

## MEDICAL SURVEILLANCE PROGRAMS

### 9.1 BACKGROUND

Both the Occupational Safety and Health Administration (OSHA) and the Department of Energy (DOE) require that hazardous waste workers be included in a medical surveillance program that meets the requirements of 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response" (the HAZWOPER Standard), and 29 CFR 1926.65. Depending on the hazards at the worksite, other medical surveillance requirements specified by OSHA; by DOE O 440.1; and by guidance provided in the *Draft DOE Contractor Occupational Medical Program Implementation Guide for Use with DOE O 440.1* and the *Draft DOE Radiological Control Technical Standard* may apply. Although a medical surveillance program is often limited to interaction between the occupational health physician and site workers, the complexity of hazards and requirements at HAZWOPER sites dictates use of a multidisciplinary team approach involving senior management, occupational health physicians and nurses, site workers, supervisors, and health and safety professionals to establish an effective medical surveillance program. The following discussion provides worksite and project managers with information related to the scope of medical surveillance programs for HAZWOPER activities, as well as the roles and responsibilities of the parties and disciplines involved. Substantive details on the technical content of the medical surveillance program are provided in documents listed in Section 9.10, "References."

### 9.2 PURPOSE

The ultimate purpose of any medical surveillance program is to protect worker health. Given the limitations of industrial hygiene monitoring data and the many hazards involved in hazardous waste activities, medical surveillance data may provide the only indication that worker exposure to toxic substances has occurred. Medical monitoring and surveillance programs enable occupational health professionals to (1) identify adverse health effects caused by exposure to hazardous substances and conditions and (2) collaborate with site workers, industrial hygienists, safety professionals, and line management in efforts to prevent exposures and protect workers. These goals are accomplished through a coordinated pursuit of two objectives:

- Detection of preexisting diseases or medical conditions that place employees performing certain tasks at increased risk; and
- Control of individual workplace exposures in a manner that minimizes adverse health effects.

Medical surveillance programs are designed to accomplish the following goals:

- Demonstrate that workers are fit to perform their jobs safely and reliably;
- Provide ongoing assurance that access and hazard controls limit worker exposure; and
- Comply with DOE rules and requirements and OSHA regulations adopted by DOE.

### 9.3 ROLES AND RESPONSIBILITIES

Site or project management, the occupational health physician, health and safety personnel, workers, and the radiological control organization are all involved in the multidisciplinary team approach to implementation of an effective medical surveillance program. Management is responsible for verifying that medical surveillance activities are included in project planning, budgeting a level of resources commensurate with the needs of the program, and responding to the concerns of the occupational health physician, the workers, and the health and safety staff.

Although OSHA standards and DOE and DOE-adopted rules and requirements establish the elements of a medical surveillance program, the occupational health physician is responsible for determining the content of medical surveillance examinations. The health and safety staff is responsible for providing all exposure monitoring data and other technical support needed by the physician to implement the program properly, and the radiological control organization is responsible for providing worker external and internal radiation exposure measurements and other technical support that may be necessary.

### 9.4 PROGRAM DESIGN AND REQUIREMENTS

Medical surveillance programs range from support contracts with local hospitals or physicians to full-scale onsite occupational health organizations that include physicians, nurses, and technicians who are employed by prime contractors. The option selected depends on the size of the project, the nature of the hazards involved, the capabilities of local facilities, and the resources available. Regardless of the option selected, worker occupational health records are to be provided to the site's occupational health physician, thereby facilitating the availability of, and access to, adequate medical care in the event of an emergency. Provisions that are consistent with Privacy Act requirements should be made to retain these records after completion of project activities.

A comprehensive medical surveillance program should be designed and implemented by an experienced occupational health physician or a qualified occupational health examiner with input provided by workers and industrial hygiene, health physics, and safety professionals. Examinations and procedures for all occupational medical monitoring are performed by or under the direction of a physician experienced in managing occupational health services.

OSHA regulations mandate that, unless a specific occupational safety and health standard provides a different time period, the employer must:

- Maintain and preserve medical records on exposed workers for 30 years after they leave employment;
- Make available to workers, their authorized representatives, and authorized OSHA representatives the results of medical testing and full medical records and analyses; and
- Maintain records of occupational injuries and illnesses and post an annual summary report.

General guidance for designing medical surveillance programs is found in the HAZWOPER Standard, and medical surveillance requirements for several specific substances are provided in 29 CFR Part 1910, "Occupational Safety and Health Standards," Subpart Z, "Toxic and Hazardous Substances." Whenever multiple standards affect worker health and safety, the more protective requirements must be followed. These determinations should be made by knowledgeable health and safety professionals. Occupational health physicians providing medical surveillance support for HAZWOPER sites are to be provided with copies of DOE O 440.1 and the HAZWOPER Standard.

An outline of the medical surveillance program, as approved by the occupational health staff, is incorporated in, or appended to, the site-specific health and safety plan (HASP). Modifications to the program should be based on the professional judgment of the occupational health physician, in consultation with the health and safety professionals, and on the hazards of the specific worksite.

At Oak Ridge Reservation, the management and operating (M&O) contractor has developed a 1-page form (see Figure 9-1) to document physical requirements, working conditions, required protective equipment, and special qualifications for all positions being filled by new employees or through job transfers. This effective mechanism is used to keep the medical department apprised of changing job hazards.

Changing working conditions that require modifications to medical surveillance activities can be communicated to the medical department by a supervisor through the health and safety organization and the personnel department, where records are maintained. DOE O 440.1 requires that occupational medical personnel "...coordinate with other safety and health professionals (industrial hygienists, health physicists, safety specialists/managers) to identify work-related or worksite hazards and their possible health risks to employees..." This should include regular visits to worksites and facilities by occupational medical physicians and selected medical staff to familiarize themselves with tasks and actual or potential hazards. Contractor management should require participation by medical personnel in "new materials and process review committees, safety committees, and other health-related meetings."

Existing respiratory protection or hearing conservation programs can be referenced and integrated, as appropriate, into the site-specific medical surveillance program after worksite hazards have been considered.

At some DOE sites, workers are provided a fitness-for-duty card indicating current medical status and the medical surveillance programs in which they participate.

The medical surveillance program must be reviewed regularly to ensure effectiveness. At least annually, the site safety and health officer (SSHO), in close cooperation with the occupational medical physician and the health and safety professional, should:

- Ascertain that each accident or illness was investigated promptly to determine the cause and make necessary changes in health and safety procedures;
- Evaluate specific medical testing to determine potential site exposures;
- Add or eliminate medical tests as indicated by current industrial hygiene and environmental data;
- Review potential exposures and the HASP to determine if additional testing is required;
- Review emergency treatment procedures and update list of emergency contacts; and
- Ensure timely employee access to records upon their request.

## 9.5 WORKERS INCLUDED IN MEDICAL SURVEILLANCE PROGRAM

The HAZWOPER Standard and related DOE rules and requirements stipulate that employees involved in any of the following activities and who have a reasonable possibility of exposure to hazardous substances or health hazards at specified levels (see 1910.120 [f][2]) must be included in a medical surveillance program:

- Voluntary cleanup operations, or those required by DOE or the Resource Conservation and Recovery Act (RCRA), or as otherwise defined by the HAZWOPER Standard;
- Treatment, storage, and disposal (TSD) operations, as defined by the HAZWOPER Standard;

NINE: MEDICAL SURVEILLANCE PROGRAMS

| PHYSICAL REQUIREMENTS AND WORKING CONDITIONS   |     |    |    |                 |    |  |  |    |    |               | DATE   |  |
|--|-----|----|----|-----------------|----|--|--|----|----|---------------|--|--|
| UCN-16960<br>(6P 6-94)   |     |    |    |                 |    |  |  |    |    |               | (Attach job description if applicable)<br>(To be completed by the Supervisor and routed to the Site Staffing Office) |  |
| APPLICANT NAME   |     |    |    | REQUISITION NO. |    |  | JOB TITLE: REQUISITIONED OR FUNCTIONAL |    |    |               | PAYROLL<br><input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> W                          |  |
| REQUISITIONING DIVISION NAME AND NO.   |     |    |    |                 |    | SITE LOCATION<br><input type="checkbox"/> K-25 <input type="checkbox"/> ORNL <input type="checkbox"/> Y-12 <input type="checkbox"/> PAD <input type="checkbox"/> PORTS |  |    |    |               |  |  |
| FOR EMPLOYEE TRANSFERS (To be completed by Site Staffing Office)   |     |    |    |                 |    |  |  |    |    |               |  |  |
| EMPLOYEE'S CURRENT JOB TITLE   |     |    |    |                 |    | DIVISION NAME AND NUMBER   |  |    |    | BADGE NUMBER  |  |  |
| EMPLOYEE'S CURRENT SITE LOCATION <input type="checkbox"/> K-25 <input type="checkbox"/> ORNL <input type="checkbox"/> Y-12 <input type="checkbox"/> PAD <input type="checkbox"/> PORTS                     |     |    |    |                 |    |  |  |    |    |               |  |  |
| PHYSICAL REQUIREMENTS  | EF* | C* | F* | O*              | N* | WORKING CONDITIONS   | EF*                                    | C* | F* | O*            | N*   |  |
| STANDING   |     |    |    |                 |    | EXTREME COLD   |  |    |    |               |  |  |
| WALKING  |     |    |    |                 |    | EXTREME HEAT   |  |    |    |               |  |  |
| SITTING  |     |    |    |                 |    | FREQUENT TEMPERATURE CHANGES   |  |    |    |               |  |  |
| LIFTING - MAX. WT.   |     |    |    |                 |    | HIGH HUMIDITY/DAMPNESS   |  |    |    |               |  |  |
| CARRYING - MAX. WT.  |     |    |    |                 |    | VERY DRY   |  |    |    |               |  |  |
| PUSHING - MAX. WT.   |     |    |    |                 |    | BAROMETRIC CHANGES   |  |    |    |               |  |  |
| PULLING - MAX. WT.   |     |    |    |                 |    | CONFINED SPACES  |  |    |    |               |  |  |
| CLIMBING   |     |    |    |                 |    | CONFINED SPACES (CRAMPED QTRS.)  |  |    |    |               |  |  |
| BALANCING  |     |    |    |                 |    | HEIGHTS  |  |    |    |               |  |  |
| STOOPING   |     |    |    |                 |    | NOISE - OVER 80 dB   |  |    |    |               |  |  |
| KNEELING   |     |    |    |                 |    | VIBRATION  |  |    |    |               |  |  |
| CROUCHING  |     |    |    |                 |    | MECHANICAL HAZARDS   |  |    |    |               |  |  |
| JUMPING  |     |    |    |                 |    | MOVING OBJECTS   |  |    |    |               |  |  |
| RUNNING  |     |    |    |                 |    | EXPOSURE TO BURNS  |  |    |    |               |  |  |
| TWISTING   |     |    |    |                 |    | EXPLOSIVES   |  |    |    |               |  |  |
| THROWING   |     |    |    |                 |    | OPERATE VEHICLE - HIGHWAY  |  |    |    |               |  |  |
| RAPID WORKING SPEED  |     |    |    |                 |    | OPERATE VEHICLE - CO. PROPERTY   |  |    |    |               |  |  |
| CRAWLING   |     |    |    |                 |    | WORKING WITH PEOPLE  |  |    |    |               |  |  |
| REACHING, HIGH, LOW, LEVEL   |     |    |    |                 |    | WORKING ALONE  |  |    |    |               |  |  |
| FINGER MOVEMENT  |     |    |    |                 |    | SOLVENTS   |  |    |    |               |  |  |
| SENSE OF TOUCH   |     |    |    |                 |    | FUMES  |  |    |    |               |  |  |
| SPEAKING CLEARLY   |     |    |    |                 |    | DUSTS  |  |    |    |               |  |  |
| HEARING - CONVERSATION   |     |    |    |                 |    | MISTS  |  |    |    |               |  |  |
| HEARING - HIGH ACUITY  |     |    |    |                 |    | GASES  |  |    |    |               |  |  |
| SEEING - NEAR  |     |    |    |                 |    | CHEMICALS (LIST)   |  |    |    |               |  |  |
| SEEING - FAR   |     |    |    |                 |    |  |  |    |    |               |  |  |
| DEPTH PERCEPTION   |     |    |    |                 |    | OTHER (INDICATE)   |  |    |    |               |  |  |
| COLOR VISION   |     |    |    |                 |    |  |  |    |    |               |  |  |
| OTHER  |     |    |    |                 |    | SPECIAL CERTIFICATION/QUALIFICATION  | EF*                                    | C* | F* | O*            | N*   |  |
| PROTECTIVE EQUIPMENT   | EF* | C* | F* | O*              | N* | ASBESTOS WORKER  |  |    |    |               |  |  |
| EYE PROTECTION   |     |    |    |                 |    | DOT DRIVER   |  |    |    |               |  |  |
| HEARING PROTECTION   |     |    |    |                 |    | LEAD WORKER  |  |    |    |               |  |  |
| HEAD COVERING  |     |    |    |                 |    | REACTOR OPERATOR   |  |    |    |               |  |  |
| ARMS, HANDS, FINGERS   |     |    |    |                 |    | SECURITY PERSONNEL   |  |    |    |               |  |  |
| LEGS, FEET, TOES   |     |    |    |                 |    | RESPIRATOR WEARER  |  |    |    |               |  |  |
| FULL BODY PROTECTION   |     |    |    |                 |    | HAZARDOUS MATERIAL WORKER  |  |    |    |               |  |  |
| SKIN PROTECTION  |     |    |    |                 |    | CARCINOGEN   |  |    |    |               |  |  |
| OTHER (INDICATE)   |     |    |    |                 |    | MOBILE EQUIPMENT OPERATOR  |  |    |    |               |  |  |
|  |     |    |    |                 |    | OTHER (INDICATE)   |  |    |    |               |  |  |
| KNOWN ALLERGENIC MTLs.   | EF* | C* | F* | O*              | N* |  |  |    |    |               |  |  |
| CHECK 1 FOR EACH OF THE ABOVE: C* = CONSTANTLY F* = FREQUENTLY O* = OCCASIONALLY N* = NOT APPLICABLE   |     |    |    |                 |    |  |  |    |    |               |  |  |
| AFFIRMATIVE ACTION CONSIDERATIONS FOR DISABLED APPLICANT   |     |    |    |                 |    |  |  |    |    |               |  |  |
| EF* = ESSENTIAL FUNCTIONS: THE BASIC DUTIES THAT AN EMPLOYEE MUST BE ABLE TO PERFORM UNAIDED OR WITH THE ASSISTANCE OF REASONABLE ACCOMMODATION. INDICATE WHICH ESSENTIAL FUNCTIONS COULD BE ACCOMMODATED. |     |    |    |                 |    |  |  |    |    |               |  |  |
| COMPLETED BY (NAME)  |     |    |    |                 |    | MAILING ADDRESS  |  |    |    | TELEPHONE NO. |  |  |

Figure 9-1. Example Physical Requirements and Working Conditions Document

- Operations at hazardous waste activities worksites for which use of a respirator due to potential radiological (as specified by Article 532 of the *Draft DOE Radiological Control Technical Standard*) or nonradiological exposure is recommended or required.
- Operations resulting in potential exposure to a regulated chemical or radiological agent, as prescribed by DOE and OSHA action levels, or to a blood-borne pathogen;
- Operations requiring use of a respirator for 30 days or more per year or resulting in an exposure that may be at or above an OSHA permissible exposure limit (PEL), or if there is no PEL, above the published exposure levels (whether or not a respirator is worn) (see an exception discussed in 29 CFR 1910.120[f][2]); and
- Hazardous waste or emergency response activities resulting in injury, illness, or signs or symptoms of possible overexposure to hazardous substances or health hazards from those activities.

The following employees must also be included in a medical surveillance program:

- Individuals who respond to emergencies involving hazardous wastes, including hazardous materials (HAZMAT) team members; and
- Any employee who exhibits signs or symptoms that may be the result of exposure to a hazardous substance.

## 9.6 FREQUENCY AND CONTENT OF MEDICAL EXAMINATIONS

Before commencing work, all employees required to participate in a medical surveillance program for hazardous waste activities must undergo a baseline examination (based on specific hazards identified during the preliminary hazard assessment). Periodic followups are required at the discretion of the attending physician.

Based on the professional judgment of the occupational health professional, more frequent examinations may be required when a worker changes jobs or tasks. DOE O 440.1 requires that a method be established for informing the medical department whenever an employee's position or duties change. To facilitate this process, a representative of the medical staff should be invited to attend management and worker briefings or meetings and must participate as a member of a worker protection team.

Medical surveillance may need to address much more than the basic requirements in the HAZWOPER Standard. Based on the presence of such hazards as lead, asbestos, and carcinogens, special types of surveillance are required. The occupational health physician responsible for the medical surveillance program should work with the rest of the medical surveillance team to determine which forms of surveillance are applicable for activities at each worksite.

Medical examinations and consultations must be provided to the employee without cost, without loss of pay, and at a reasonable time and place. The content of the examination or consultation is determined by the occupational health professional, based on information provided by the health and safety staff. As indicated in Table 9-1, employees performing onsite hazardous waste operations or entering an exclusion zone or contamination reduction zone at a hazardous waste site are required to receive specific medical examinations at designated intervals.

## 9.7 INTERNAL DOSIMETRY PROGRAMS

Potential exposure to radiological hazards is a concern at nearly all DOE sites. Internal dosimetry programs are an integral part of the medical surveillance program, although this type of exposure data is not collected by occupational health physicians. This section summarizes internal dosimetry program requirements prescribed by 10 CFR 835 and the recommendations for implementation of those requirements in the 10 CFR 835

Implementation Guides and the *Draft DOE Radiological Control Technical Standard* as they relate to the HAZWOPER Standard.

**Table 9-1. Required Medical Examinations for Hazardous Waste Activities Workers**

| TYPE OF EXAMINATION         | WHEN CONDUCTED  |
|-----------------------------|---|
| Baseline                    | Before commencing duties at worksite.   |
| Periodic                    | At least annually or biannually, as determined by the attending physician.*                             |
| Symptomatic or emergency    | When exposure-related injury or illness occurs; or when exposure-related symptoms are observed.         |
| Professional recommendation | Based on necessity, as determined by an occupational health professional.                               |
| Termination                 | At termination of employment; or on reassignment to an area where medical surveillance is not required. |

\*Applies when workers have 30 or more days of exposure above PELs or 30 days of respirator use.

10 CFR 835 and Article 521 of the *Draft DOE Radiological Control Technical Standard* refer to the requirement that the following individuals participate in an internal dosimetry or medical surveillance program or both:

- Radiological workers who are likely to receive intakes resulting in a committed effective dose equivalent of 100 mrem or more per year;
- Declared pregnant workers likely to receive intakes resulting in a dose equivalent to the embryo or fetus of 50 mrem or more during the gestation period;
- Occupationally exposed minors likely to receive intakes resulting in a committed effective dose equivalent of 50% of the applicable limits in a year (see 10 CFR 835.402 [c][3]); and
- Members of the public likely to receive intakes resulting in a committed effective dose equivalent of 50 mrem or more per year.

The *Draft DOE Radiological Control Technical Standard* recommends worker participation in followup bioassay monitoring whenever routine bioassay results indicate an intake during the current year of 100 mrem or more committed effective dose equivalent. Personnel whose routine duties involve potential exposure to surface or airborne contamination from radionuclides readily absorbed through the skin (e.g., tritium) should also be considered for participation in the bioassay program. Individual participants should submit bioassay samples (e.g., urine or fecal samples) and report for bioassay

|   |
|---|
| <p>Interpretations of bioassay results and subsequent dose assessments should include the following:</p> <ul style="list-style-type: none"> <li>• Characterization of the radionuclide(s) involved (e.g., chemical and physical form);</li> <li>• Bioassay results and the individual's exposure history;</li> <li>• Exposure information (e.g., route of intake, time, and duration of exposure);</li> <li>• Biological models used for dosimetry or radionuclides;</li> <li>• Models to estimate intake and deposition and to assess dose; and</li> <li>• Interdepartmental coordination between the radiological control and medical organizations for doses that may require medical intervention.</li> </ul> |
|---|

monitoring (e.g., whole-body and lung counts) at times and locations specified by the bioassay program. Bioassay and dose assessment results (expressed in rem or mrem) should be promptly reported to each participant.

## 9.8 EMERGENCY TREATMENT

Both emergency and acute, nonemergency medical treatment should be available at the worksite. As stipulated by DOE O 440.1, the physician responsible for the delivery of medical services is also responsible for the medical portion of the overall site emergency and disaster plan. The plan must be integrated with the overall site plan and with the surrounding community emergency and disaster plan. In addition, input from and review by the occupational medicine physician and health and safety personnel are invaluable for developing the medical and emergency preparedness portions of the HASP.

The HASP is to include a list of all potential hazards and their locations, personnel responsibilities, and actions to be taken in the event of an emergency. Emergency medical treatment should be integrated into the overall site emergency response program. (See Chapter 10, "Emergency Preparedness and Response," for further information.) Individual worksite managers should contact the site emergency preparedness group to verify that all potential emergency responders and care providers understand the hazards of the worksite and can be relied on to provide services, as needed. The following guidelines for establishing an emergency treatment program should be documented or referenced in the HASP:

- Train a team of site personnel in emergency first aid;
- Train personnel in emergency decontamination procedures in coordination with the emergency response plan;
- Designate roles and responsibilities;
- Establish an emergency/first-aid station onsite;
- Arrange for a 24-hour oncall physician;
- Establish an oncall team of medical specialists for emergency consultations;
- Develop a protocol for handling thermal stress and other potential health disorders;
- Make plans in advance for emergency transportation to and treatment at a nearby medical facility;
- Post names, numbers, addresses, and procedures for contacting oncall physicians, medical specialists, ambulance services, medical facilities, poison control, and fire and police services;
- Provide maps and directions to the nearest medical facility;
- Establish a radio communication system for emergency use; and
- Review emergency procedures daily with all site personnel at safety meetings before beginning the work shift.

Nonemergency medical care should be arranged for hazardous waste site personnel who are experiencing health effects resulting from an exposure to hazardous substances. Offsite medical care should ensure that any potential job-related symptoms or illnesses are evaluated in the context of the employee's exposure. Offsite medical personnel should investigate and treat non-job-related illnesses that may put the employee at risk because of task requirements.

## 9.9 APPLICATION OF MEDICAL SURVEILLANCE PROGRAM TO ACTIVITIES OUTSIDE HAZWOPER

For activities beyond those explicitly addressed by the HAZWOPER Standard and for activities where more than one regulation is relevant, it is DOE's policy to apply the regulation that is more protective of worker health and safety **and** to incorporate appropriate provisions into the medical surveillance program. Figure 9-2 is an example of how the medical monitoring requirements of the OSHA Lead Standard are integrated into the existing medical monitoring program using the HASP as the vehicle.

|   |
|---|
| <p><b>What regulations apply?</b><br/>29 CFR 1910.1025, "Occupational Exposure to Lead in General Industry," and 29 CFR 1926.62, "Occupational Exposure to Lead in Construction."</p> <p><b>Who is to be enrolled?</b><br/>Construction jobs are often of short duration and, without sufficient protection, workers could be exposed to high concentrations of airborne lead during the period between sampling and receipt of the results. For these reasons, OSHA requires that the decision to enroll a worker in a special medical program addressing potential lead exposure depends on whether the worker is engaged in an OSHA-listed task—not on measured airborne exposure levels, which is the usual approach.</p> <p>OSHA has established a hierarchy of three lists of tasks, the performance of which, in the presence of lead, triggers basic protective provisions before airborne lead monitoring. All three sets of tasks mandate initial medical surveillance consisting of blood sampling and analysis. The Construction Industry Lead Standard requires blood-sample analysis for any construction worker who is exposed to an airborne lead level greater than <math>30 \mu\text{g}/\text{m}^3</math>, as an 8-hour time-weighted average for any single day in any period of 12 consecutive months. The General Industry Lead Standard imposes medical program requirements when an employee has the potential to be exposed above an action level for more than 30 days. OSHA's three sets of tasks differ mainly in the level of respiratory protection required for workers occupationally exposed to lead.</p> <p><b>What are the requirements?</b><br/>Workers engaged in any of the listed tasks require initial medical surveillance consisting of blood sampling and analysis. Protective measures (including graduated levels of respiratory protection and personal protective equipment (PPE) tied to the task grouping, change areas, hand-washing facilities, and training) must be provided to workers performing any of the listed tasks. It is not necessary to collect new monitoring data each time, since OSHA's analysis of previously collected exposure data already indicates that high exposure levels may be expected when these tasks are performed. Biological samples collected must be analyzed by an OSHA-approved laboratory, and results must have an accuracy of <math>\pm 15</math> percent or <math>\pm 6</math> micrograms per deciliter (<math>\mu\text{g}/\text{dl}</math>) blood.</p> <p><b>What happens if biological monitoring results exceed the benchmark?</b><br/>Medical removal and medical removal benefits must be provided under certain conditions. The General Industry Lead Standard and the Construction Industry Lead Standard contain slightly different provisions requiring the medical removal of an overexposed employee. The General Industry Lead Standard requires removal based on the average results of three blood tests in excess of <math>50 \mu\text{g}/\text{dl}</math>. The Construction Industry Lead Standard, however, stipulates two triggers for medical removal. Medical removal is indicated if the employee is exposed at or above the airborne action level and in the event of either of the following: (1) if a periodic and followup blood-sampling test equals or exceeds <math>50 \mu\text{g}/\text{dl}</math>, or (2) if a medical finding or opinion documents that the employee has a detected medical condition placing the employee's health at increased risk from exposure to lead. Close communication between the worksite project manager, health and safety professionals, the medical department, and the affected employee is particularly important in these situations.</p> <p><b>What are medical removal benefits?</b><br/>Provisions for medical removal benefits are a common element of many OSHA standards. The employer must maintain the employee's total normal earnings, seniority, and other rights and benefits to which he or she is entitled, including the right to resume his or her former job status, as stipulated by law. The employer may provide medical removal benefits on the condition that the employee participate in followup medical surveillance. According to both the Construction Industry Lead Standard and the General Industry Lead Standard, medical removal benefits must be provided by the employer.</p> |
|---|

**Figure 9-2. Model Medical Surveillance Program Elements for Potential Exposure to Inorganic Lead During D&D**

## 9.10 REFERENCES

29 CFR 1910 Subpart I, "Personal Protective Equipment"

29 CFR 1910.1025, "Occupational Exposure to Lead in General Industry"

29 CFR 1910.1030, "Bloodborne Pathogens"

29 CFR 1926, "Safety and Health Regulations for Construction"

29 CFR 1926.62, "Occupational Exposure to Lead in Construction"

DOE O 440.1, "Worker Protection Management for DOE Federal and Contractor Employees"

DOE-STD-1098-96, *Draft DOE Radiological Control Technical Standard*

The Americans with Disabilities Act (ADA)(PL 101-336)

The National Defense Authorization Act of 1993 (PL 102-484), Section 3162

The Rehabilitation Act of 1973

*Draft DOE Contractor Occupational Medical Program Implementation Guide for Use with DOE O 440.1*