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Occupational Health and Industrial Hygiene Procedure

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1.0 PURPOSE

The purpose of this Procedure to establish the minimum requirements for Industrial Hygiene (IH) for the O&M activities. It is designed to provide guidance to O&M personnel, concerning occupational health risk and risk mitigation to protect the health of O&M personnel.

2.0 SCOPE

The scope of this procedure applies to all works performed under all Government Construction Contracts executed throughout the Kingdom of Saudi Arabia. Key elements include the following:

- Heat-stress prevention.
- Particulates (other than nuisance), fumes, vapors and synthetic fibers.
- Noise.
- Hazardous Substances such as Hexavalent Chromium, water/soil-borne hazards (such as legionella) and ionizing radiation.
- Vibration.
- Requirements for RE to undertake a Health Based Risk Assessment including hazard ranking and identifying controls.
- Implementation of monitoring programs, as applicable, and Training.

The IH program shall be completed by a competent person knowledgeable of the hazards and risks.

3.0 DEFINITIONS

Definitions	Description
HAZID	Hazard Identification
HSE	Health, Safety and Environment
IH	Industrial Hygiene
IH Program	Formalized program highlighting all key risks and mitigation measures or controls relating to the Operations & Maintenance activities
JHA	Job Hazard Analysis
NOHSC	The National Code of Practice for the Labelling of Workplace Substances
OSHA	Occupational Health and Safety Administration
PPE	Personal Protective Equipment
RE	Responsible Entity
SDS	Safety Data Sheet.
UV	Ultra Violet

4.0 REFERENCES

- NOHSC: 1008(2004)
- OSHA 29 CFR 1926.52 Occupational Noise Exposure
- EOM-KSS-PR-000001 General Safe Work Requirements Procedure
- EOM-KSS-PR-000003 Personal Protective Equipment Procedure
- EOM-KSS-PR-000022 Hazard Communication Procedure
- EOM-KSH-PR-000003 Occupational Health Records Maintenance System Procedure
- EOM-KSH-PR-000004 Respiratory Protective Equipment Procedure
- EOM-KSH-PR-000007 Control of Hazardous Materials Procedure
- EOM-KSH-PR-000010 Hearing Conservation Program Procedure

5.0 RESPONSIBILITIES

5.1 Asset & Facility Manager or Responsible Contractor

Where no in-house Asset & Facility Manager or O&M team exists and the Entity has commissioned O&M service delivery through an external contractor, this will be deemed for the Responsible Contractor. But, in either case, the responsibilities for ensuring the resources and arrangements are available for the implementation and management of this procedure, lie with this responsible party and shall include (but not limited to).

- Being fluent in the requirements of the Program.
- Providing onsite or off-site resources to effectively implement the Program.
- Be familiar with the status of the Program through briefings from the HSE representative.

5.2 HSE Representative

The HSE Representative has the overall responsibility in confirming that Contractors (including subcontractors and specialist contractors) comply with the requirements of this procedure. Regarding the Industrial Hygiene Program, specific duties include management of:

- Ensuring Industrial Hygiene Assessments (e.g., noise-level measurements, air sampling, etc.) are completed.
- Assigning Field Industrial Hygiene resources.
- Monitoring the implementation of the Program on the site.

5.3 Industrial Hygiene Team

The IH team is responsible for overseeing the implementation of practices, procedures, and work methods to reduce worker exposure to unacceptable work related risks through the following:

- Reviewing work methods and Job Hazard Analysis (JHAs) to confirm proper protection is identified, as applicable.
- Requiring or implementing monitoring to verify adequacy of control practices or work methods
- Reviewing RE's Health and Hygiene Risk Assessments
- Consult with medical staff regarding health surveillance requirements for O&M personnel working with hazardous materials
- Recordkeeping and reporting of IH activities
- Maintaining the electronic Safety Data Sheet.(SDS database and processing hazardous substance approvals).
- Carrying out compliance and validation inspections and audits of Contractor's compliance to required Industrial Hygiene practices and procedures.
- Coordinating or assisting, as applicable, compliance and validation assessments concerning material handling, and pest and vermin control.

5.4 Contractors

When referring to Contractors, and there is an appointed Responsible Contractor in place, this term is taken to mean all contractors, subcontractors and specialist contractors under control of the Responsible Contractor. The Contractors responsibilities will include the following:

- Implementing the requirements of the IH Program.
- Verify appropriate involvement of their employees in the application of the IH Program.
- Provide access to industrial hygiene services for personnel and work areas under their immediate control.
- Reporting potential or actual IH exceedances to the Medical Clinic and Contractor HSE Department.
- Assigning a qualified and trained Industrial Hygienist as applicable to scope of work and as identified in Hazard Identification (HAZID(s)) and Health Based Risk Assessment.
- Develop and implement IH Program in accordance to guidelines of this procedure.

5.5 O&M Personnel

- Attending HSE Orientation and specific occupational exposure related to this programs when offered.
- Using of identified protective measures to prevent occupational illness or injury.
- Reporting any signs or symptoms of any occupational diseases or injuries, immediately, to their Supervisor and Medical Clinic.
- Participating in IH surveillance programs as requested.
- Participating in Industrial Hygiene Monitoring (Contractor initiated) as required.
- Not interfering in the Monitoring Instrumentation, they or their co-workers maybe required to wear/use.

6.0 REQUIREMENTS

6.1 IH Programs / Health Based Risk Assessment

HSE Representative shall develop an IH Program that detail potential hazards for scope specific work activities. The IH Program will address applicable risks and detail the requirements for IH monitoring, testing and communication of test result requirements.

6.2 Target Organs / Health Performance Indicators

Target organs are those body parts that sustain some adverse effect when exposed to, or contaminated by, harmful substances or agents. These hazards will be identified using Health Based Risk Assessments and use control methods (substitution, training, suitable or specialty Personal Protective Equipment (PPE), etc.) to reduce risks to a level as low as reasonably practicable. The table below provides guidance to develop Industrial Hygiene (IH) monitoring programs to be described as applicable in RE's IH program.

Organ (Body Part)	Condition / HPI	Potential Cause(s)
BLADDER	Cancer	2-Naphthylamine
BONE	Osteo-necrosis	Vinyl chloride monomer, work in pressurized area e.g. diving works
BRAIN	Narcosis Encephalopathy	Organic solvents Mercury, lead, manganese, carbon disulfide, carbon monoxide
CARDIO-VASCULAR	Anemia White cell Count changes	Lead, arsenic Benzene, carbon tetrachloride Ionizing radiation
EARS	Deafness Temporary / Permanent Threshold Shift	Noise in excess of country-specific standards Exposure to otogenic agents
EYES	Cataracts Corneal Ulcers	Ionizing radiation, Ultra Violet (UV) light, heat, acids/alkalis, arc flash
HANDS / ARMS	Vibration White Finger Carpal Tunnel Syndrome Tenosynovitis Dermatitis	Use of vibrating tools Repetitive pulling and/or twisting actions Repetitive pulling and/or twisting actions with forceful movements Exposure to skin irritants
KIDNEY	Toxicity Infection	Organic solvents, lead, mercury, cadmium Micro organisms
LIVER	Hepatitis Cancer	Organic solvents, arsenic, manganese, beryllium, vinyl chloride monomer

Organ (Body Part)	Condition / HPI	Potential Cause(s)
LUNGS	Pneumoconiosis (Extrinsic allergic alveoli) Asthma Irritation / Inflammation Infection Cancer	Mineral dust: coal, silica, asbestos, iron, tin, barium, organic dusts, mineral fibers, metal fume Proteins and low molecular weight chemicals in toxic dosages Nitrous fumes, phosgene, chlorine, hydrogen sulfide, sulfur dioxide, ammonia Legionella Asbestos, nickel, hexavalent chrome
NOSE	Ulceration	Chrome
PERIPHERAL NERVES	Neuropathy	Lead, mercury, carbon disulfide, tetrachloroethane, trichloroethylene, organophosphorus compounds, vibration
SKIN	Dermatitis Cancer	Exposure to skin irritants such as, solvents, acids / alkalis, mercury, chrome, nickel, arsenic, mineral oils, wood, plants, resin, heat Aromatic polycyclic hydrocarbons, arsenic, UV light, ionizing radiation
TEETH	Loosening Erosion Mottling Discoloration	Mercury Sulfuric acid Fluorides Vanadium, iodine, bromine

Table 1: Target Organs / Health Performance

6.3 Hazardous Substances

Further information about the management of Hazardous Substances within the O&M operating environment can be found in EOM-KSS-PR-000024 Hazard Communication Procedure, and EOM-KSH-PR-000007 Control of Hazardous Materials Procedure and outlines the process for bringing a hazardous substance onto site, performing risk assessments, use of the Hazardous Substance Register, use of Safety Data Sheets (SDS's), and storage, labeling, signage, training and general exposure control requirements.

EOM-KSH-PR-000004 Respiratory Protective Equipment Procedure outlines respiratory equipment use, care and maintenance requirements, medical clearance for use, fit testing and specialty PPE guidance.

6.4 Chemicals

Chemicals used with the O&M operating environment are managed as per the EOM-KSS-PR-000024 Hazard Communication Procedure, and EOM-KSH-PR-000007 Control of Hazardous Materials Procedure. These procedures detail approvals, storage, decanting and training requirements. All chemicals used shall comply with SDS requirements and follow proper storage of chemicals requirements.

6.5 Synthetic Mineral Fibers

The Kingdom of Saudi Arabia has prohibited the use of asbestos products in new construction and installations of new work under maintenance activities due to its hazardous properties; however, alternate synthetic fiber products may also present health hazards to individuals that work with or handle the materials.

* Note: For existing operational premises, operated by an Entity however, there will always remain the possibility of asbestos being contained within the fabric of the built asset arising from its original construction, and therefore efforts must be made to investigate, identify and make necessary arrangements for the containment or non-disturbance of such materials during the O&M activities.

The HSE Representative shall assess their scope of work for potential exposure to synthetic mineral fibers. Where risk of exposure exists, the contractor shall develop and implement a plan to safely store, handle,

install, and dispose of synthetic fiber products. The plan shall also include assessment of hazards and risks associated with the materials, mitigation of hazards, monitoring for potential exposure, and protection of all O&M personnel.

Synthetic mineral fibers are fibrous inorganic substances made primarily from rock, clay, slag, or glass. These fibers are classified into three general groups:

- Fiberglass (glasswool and glass filament)
- Mineral wool (rockwool and slagwool)
- Refractory ceramic fibers (RCF)

The National Standard for Synthetic Mineral Fibers NOHSC:1004 (1990) is applicable to the applications involving mineral wool (rockwool and slagwool), glasswool (including superfine glassfibre) and ceramic fibers, and activities involving their installation or removal or any related handling or work.

6.6 Hexavalent Chromium

Hexavalent Chromium – Cr (VI) is a toxic chemical form of chromium and is produced entirely from industrial processes and may occasionally be found within construction and/or O&M operating activities. Exposures will typically occur during welding, painting, abrasive blasting and use of refractory materials, concrete or treated wood products. In construction, stainless steel welding and cutting involves the greatest risk of exposure since Cr (VI) is found as a significant by-product in the metal fume. The primary route of entry for Cr (VI) is inhalation. Ingestion and skin absorption are also routes of entry into the body.

Contractors shall assess their scope of work for potential exposure to Cr (VI). Where potential exposure exists, Contractors shall develop and implement a procedure to identify, control, and monitor any activities that would potentially create exposure. The Responsible Contractor (where appointed) and HSE representative will provide guidance to contractors and subcontractors, if needed. The procedure must include the following:

- ***Chromium Material Assessment*** – A material assessment to determine the presence of chromium for O&M specified materials. The material assessment is the basis for determining the need for a Hexavalent Chromium monitoring program.
- ***Conduct Exposure Assessment Profiles*** –These assessments ascertain the potential for airborne exposure based on specific work operations, materials and conditions. Appropriate controls must be addressed for materials that pose a skin hazard, such as Cr (VI) containing paint, abrasive blasting grit, and freshly treated wood, regardless of any potential for airborne contamination.
- ***Cr (VI) Program Implementation*** – Elements of an effective Cr (VI) protection program may include exposure assessments, engineering controls, exclusion zones, personal protective equipment, IH monitoring, medical surveillance, training and compliance plan.

The program must incorporate specific work practices and controls for the following activities if Hexavalent Chromium is an exposure, as applicable:

- Shielded Metal Arc Welding (SMAW) and Flux Cored Arc Welding (FCAW)
- Gas Metal Arc Welding [GMAW (MIG)], Surface Tension Transfer welding (STT), and/or Grinding
- Gas Tungsten Arc Welding [GTAW (TIG)] and Submerged Arc Welding (SAW)
- Plasma Arc, Thermal Cutting, and Arc Gouging
- Painting
- Abrasive Blasting
- Wood Cutting and Disposal
- Concrete

6.7 Noise

See EOM-KSH-PR-000010, “Hearing Conservation Program Procedure” for details on noise exposure, testing, and prevention measures.

6.8 Dust

Dust monitoring from other than soil handling activities may be required to be undertaken based on health based risk assessments concerning the work activities. Dust resulting from soils handling activities will be controlled to the extent practicable.

6.9 Vibration Management

The Contractor should strive to eliminate or reduce the potential for personnel to be exposed to excessive levels of vibration, so far as is reasonably practicable.

6.9.1 Vibration Exposure Limits

The Contractor should established guidelines for exposure limits as follows:

- For Hand/Arm Vibration (HAV):
  - Daily (10 hours) exposure action value of 2.5 m/s²
  - Daily (10 hours) exposure limit value of max 5 m/s²

- For Whole Body Vibration (WBV):
  - Daily (10 hours) exposure action value of 0.5 m/s²
  - Daily (10 hours) exposure limit value of max 1.15 m/s²

6.9.2 Vibration Risk Management

- Identify sources of WBV and HAV. Assess potential health risk using guidelines above.
- Assess potential health risk using Vibration Exposure limits above.
- Select and implement exposure control measures, including maintenance requirements to verify ongoing effectiveness.
- Monitor and review the effectiveness of the control measures to determine whether the chosen controls have been implemented as planned, are effective, and have not introduced new hazards or worsened existing hazards.
- Document the controls and the effectiveness of controls as noted by monitoring and assessment activities.

6.9.3 Whole Body Vibration Management

HSE Representative shall consider vibration when assessing the hazards and risks of specific scopes of work and selecting the methods to perform and complete the work. To the extent practical, Contractors will do the following:

- Choose equipment that has been designed or adapted to minimize vibration.
- Maintain vehicles and equipment adequately, particularly suspension components.
- Maintain driver's seats in good repair and ensure they give good support.
- Check with the manufacturer to determine whether the suspension seat is suitable for the vibration characteristics of the machine, and that it is correctly adjusted to the operator's weight.
- Check to see that the vehicles have the right tires and that they are inflated to the right pressure for the ground surface.
- Provide training to employees regarding sitting and posture and how to adjust the seat for good seating position and posture. Particularly important where a suspension seat is fitted for the driver's weight and different people drive the vehicle.
- Improve the ground surfaces over which vehicles must be driven regularly, for example repairing potholes, clearing debris, or leveling.

6.9.4 Hand-Arm Vibration Management

Hand-arm vibration is vibration transmitted from work processes into workers' hands and arms. It can be caused by operating handheld power tools, such as road breakers, and hand guided equipment, such as

powered lawnmowers, or by holding materials being processed by machines, such as pedestal grinders. Identifying and reporting signs and symptoms at an early stage is important, as it will allow for the Contractor/O&M personnel to act to prevent health effects from becoming serious. The symptoms include any combination of the following:

- Tingling and numbness in the fingers.
- Not being able to feel things properly.
- Loss of strength in the hands.
- Fingers going white (blanching) and becoming red and painful on recovery (particularly in the cold and wet, probably only in the tips at first).

To the extent practical, Responsible Entities will do the following:

- Choose alternative work methods which eliminate or reduce exposure to vibration.
- Verify equipment selected or allocated for tasks is suitable and can do the work efficiently. Equipment that is unsuitable, too small, or not powerful enough is likely to take much longer to complete the task and expose employees to vibration for longer than is necessary.
- Select the lowest vibration tool that is suitable and can do the work efficiently.
- Check with suppliers that their equipment is suitable and will be effective for the work by:
    - Comparing vibration emission information for different brands/models of equipment.
    - Asking for vibration information for the way the equipment is to be used.
    - Asking for information on any training requirements for safe operation.
- Find out about the equipment's vibration reduction features and how to use and maintain the equipment to make these features effective.
- Use devices such as jigs and suspension systems to reduce the need to grip heavy tools tightly.
- Plan work to avoid individuals being exposed to vibration for long, continuous periods – several shorter periods is preferable.
- Provide employees with protective clothing when necessary to keep them warm and dry and encouraging good blood circulation which should help protect them from developing vibration white finger.
- Provide anti-vibration gloves suitable for the tool being used.

6.10 Heat Stress

See EOM-KSH-PR-000008, "Heat and Cold Stress Management Procedure" for details on heat and cold stress, treatment, and prevention measures.

6.11 Ionizing Radiation

Ionizing radiation may be found within a typical O&M operating environment in the forms of, but not limited to:

- X-rays.
- Industrial radiography equipment.
- Soil density equipment.
- Sealed gauges.

The management of Ionizing Radiation is the responsibility of the Contractor. They must ensure that they are meeting the requirements of the EOM-KSS-PR-000001 General Safe Work Requirements Procedure. This covers such things as Radiation Safety Officer (RSO) duties, transportation, storage, use, permitting and emergency procedures.

6.12 Manual Handling

See EOM-KSS-PR-000024, "Manual Material Handling Procedure" for details on material handling and the identification and mitigation measures to aid workers and reduce potential injuries caused by mishandling, or improper lifting techniques.

7.0 TRAINING

To provide consistency and completeness in IH management, training will be provided by the Contractor as appropriate for personnel required to participate in the IH procedures:

- Personnel are made aware of IH requirements through the orientation induction/training programs.
- Personnel should attend specific occupational exposure prevention programs when offered.

8.0 MONITORING AND EVALUATION

Assessments shall be conducted by the HSE representative and Asset & Facility Manager or Responsible Contractor on a periodic basis to confirm the implementation and evaluate the effectiveness of the IH Plan. The Industrial Hygiene Assessment Checklist will be used in these assessments (see **Attachment 1 - EOM-KSH-TP-0000XX - Industrial Hygiene Assessment Checklist**). Improvement actions are assigned for completion, entered onto the HSE Action Tracking Register, and tracked to closure.

9.0 RECORDS

Industrial hygiene records and records related to medical surveillance will be maintained as per EOM-KSH-PR-000003 Occupational Health Records Maintenance System Procedure. Personal and area monitoring results will be input and stored in the Contractor database for audit purposes.

10.0 ATTACHMENTS

1. EOM-KSH-TP-000019 - Industrial Hygiene Assessment Checklist

Attachment 1 - EOM-KSH-TP-000019 - Industrial Hygiene Assessment Checklist

ATTENTION: Check either "YES," "NO," or "N/A." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding / issue to the HSE Tracking Register.

No.	Industrial Hygiene Assessment Checklist	ANSWER			Comments
		YES	NO	N/A	
	OCCUPATIONAL HEALTH AND HYGIENE				
	Subcategory 1: General				
1	Has a risk assessments and review been completed to determine the extent of the Health and Hygiene program for the O&M operating environment?				
2	Is a complete set of Material Safety Data Sheets held and maintained by the O&M function and/or Contractor responsible for the occupational health and industrial hygiene program?				
3	Does the HSE Department retain copies of Material Safety Data Sheets?				
4	Where applicable, have arrangements been made with an accredited laboratory for the analysis of potable water for inorganic and organic substances and pathogens?				
5	As necessary, have arrangements been made for chlorine dosing of piped and stored water for human consumption and washing facilities?				
6	Are suitable and sufficient sanitary facilities provided at readily accessible places to maintain the hygiene standards required within the operations and maintenance environment?				
7	Has a risk assessment been conducted identifying indigenous pest and vermin species in the area (where applicable)?				
8	Where applicable, have appropriate measures been implemented to control the pests and vermin and to mitigate the effects on personnel?				
9	Has the O&M function and/or Contractor implemented a Health Education Program?				
	OCCUPATIONAL EXPOSURE TO CARCINOGENS AND TERATOGENS				
	Subcategory 1: Responsibilities				
1	Where applicable, has the Industrial Hygienist reviewed the qualifications and approved the HSE Representative (or designee) to perform carcinogen/teratogen exposure assessments and develop the required compliance plan?				
2	Where applicable, has the Industrial Hygienist provided support to the O&M function, as needed, in the identification and assessment of exposure to carcinogens?				
3	Where applicable, has the Industrial Hygienist reviewed Contractor packages and associated assessments and plans (related to carcinogens and teratogens) as required?				
4	Does the O&M procurement manager maintain a list of all chemicals present at the site?				
5	Does the O&M procurement manager maintain Safety Data Sheets (SDSs) for all chemicals present at the site?				
6	Do contractors comply with the applicable requirements for the management of occupational exposure to carcinogens and teratogens?				
7	Do contractors comply with the applicable local, state, national or international laws and regulations?				

ATTENTION: Check either "YES," "NO," or "N/A." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding / issue to the HSE Tracking Register.

No.	Industrial Hygiene Assessment Checklist	ANSWER			Comments
		YES	NO	N/A	
	Subcategory 2: Requirements				
1	Do the contractors performing the work assess the presence of potential carcinogens/teratogens, assess occupational exposure to these carcinogens/teratogens, and develop the required compliance plans?				
2	Has the IH Manager, or designee, and the Site HSE Representative, or designee reviewed contractor compliance plans for consistency with regulatory and Contractor requirement prior to allowing contractor to begin work at the site?				
3	Where applicable, prior to initializing an assessment to determine the potential for carcinogens/teratogens to be present, has a review to determine applicable local, state, national or international regulations, conventions and/or other agreements been performed?				
4	Has a list of carcinogens/teratogens been identified within the O&M site based on an initial list of all chemicals being used or present within the site?				
	Subcategory 3: Exposure Assessment				
1	Where applicable, has the contractor or IH Manager conducted an exposure assessment for the chemical of concern (a separate assessment is required for each area where a worker may be exposed)?				
2	Where applicable, has air sampling been conducted to identify the actual potential exposure to the carcinogen/teratogen to ensure the controls are effective?				
3	Where applicable, has a minimum of two personnel sampling episodes at least one week apart been conducted to confirm "no exposure?"				
4	Where applicable, has a minimum of three personnel samples collected for every ten workers of the same trade, same activity, and the same equipment and materials used?				
5	Where applicable, has a minimum of two consecutive days of area sampling been conducted to determine airborne exposure conditions to personnel outside of the immediate location handling the carcinogen/teratogen?				
6	When initial monitoring indicates that the levels are above the prescribed exposure limits, are additional exposure monitoring episodes performed depending on the duration of the activity?				
7	If the work shift is more than 8 hours, is the added exposure considered when determining compliance with the permissible exposure limits?				
8	Are written personnel monitoring results provided to each exposed person?				
9	Does the evaluation also include an assessment of exposure to the public, where applicable?				
	Subcategory 4: Compliance Plan				
1	Where applicable, had the required Compliance Plan been developed based on the presence of one or more carcinogens/teratogens?				
2	Where required, does the Compliance Plan include protocols for performance of the required periodic monitoring?				

ATTENTION: Check either "YES," "NO," or "N/A." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding / issue to the HSE Tracking Register.

No.	Industrial Hygiene Assessment Checklist	ANSWER			Comments
		YES	NO	N/A	
3	Does the Compliance Plan incorporate mitigation measures to address exposure of workers to carcinogens/teratogens via ingestion and skin absorption as well as the potential for public exposure?				
4	Is the Compliance Plan updated at least yearly, as required?				
5	If the initial monitoring results indicate that the levels of the carcinogen/teratogen are above the permissible exposure limits, is a "Regulated Work Area" established around the subject area?				
6	Is the Compliance Plan updated at least yearly, as required?				
	Subcategory 5: Training				
1	Where applicable, do all personnel who may be potentially exposed to carcinogens/teratogens at any level receive training?				
2	Where required, do personnel authorized to enter a Regulated Work Area receive additional training that more specifically covers the hazards associated with exposure to the specific carcinogen/teratogen?				
3	Is specific information for each carcinogen/teratogen identified included in the training session?				
4	Has the IH Manager ensured that the O&M function and/or Contractor developing and conducting training is qualified to do so?				
	Subcategory 6: Recordkeeping				
1	Are records pertaining to personnel and/or public exposures as well as documentation of training being maintained in accordance with Contractor requirements?				
	AIR SURVEILLANCE PROGRAM				
	Subcategory 1: Responsibilities				
1	Does the HSE Representative select, maintain, calibrate and use instrumentation necessary for monitoring/sampling of airborne contaminants?				
2	Does the HSE Representative maintain monitoring records onsite?				
3	Does the HSE Representative evaluate air surveillance data to determine exposure, exposure potential and necessary controls?				
	Subcategory 2: Requirements				
1	Does the O&M function or contractor have direct-reading instrumentation available during drilling or other major intrusive activities?				
2	Do trained personnel use the proper instrumentation to conduct air monitoring for work efforts?				
3	For work efforts in areas suspected of containing radioactive or chemical contaminants, is the air monitored as specified by the HSE Representative?				
4	Are random screening samples obtained during major work operations where contaminants are disturbed with mechanized equipment (e.g., drilling, split-spoon sampling) to determine the reliability of the direct-reading results?				

ATTENTION: Check either "YES," "NO," or "N/A." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding / issue to the HSE Tracking Register.

No.	Industrial Hygiene Assessment Checklist	ANSWER			Comments
		YES	NO	N/A	
5	Does the O&M function or contractor use air sampling data to select PPE (where applicable)?				
6	Where applicable, are general area samples obtained in the work area and at controlled access area perimeters to estimate potential worker exposure and environmental exposures, respectively?				
7	Are work area samples obtained near generation sources to estimate the most severe potential exposure?				
8	Are perimeter samples obtained in upwind and downwind locations to determine background and work activity impact upon uncontrolled areas?				
9	Does the selection of collection devices depend on the physical and chemical properties of the contaminants?				
10	Are sampling times determined based upon the type of potential exposure(s), such as continuous, intermittent?				
11	Where applicable, is an airborne radioactivity area warning sign posted if airborne radioactivity exceeds or has the potential to exceed prescribed limits?				
12	Does the O&M function and/or Contractor ensure that personal air samples are provided for everyone who enters known or potential airborne radioactivity areas?				
13	Are records of exposure to radioactive materials properly maintained by the O&M function and/or Contractor?				
14	Is air surveillance for chemical and particulate contaminants being recorded?				
15	Are completed monitoring data sheets; copies of available bioassay reports, and correspondence relating to exposure evaluation, summaries, and reporting retained in the O&M site HSE files?				
16	Where applicable, is air sampling collection media requiring laboratory analyses analyzed by a laboratory accredited by an appropriate agency?				
	Subcategory 2: Requirements				
	MEDICAL SURVEILLANCE				
	Subcategory 1: Responsibilities				
1	Does the HSE representative verify that people are current with respect to medical qualification requirements before they are permitted to enter controlled areas?				
2	Does the HSE representative initiate a request for supplemental medical surveillance if any exposures or overexposures occur where medical surveillance may be indicated?				
3	At hazardous waste sites, does the HSE representative maintain the required medical records system, prepare reports of medical qualifications status and establish policies?				
4	Does the HSE representative prepare and transmit information concerning the work environment and chemical and physical exposures, both actual and potential, to the appropriate medical officer?				
5	Does each contractor ensure that medical surveillance requirements for his subordinate personnel remain current?				

ATTENTION: Check either "YES," "NO," or "N/A." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding / issue to the HSE Tracking Register.

No.	Industrial Hygiene Assessment Checklist	ANSWER			Comments
		YES	NO	N/A	
6	Does each contractor ensure that subordinate personnel are aware of individual requirements and are responsible for promptly reporting medical conditions to the O&M site first aid station?				
7	Do personnel correctly complete any Medical Surveillance Questionnaires or other forms?				
8	Do personnel report any pre-existing or new health conditions to the first aid station?				
9	Do Personnel report any unplanned exposure to their supervisor or the HSE Supervisor?				
10	Where permissible under local laws, do personnel report any prescription or drug use to the first aid station or HSE Supervisor?				
11	Do Subcontractors implement a medical surveillance program consistent with Contractor requirements?				
	Subcategory 2: General Requirements				
1	Has the O&M function or contractor established the required medical surveillance program for its personnel (where applicable by regulation)?				
2	Does the O&M function or contractor provide for a comprehensive health assessment at a frequency of not less than once every 12 months?				
3	Does the O&M function or contractor's medical officer, or designated responsible person, review all personal medical data to ensure that any restrictions and special requirements are understood?				
4	Does the HSE Representative review all physicians' statements before personnel are authorized access to the O&M operating environment?				
5	Does the O&M function or contractor ensure that only non-confidential information is available to other O&M personnel in reports or databases?				
6	Do personnel have access to all their own medical records?				
7	Does the HSE Representative publish a monthly status update of medical qualification of program personnel?				
8	Are exceptions to the medical surveillance requirement included in the site-specific HSE plan?				
9	Are exit or termination medical examinations offered to all personnel participating in the medical surveillance program within 30 days after the conclusion of their work?				
10	Does the HSE Representative schedule health assessments for all appropriate site personnel and ensure that the examining physicians have the necessary information?				
11	Does the HSE Representative give each affected person a copy of the associated physician's written opinion within two weeks of receipt?				
12	Does the required documentation exist for all personnel who are involved in the medical surveillance program?				
	Subcategory 3: Contractor Requirements				
1	Does each Contractor maintain an independent medical surveillance program for its employees in accordance with Contractor requirements?				

ATTENTION: Check either "YES," "NO," or "N/A." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding / issue to the HSE Tracking Register.

No.	Industrial Hygiene Assessment Checklist	ANSWER			Comments
		YES	NO	N/A	
2	Are the HSE Representative provided with certification reports and medical restrictions to validate each Subcontractor's employee's status to participate in field operations?				
3	Before working on any program site for the first time, do Contractor personnel register with the HSE Representative to establish their medical fitness to work on the facility?				
4	Are medical qualification expiration dates, work limitations and respirator-qualified personnel entered in the program database, for use by the HSE Representative?				
	OCCUPATIONAL HEALTH RECORDS MAINTENANCE SYSTEM				
	Subcategory 1: Responsibilities and Requirements				
1	Does the HSE representative ensure confidentiality of primary records?				
2	Does the HSE representative submit the required records and training rosters to the OHRMS Administrator in accordance with Contractor requirements?				
3	Has the HSE representative received training on the administration of occupational health records?				
4	Upon written request, are individuals provided access to, or copies of, their own primary records?				
5	For on-site access to records, does the individual submit the required written request plus a properly completed Access Verification Form?				