ulnaris tendon, approximately 14.0 cm proximal to the active recording site.
- 5) Stimulus duration should be 0.2 msec.
- 6) Stimulus intensity should be adjusted to elicit a supra-maximal initial negative component in the compound action potential.
- 7) Stimulus rate should be 1 per/sec.

D) Peroneal Motor

- 1) Place the active recording electrode over the endplate area of the extensor digitorum brevis.
- 2) Place the reference on the lateral surface of the same foot at the base of the fifth digit.
- 3) Place the ground on the mid-line at the level of the ankle.
- 4) When stimulating at the ankle, position the cathode over the peroneal nerve 8.0 cm proximal to the active recording electrode.
- 5) When stimulating at the knee, position the cathode overlying the peroneal nerve, slightly distal and lateral to the head of the fibula.
- 6) Stimulus duration should be 0.2 msec.

- 7) Stimulus intensity should be adjusted to elicit a brief twitch of the extensor digitorum brevis and should be supra-maximal for M-wave amplitude.
- 8) Stimulus rate should be 1 per/sec.
- 9) F-wave responses should be measured with recording and stimulating electrodes in the same position as used for the M-wave, but with the stimulating leads reversed so that the anode is distal to the cathode. A minimum of 10 responses should be assessed and the shortest onset latency should be recorded.

E) Sural Sensory

- 1) Place the active electrode over the sural nerve at the level of the lower tip of the lateral malleolus.
- 2) Place the reference on the lateral surface of the same foot 2.0 cm distal to the active electrode.
- 3) Position the ground on the lower calf, between the stimulating and recording electrodes.
- 4) Position the stimulating cathode approximately 14.0 cm proximal to the active electrode along the dorsal mid-calf.
- 5) Stimulus duration should be 0.2 msec.
- 6) Stimulus intensity should be supra-maximal for the sensory negativity (no muscle contraction should be visible).
- 7) Stimulus rate should be 1 per sec.

D. TECHNICAL CONCERNS

To determine accurate NCV and amplitude measurements, the experimenter must be concerned with the following details:

1. The amplitude of all sensory and motor responses must be supra-maximal. Thus, it must be determined that increasing the intensity of stimulation does not further increase the amplitude of the evoked response. Intensity should not be reduced to below supra-maximal levels when averaging.
2. The waveform must be measured using appropriate voltage and time windows. If the signal is small the gain setting should be increased so that the waveform occupies approximately 50% of the viewing window. The onset of a M-wave response should be measured using a gain setting that "clips" the peak of the M-wave.
3. The M-wave associated with stimulation of the proximal site should match the amplitude and waveform of that evoked by distal stimulation.
4. The impedance of the recording and stimulating electrodes and the location and type of ground should be selected to reduce the stimulus artifact so that a true baseline measure can be determined.
5. A response should be considered "absent" only after alternative

placements of the stimulating electrode have been attempted and only if there is no consistent response after averaging.

E. NORMAL VALUES

1. Median Sensory
NCV (proximal) - mean = 56.0 meters/sec
S.D. = 3.3 meters/sec
NCV (distal) - mean = 49.5 meters/sec
S.D. = 4.1 meters/sec
peak amplitude - normal limit = 6.0 uV
2. Median Motor
NCV - mean = 58.8 meters/sec
S.D. = 4.4 meters/sec
peak amplitude - normal limit = 4.5 mV
3. Ulnar Sensory
NCV - mean = 47.5 meters/sec
S.D. = 4.1 meters/sec
peak amplitude - normal limit = 7.0 uV
4. Peroneal Motor
NCV - mean = 49.5 meters/sec
S.D. = 3.9 meters/sec
peak amplitude - normal limit = 2.5 mV
F-wave latency - mean = 51.3 msec
S.D. = 4.7 msec
5. Sural Sensory
NCV - mean = 43.3 meters/sec
S.D. = 4.3 meters/sec
peak amplitude - normal limit = 4.0 uV

III. VIBRATION THRESHOLD

A. EQUIPMENT

The Vibratron II is a device developed at Albert Einstein College of Medicine in conjunction with Pfizer Inc., to quantify the ability of human subjects to detect vibratory stimuli at the distal extremes of their upper and lower limbs. The instrument is currently manufactured and distributed by Sortek Inc., 154 Huron Ave, Clifton N.J., 07013.

The Vibratron II consists of a controller and two vibrating posts. The power supply, switches and digital meter are encased as one unit, while the vibrating rods are located in separate units with adjoining cables. Each vibrating rod protrudes through a metal case and can be contacted by either the hands or the feet. The tandem vibrating surfaces are manufactured from hardened rubber and are identical in appearance. Vibration is achieved by driving a variable voltage source. A dual position switch

connected in series with the vibrating units, controls which rod vibrates, while a "dummy" switch is used to imitate the sounds and motions of switching. The amplitude of vibration is proportional to the square of the applied voltage and is continuously available on a digital display accurate to the nearest 0.1 units. A switch sets the maximal level of the vibration which ranges from 0 - 6.5 vibration units or 0 - 20 vibration units.

B. TESTING PROCEDURE

Thresholds should be measured unilaterally and on the same side for the index finger and the great toe. The side selected should be the same as that used for electrophysiological procedures.

The methodology of testing is a "two alternative forced choice procedure". For each trial the subject is required to determine which of the two rods is actually vibrating. The position of vibration is under experimental control, determined by a randomization sequence. The intensity sequence is similarly under the control of the experimenter and is determined by a testing algorithm (see below).

Prior to testing, all subjects should be allowed an adaptation period of approximately 10 minutes, during which they can become accommodated to room temperature. At this time each subject should be given an opportunity to become familiar with the testing apparatus and with the expected vibratory sensations. During this period, the experimenter can instruct the subject as to the appropriate length and force with which to contact the vibrating rod. An ideal duration for contact is approximately one second and the force should be the minimum necessary to detect vibration. This adaptation period will also allow the experimenter to determine the appropriate voltage level at which to begin testing. A number of vibration intensities should be set and sampled by the subject. For the initial trial, the experimenter should set the intensity at a level detectable by that subject 100% of the time. For many subjects in the 20 to 50 year age range an initial intensity setting of 6.5 units (low range) is sufficient. This level should be increased for older subjects or when testing the feet. For each trial both the intensity setting and the subject's choice should be recorded in the appropriate columns on the data sheet.

At the beginning of each testing session the subject should be issued the following instructions:

"Please press your finger lightly against each rod in sequence for approximately one second. During each trial you will be allowed to touch the rods only once. Only one of the rods will be vibrating and you must decide whether it's on the right or on the left. The task will become increasingly more difficult and I understand that you will be guessing on many of the trials."

C. TESTING ALGORITHM

If the subject is correct on the initial trial, the intensity should be reduced by approximately 10% for the next trial and this process should be continued until the first error. This percentage is not an exact requirement, but rather a guideline. When the subject makes his/her first error, the identical intensity should be repeated twice for a total of three trials at that level. If the position of the stimulus is correctly identified on two of the three trials, the intensity should be lowered 10%. If errors are made on two of the three trials the intensity should be raised 10%. If errors are made at two successive settings at a given level, the third stimulus is not necessary. All levels below 1.0 units should be repeated twice - even if the subject selects the correct stimulus position.

Testing is completed when the subject has made a total of five errors. A single error often appears early in the testing sequence. This anomalous data point is compensated for in the data analysis procedure (see below).

D. TECHNICAL CONCERNS

To determine accurate vibration thresholds, the experimenter must be concerned with the following details:

1. The subject should be consistent in the location and duration of touch as well as in the approximate force applied to the vibrating surface. Instructions such as "please don't press so hard" can be issued during testing to insure trial-to-trial consistency.
2. Throughout testing, the sounds and motions associated with changing the stimulus position should be presented between each trial. For the conditions where the stimulus position remains unaltered, the "dummy" switch must be used. Both the active and "dummy" switch can be used between trials to mask the actual positioning of the stimulus.
3. The subject must take care not to contact the metal casing of the vibrating units during the trials.
4. The subject should be carefully screened from viewing the instrument settings or the data sheet.
5. The rods should be visually inspected prior to every test to insure that they are "free-standing" and not contacting the metal covering.
6. Each Vibratron II should be field calibrated every 3 months and factory calibrated at the beginning and end of the trial.
7. Care must be taken to start testing at a sufficiently high

stimulus intensity so as to provide a statistically valid test. A test is valid if there are a total of 18 or if there are less than 18 trials but no more than 1 error in the first eight trials. If these criteria are not met the test should be re-done beginning at a higher initial intensity.

E. DATA ANALYSIS PROCEDURE

The first step in calculating the vibration threshold is to select the intensity settings of the five errors and the five lowest correct scores. The highest and lowest values of the ten scores are eliminated and the mean of the remaining eight scores determine the threshold. Thresholds, measured in vibration units, can then be converted into micron values using the formula:

$$A = KX^2$$

where A is the peak to peak amplitude in microns and K = 1/2.

F. NORMAL VALUES

The mean vibration threshold for the index finger in the normal population between 18 and 65 years of age is 0.7 vibration units with a standard deviation of 0.4 vibration units. The mean vibration threshold for the great toe in the same population is 1.20 vibration units with a standard deviation of 0.5 vibration units.

IV. THERMAL THRESHOLD

A. EQUIPMENT

The Sentsortek Thermal Tester - NTE-2 is a device developed at Albert Einstein College of Medicine in conjunction with Pfizer Inc., to quantify the ability of human subjects to detect changes in temperature at the distal extreme of their upper and lower limbs. The instrument is currently manufactured and distributed by Sentsortek Inc., 154 Huron Ave, Clifton N.J., 07013.

The PTT incorporates identical thermal plates, constructed from nickel coated copper, that can be contacted by either the hands or feet. Thermal electric cooling or heating is achieved using the Peltier effect and water profusion. Temperature can be set to within 0.1 ° C. over a 40.0 ° C. range and can be adjusted at a rate exceeding 1.0 ° C. per/sec. During testing one plate is maintained at a level of 25.0 ° C., while the temperature of the second plate is adjusted using a series of fixed step digital controls. The difference in temperature between the plates is continuously available on a digital display, accurate to 0.1 ° C.

B. TESTING PROCEDURE

Thresholds should be measured unilaterally and on the same side for the index finger and great toe. The side selected should be the same as that used for the electrophysiological procedures.

The methodology of testing is a "two alternative forced choice procedure". For each trial the subject is required to determine which of the two plates is actually colder. The position of the colder plate is under experimental control, determined by a randomization sequence. The intensity sequence is similarly under the control of the experimenter and is determined by a testing algorithm (see below).

Prior to testing, all subjects should be allowed an adaptation period of approximately 10 minutes during which they can become accommodated to room temperature. At this time each subject should be given an opportunity to become familiar with the testing apparatus and with the expected thermal sensations. During this period, the experimenter can instruct the subject as to the appropriate length and force with which to contact the plates. An ideal duration for contact is approximately one second, while the force should be sufficient to blanch the nail. The adaptation period also allows the experimenter to determine the appropriate temperature difference between the plates at which to begin testing. A number of temperature differences should be set and sampled by the subject. For the initial trial, the experimenter should set the differential temperature at a level detectable by that subject 100% of the time. For many subjects in the 20 to 50 year age range an initial temperature of 10 ° C. is sufficient. This level should be increased for older subjects or when testing the feet. For each trial both the temperature setting and the subject's choice should be recorded in the appropriate columns on the data sheet.

At the beginning of each testing session the subject should be issued the following instructions:

"Please press your finger against each plate in sequence for approximately one second. During each trial you will be allowed to touch the plates only once. Only one of the plates will be colder and you must decide whether it's on the right or on the left. The task will become increasingly more difficult and I understand that you will be guessing on many of the trials."

C. TESTING ALGORITHM

The testing algorithm is identical to that outlined for the Vibratron (see section III.C.).

D. TECHNICAL CONCERNS

To determine accurate thermal thresholds, the experimenter must be concerned with the following details:

1. The subject should be consistent in the location of touch and in the approximate force applied to the thermal plates. Instructions such as "please press more firmly" can be issued during testing to insure trial-to-trial consistency.
2. The time interval between trials should be standardized at approximately 15 seconds. It physically takes longer to set a new temperature level that requires crossing the zero point (i.e. -2.6 to +2.3) as compared with one of the same side of the zero point (i.e. -2.6 to -2.3). This factor must not be reflected in the time period between trials since it can provide a non-thermal clue.
3. When testing at the same level as the previous trial, the sounds and motions associated with temperature change should be faked by the experimenter.
4. The subject should be carefully screened from viewing the instrument settings or the data sheet.
5. The instrument should be factory calibrated at the beginning and end of the trial and it should be visually inspected prior to each test to insure that there is adequate water profusion and the battery charge.
6. The temperature of the passive plate must be maintained 25.0 ° C. using the set screw adjustment.
7. Care must be taken to start testing at a sufficiently high stimulus intensity so as to provide a statistically valid test. A test is valid if there are a total of 18 or if there are less than 18 trials but no more than 1 error in the first eight trials. If these criteria are not met the test should be re-done beginning at a higher initial intensity.

E. DATA ANALYSIS PROCEDURE

The data analysis procedure is identical to that outlined for the Vibratron (see section III. D.).

F. NORMAL VALUES

The mean thermal threshold for the index finger in the normal population between 18 and 65 years of age is 0.67 ° C. with a standard deviation of 0.31 ° C. The mean thermal threshold for the great toe in the same population is 1.01 ° C. with a standard deviation of 0.61 ° C.

V. DATA INTERPRETATION

There is no pattern of electrophysiological or sensory loss that is pathognomonic for toxic neuropathy. Generally, toxins cause a distal axonopathy that may be indistinguishable from certain hereditary neuropathies as well as from the polyneuropathies associated with diabetes or kidney failure. Mononeuropathies and nerve entrapments can also be mis-identified as toxic neuropathies. The common features of the toxic distal axonopathies include: involvement of multiple nerves in the affected regions, greater dysfunction in the lower than upper limbs, greater dysfunction in the distal than proximal portions of the affected nerves, greater loss of vibration than thermal sensation, and symmetrical involvement of the limbs. While this pattern is accurate for the population it may not be characteristic for each individual. Carpal tunnel syndrome will affect the vibration scores in the hands and the distal median sensory conduction velocities but it will not affect the distal ulnar conduction velocity. Slowing in both the median and ulnar nerves is strong evidence for a true distal axonopathy.

VI. ADDITIONAL INFORMATION REQUIRED

The differential diagnosis of toxic neuropathy is based largely on ruling out alternative etiologies. As part of the history taken during the neurological examination the patient should list:

- A. Any previously diagnosed medical condition, i.e. diabetes
- B. Any history of familial neurological disease
- C. Any traumatic injuries to the limbs
- D. Any occupational or home exposure to chemicals
- E. Any history of alcoholism or substance abuse
- F. Any long term use of heavy equipment, i.e. jackhammer
- G. All current medication

A) DRUGS ASSOCIATED WITH NEUROPATHY

The following pharmaceutical agents have been associated with peripheral neuropathy:

- 1) Chloramphenicol
- 2) Cis-platinum
- 3) Clloquinol
- 4) Dapsone
- 5) Diphenylhydantoin
- 6) Disulfiram
- 7) Ethionamide
- 8) Gultethimide

- 9) Gold
- 10) Hydralazine
- 11) Isoniazid
- 12) Metronidazole
- 13) Pyridoxine
- 14) Sodium Cyanate
- 15) Thalidomide
- 16) Vincristine

Optacon Tactile Tester-Operating manual

Equipment:

The Optacon Tactile Tester (OTT) measures the sensitivity of the hands and feet to tactile/vibration stimuli and was specifically designed as a screening device for the detection of the early signs of distal axonopathy. The stimulating surface consists of 144 miniature rods organized into a 24x6 matrix, with a 2.0mm horizontal and a 1.0mm vertical inter-rod spacing. Each rod protrudes through a contoured plate and contacts a discrete portion of the skin. The rods vibrate continuously at 230 Hz; the height of the rod above the plate and the amplitude of vibration are directly related to input voltage which can be continuously read on a LED display. Alternate rows vibrate in anti-phase. For threshold determinations, all rods are stimulated simultaneously which results in a spatially complex, unusual and powerful sensation for the nervous system. A prototype of the OTT has been successfully employed in field studies to detect the presence of distal axonopathy associated with exposure to toxic chemicals, alcoholism, nutritional deficiency, and diabetes.

Procedures:

All testing should be done in a quiet environment with minimal distractions. Prior to testing, subjects should be provided with an adaptation period of between 10 and 15 minutes so they can become accommodated to room temperature. The areas to be tested should be thoroughly cleaned with a soap solution. Prior to testing, each subject should be given an opportunity to become familiar with the testing apparatus and with the expected tactile/vibration sensations. A number of intensities should be set and sampled by the subject. During this period, the experimenter could instruct the subject as to the appropriate force with which to contact the plate. Excessive force will distort the receptor surface and will dampen the mechanical movement of the rods. It is, therefore, critical that the subjects be trained to exert minimal pressure on the stimulating surface. This is best accomplished by setting a 5.0 volt intensity and encouraging the subject to experience the decreased sensation associated with increased pressure. If the wrist is properly supported, it is easy to allow your finger to just rest on the stimulating surface. Subjects will have no difficulty in accomplishing this task with minimal practice. During testing, the subject will be required to wear active earphones which will have continuous white noise at approximately 80db SPL. White noise cassettes will be provided by Pfizer. The earphones serve the dual function of reducing ambient room noise and masking the sounds associated with the vibration stimuli.

The index finger of the non-dominant hand is positioned so that approximately 1.5cm² of the ventral finger pad is in contact with the stimulating surface of the OTT. The distal joint crease of the finger should be positioned overlying the outside row of rods. The non-dominant hand is selected to minimize any calluses or blisters which may be present. At the beginning of the test period, the following instructions should be issued:

"You are going to receive two periods of stimulation. Each period will be marked by the presence of the light on the stimulating panel. One of those periods will be accompanied by a tactile/vibration stimulus and you must indicate whether its the first or second period. The stimulus will always be present in only one period, and you must make a decision on each trial. The task will become progressively more difficult, so please do not get discouraged. I understand you'll be apparently guessing on many of the trials."

For all trials, the stimulus intensity is set with the selection switch in the standby position. For the initial trial the experimenter should set the intensity at a level that is detectable 100% of the time. For many subjects in the 20-70 year range, an initial intensity of 6.0 volts is sufficient. This level should be increased for subjects with suspected neuropathy, for older subjects, or when testing feet. An estimate of the appropriate initial level for an individual subject can be determined during the pre-test period. For each intensity, the subject should be presented with two periods of stimulation; one with the selection switch in the real test position, and the other with the switch in the false test position.

If the subject is correct, the stimulus intensity used in the initial test should be reduced by approximately 10% for the next trial, and this process should be continued until the first error. This percentage is not an exact requirement, but rather a guideline. When the subject makes his/her first error, repeat the same intensity for two additional trials. Thus a total of three trials will be presented at this intensity. If two of the three trials are judged correctly, continue to decrease the intensity differential; if two of the three are missed, increase the differential. All levels below .7 volts should be repeated twice - even if the subject is correct.

Throughout testing, the period which contains the stimulus (first vs. second presentation) should be randomized. You will be provided with a separate data sheet of each subject's visit. The randomization sequence (i.e. whether the vibration is present in the first or second time period) will be predetermined and entered in the left hand columns. You will be required to enter the instrument setting and the subject's choice in the middle and right hand columns. Testing is completed when the subject has made a total of five errors.

The procedures for determining tactile/vibration of threshold for the feet are identical to those described above with the second toe of one foot being placed in contact with the stimulating surface. A foot ramp will be provided by Pfizer that will serve to support the foot and to angle the Optacon so the settings can be viewed from a sitting position. A variable distance heel support will also be provided to accommodate various foot sizes.

For accurate tactile/vibration testing, the experimenter must be concerned with the following details:

1. The subject must be consistent in the placement of the finger with respect to the stimulating surface. There should be no movement of this finger during the testing. Instructions such as "please don't press down" can be issued during testing to insure trial to trial consistency.

2. The time interval between trials should be standardized at approximately 10 seconds.
3. When testing the same level as the previous trials, the sounds and motions associated with intensity change should be faked by the experimenter.
4. The subject should be carefully screened from viewing the instrument setting or the data sheet. Particular attention should be paid to preventing a subject from viewing the movement of the selection switch.

Data Analysis:

The first step in calculating the absolute threshold is to determine the intensity values of the five errors and the five lowest correct scores. The highest and lowest values of the ten scores are eliminated and the remaining eight scores are averaged. This procedure is designed to utilize a sufficient sample of data points and to eliminate a disproportionate contribution of a single anomalous score to the absolute threshold.

COMPONENTS INCLUDED IN THE PFIZER THERMAL TESTER

1 Model BFS-2TC Temperature Controlled Cold/Hot Plate complete with Unit/Power Supply.

1 Extra Stage for BFS-2TC.

1 TH-6D Thermometer

1 Connector Cable for BFS/TH-6D

1 Tilt Stand TTS-1.

2 Stage Mountings

1 PT-6 package of probes.

Equipment:

The Pfizer Thermal Tester (PTT) is a device developed by Pfizer, Inc. in conjunction with Bailey Instruments* to quantify the ability of human subjects to detect small changes in temperature at the distal extremes of their upper and lower limbs. The instrument and testing methodology was specifically designed to monitor the integrity of small diameter neurons in a twelve-month study of the effects of oral Sorbinil compared with placebo in patients with diabetic neuropathy. The PTT is portable, consumes no materials, includes a fail-safe overheating protection mechanism and can be manufactured to either European or American electrical standards. The hardware was originally intended to prepare biological tissue for sectioning on a microtome and has been manufactured and serviced since 1969. Thermal electric cooling or heating is achieved using the "Peltier effect" combined with solid state electronics. The stimulating surface is made of molybdenum; an esoteric metal selected for its heat transfer properties. By varying direct current, temperature can be set and maintained over a 50°C range, can be changed at a rate exceeding 1°C per second, and can be fine tuned to the nearest 0.1°C.

The PTT includes both an active and passive stimulating plate that are identical in appearance and are mounted on rigid support platforms. The temperature of the passive plate is determined by ambient room temperature and the temperature of the perfusing fluid, while the active plate is under direct experimenter control. The temperature difference between the plates is continuously available to the experimenter in the form of a \pm digital readout accurate to the nearest .01°C. Subjects remain unaware of the status of the plates and are asked repeatedly to compare their temperature. The absolute threshold for the detection of the colder surface is determined using a two alternative forced-choice paradigm.

Procedure:

Prior to testing, all subjects should be provided with an adaptation period of between 10 or 15 minutes during which they can become accommodated to room temperature. At the end of this period, the surface temperature of the subject's skin at the site to be tested, should be recorded by the experimenter (nearest .1°C) and noted on the data sheet. Skin temperature can be measured using the digital thermometer of the PTT in a direct mode. A thermal sensor probe will be provided, which can plug into either the active or passive section of the thermometer.

Following the adaptation period, each subject should be given an opportunity to become familiar with the testing apparatus and with the expected thermal sensations. A number of temperatures should be set and sampled by the subject. During this period, the experimenter can instruct the subject as to the appropriate length and force of which to touch the plates. At the beginning of the test period, the following instructions should be issued:

*Please press your finger against each plate in turn. Press firmly and for approximately one second at the center of each plate. One of the two plates will feel cooler and you must decide if it is the

right or left plate. The plates will never be the same temperature and you must make a decision on each trial. The task will become progressively more difficult, so please do not get discouraged. I understand you will be apparently guessing on many of the trials."

For the initial trial, the experimenter should set the temperature differential at a level that is detectable 100% of the time. For many subjects in the 20 to 70 year range, an initial temperature of 5.0°C is sufficient. This level should be increased for subjects with suspected neuropathy, for older subjects, or when testing the feet. An estimate of the appropriate initial level for an individual subject can be determined during the pre-test period. The sign (+) of the digital readout will inform the experimenter whether the active or passive plate is actually cooler. The instrument setting and the subject's choice should be recorded on the data sheet. If the subject is correct, a check, and if incorrect, a dash should be entered in the selected column. Appendix B contains a blank recommended data sheet and a data sheet that is scored for thresholds of both fingers and toes in one subject.

If the subject is correct, the temperature differential used in the initial test should be reduced by approximately 10% for the next trial and this process should be continued until the first error. This percentage is not an exact requirement, but rather a guideline. If the temperature differential falls below 0.0°C, all changes should be made in 0.1°C steps using the fine control knob. When the subject makes his/her first error, the identical temperature should be repeated on three successive trials. If the correct position is selected on two of the three trials, the temperature is lowered. If errors are made on two of the three trials, the temperature should be raised. All levels below 0.7°C should be repeated twice - even if the subject selects the correct position.

Testing is completed when the subject has made a total of three errors. At this time, the surface temperature of the passive plate (direct reading on the digital thermometer) should be entered on the data sheet. Throughout testing, the location of the cooler surface must be randomized across both the active and passive plates. A two-choice randomization table may be helpful in selecting the testing sequence.

For accurate thermal testing, the experimenter must be concerned with the following details:

1. The subject should be consistent in the location of touch and the approximate force applied to each plate. Instructions such as "please press more firmly" can be issued during testing to insure trial to trial consistency.
2. The time interval between trials should be standardized at approximately 15 seconds. It physically takes longer to set a new temperature level that requires crossing the zero point (i.e. -2.6 to +2.3) as compared with the one on the same side of the zero point (i.e. -2.6 to -2.3). This factor must not be reflected in the time period between trials since it can provide a non-thermal clue.
3. When testing at the same level as the previous trial, the sounds and motions associated with temperature change should be faked by the experimenter.
4. The subject should be carefully screened from viewing the instrument setting or the data sheet.

The procedure for determining thermal threshold on the feet are identical to those described above, with the large toe on one foot being brought into contact with the plate. This can be facilitated by positioning the plates on the floor or on a slightly elevated platform (approximately 6"). If the subject experiences difficulty in making consistent contact with the stimulating surface, the experimenter should guide the toe to the appropriate target. In extreme cases, the plate may be disconnected from the support platforms, and manually held against the toe in sequence. The manual positioning of the plates can be used to test threshold in the more proximal portions of either the upper or lower limb.

Data Analysis:

Absolute threshold - The first step in calculating the absolute threshold is to determine the temperature values of the three errors and the three lowest correct scores. The highest and lowest values of these six scores are eliminated and the mean of the remaining four scores determine the absolute thermal threshold. This procedure is designed to utilize a sufficient sample of data points and to eliminate a disproportionate contribution of a single anomalous score to the absolute threshold.

Relative threshold - A second value that can be obtained for each subject is the calculated absolute threshold expressed as a percentage of the temperature of the passive plate. Thus, an absolute threshold of 0.6°C would translate to a relative threshold of 2.4% if the passive plate had a reading of 25°C and to a value of 3.0% if the passive plate was at 20°C. Over the mid-range of stimulus intensity, it has been demonstrated in the somatosensory, auditory, and visual modalities that the minimal detectable change in energy is approximately proportional to the total energy of the comparison stimulus. This is expressed as Weber's law ($\Delta I/I = C$) where I equals stimulus intensity and C is a constant that differs for each modality. Expressing thermal sensitivity as a relative threshold would be of great value in circumstances where the temperature of the passive plate could be expected to differ by a significant amount between test periods (such as the current Sorbinil study). An alternative to expressing threshold values as a percentage is to correct the absolute threshold score by a factor reflecting differences in the passive plate. In this manner temperature could continue to be expressed in degrees centigrade.

I. Laboratory Testing: Blood and Urine

Laboratory tests will measure hepatic function (including lipid metabolism), immunologic function, hematopoietic status, selected endocrine function, urinalyses for urine sediment, for porphyrins, and for enzyme induction. Each participant will be asked to fast for at least 12 hours preceding his or her appointment for the examination. A twelve hour urine collection will be conducted during the 12 hours prior to the commencement of the examination.

Blood and urine will be collected for the following:

- A) Hepatic enzymes (gamma glutamyl transpeptidase and SGPT); alkaline phosphatase as an indicator of obstructive disease
- B) Lipid profile, including triglycerides, cholesterol, and the HDL lipoprotein fraction
- C) Complete blood count including differential and platelet estimation
- D) Tests of immunologic capability which will include total lymphocyte and white blood cell count, total T and B cell counts, counts of helper-inducer cells (T4) and suppressor-cytotoxic cells (T8), the helper-suppressor ratio, lymphocyte stimulation by Con A, phytohemaggluten, pokeweed, and quantitative immunoglobulins (IgG, IgD, IgM, IgA). Delayed hypersensitivity skin testing for three common antigens (mumps, tetanus, and candida) will be performed on the evening of arrival and read at 24 and 48 hours by a trained reader.
- E) Serum levels of testosterone and gonadotropins.
- F) Thyroid screen (thyroxine, triiodothyronine, and ratio)
- G) Serum B12, folate and amylase, blood lead (potential confounders)
- H) 2,3,7,8-TCDD in serum

A relatively recent methodology for the evaluation of the body burden of 2,3,7,8-TCDD has been developed by the Center for Environmental Health at the Centers for Disease Control, and involves the measurement of the level of the dioxin in serum (Patterson et al., 1986). Current methods allow the measurement of parts per quadrillion using 50ml serum.

All subjects will be screened for suitability to participate in the drawing of 105ml (seven 15ml plain clot tubes) whole blood for the purpose of evaluating 2,3,7,8-TCDD in 50ml serum. Subjects who are determined through screening to be at increased risk of adverse effects due to the additional volume of blood to be drawn, will not participate in this phase of blood testing.

Urine tests will include:

- A. A 12-hour urinary porphyrin profile, including total urinary porphyrins, distribution of uroporphyrins, coproporphyrins, and heptacarboxylic porphyrins, to be done on first morning void collected (with 5 grams sodium bicarbonate and EDTA added to the container).
- B. Urinalysis with microscopic examination (to be collected on the morning of the medical exam)
- C. Measurement of D-glucaric acid in the urine (assay using 12-hour urine collection)

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II. Neurobehavioural and Psychological Testing

Several tests of the computer-administered Neurobehavioural Evaluation System (NES) will be included in the test battery. The majority of the tests to be used from the NES measure psychomotor skills, such as simple reaction time and psychomotor coordination.

The following tests from the NES will be administered:

Mood Scales

Dynamic Continuous Performance Test

Digit Span

Symbol-Digit Substitution

Pattern Comparison

Simple Reaction Time

Pattern Memory

Tapping Test

Vocabulary (WAIS-R)

Prior to the administration of the neurobehavioural tests, the subject will be requested to complete a NES Pre-Test Questionnaire. This questionnaire will probe for information about the subject's frame of mind at the time of the neurobehavioural evaluation and about any alcohol or medication the subject may have consumed prior to testing that might affect the test results.

Psychological testing will include the following standardly administered tests:

Symptoms Check List - 90 (SCL-90)

Grooved Pegboard

Word List Generation

Benton Visual Retention Test (Reproduction)

Similarities (Subtest of WAIS R)

Trails A and B

California Verbal Learning Test (CVLT)

Block Design

Santa Ana Dexterity Test

CLVT (delay)

Information Subtest of Weschsler Adult Intelligence Scale-R (WAIS-R)

Beck depression Inventory

Spielberger Anxiety Scale

NES PRE-TEST QUESTIONNAIRE

1. Exam Code P / T / 0 / 1 /

2. Participant ID / / / / / / / / 0 /

Participant Name _____

3. Date Month / / /

Day / / /

Year / / /

4. Interviewer ID / / / / / /

5. Where were you born?
- 1 = USA
2 = Other
6. What language do you speak at home?
- 1 = English
2 = Other
7. What is your preferred hand?
(For writing, throwing.)
- 1 = Right
2 = Left
3 = Both
8. How much familiarity do you have with computers
or video games?
- 1 = None
2 = Some
3 = A Lot
9. Do you need eyeglasses for reading?
- 1 = Yes
2 = No
- 9a. If yes, do you have them with you today?
- 1 = Yes
2 = No
10. Do you have any injuries or temporary physical
ailments that might affect your performance today?
- 1 = Yes
2 = No
11. Do you have any worries or personal problems
which might affect your performance today?
- 1 = Yes
2 = No

12. How much sleep did you get last night?
- 1 = your usual amount
2 = less than usual
3 = more than usual
13. Which best describes how you are feeling right now?
- 1 = Energetic
2 = Fresh
3 = Average
4 = Tired
5 = Exhausted
14. Have you had any caffeine-containing coffee, tea, or cola in the last 24 hours?
- 1 = Yes
2 = No
- 14a. If yes, how many cups did you have in the last 24 hours?
- 1 = 0-1 cup
2 = 2-3 cups
3 = 4-6 cups
4 = 7 or more cups
- 14b. How long ago was your last cup?
- 1 = within the last hour
2 = 1-3 hours ago
3 = 4 or more hours ago
- 14c. Has your consumption of caffeine-containing beverages in the last 24 hours been:
- 1 = your usual amount
2 = less than usual
3 = more than usual
15. Have you smoked any cigarettes in the last 24 hours?
- 1 = Yes
2 = No

15a. If yes, how long ago did you smoke your last cigarette?

- 1 = within the last hour
- 2 = 1-3 hours ago
- 3 = 4 or more hours ago

15b. How many have you smoked in the last hour?

- 1 = 0-1
- 2 = 2-3
- 3 = 4-6
- 4 = 7 or more

15c. Has your smoking today been:

- 1 = your usual amount
- 2 = less than usual
- 3 = more than usual

16. Do you ever drink alcohol-containing beverages?

- 1 = Yes
- 2 = No

IF NO, SKIP TO QUESTION #18.

16a. If yes, how often do you drink?

- 1 = less than once/month
- 2 = more than once/month but less than once/week
- 3 = 1-3 times/week
- 4 = 4-6 times/week
- 5 = once/day
- 6 = 2-3 times/day

16b. When you drink, how many drinks do you average in one sitting?

- 1 = 1-3 drinks
- 2 = 4-6 drinks
- 3 = 7-9 drinks
- 4 = 10-12 drinks
- 5 = 13-15 drinks
- 6 = more than 15

16c. How often do you drink five or more drinks at one sitting? 1

- 1 = never
- 2 = few times/year
- 3 = less than once/month
- 4 = once a month
- 5 = 2-3 times/month
- 6 = 1-3 times/week
- 7 = 4-6 times/week
- 8 = daily

17. Have you drunk any alcohol in the last 24 hours? 1

- 1 = Yes
- 2 = No

17a. If yes, do you feel any effects now? 1

- 1 = Yes
- 2 = No

17b. How long ago was your last drink? 1

- 1 = within the last hour
- 2 = 1-3 hours ago
- 3 = 4 or more hours ago

17c. How many drinks did you have at that time? 1

- 1 = 0-1
- 2 = 2-3
- 3 = 4-5
- 4 = 6 or more

17d. Has your drinking pattern today been: 1

- 1 = your usual pattern
- 2 = less than usual
- 3 = more than usual

18. Have you taken any drugs or medications in the last 24 hours that affect your ability to concentrate?

- 1 = Yes
- 2 = No

18a. If yes, are you still feeling the effects?

- 1 = Yes
- 2 = No

18b. How long ago did you take it?

- 1 = within the last hour
- 2 = 1-3 hours ago
- 3 = 4 or more hours ago

IF COMPUTER TESTS ARE NOT TO BE ADMINISTERED TO SUBJECT, GIVE REASON:
