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Chapter 9.6 Reproductive and Developmental Hazards

This could be you . . .

You and your partner decided to start a family and you might be pregnant. You work in a shop with a number of immersion tanks for conformal coating. You want to know if exposure to these chemicals will be hazardous to your future child.

You haven't found Mr. or Ms. Right yet, but you eventually want to have children. You work in a lab that contains an instrument for performing x-rays of welds. You want to know if this will affect your future fertility.

9.6.1 Applicability of this chapter

You are required to follow this chapter if you are assigned to or are performing projects, procuring materials or equipment, or controlling areas involving substances or equipment known as or suspected of posing a hazard to human reproductive or developmental health.

9.6.2 What this chapter covers

This chapter provides assistance to you and your management when dealing with questions related to reproductive health and work at JSC to ensure that you understand your options and can make informed decisions. The requirements and guidelines were developed to provide additional protection for embryos and fetuses and to establish specific procedures to protect your reproductive system.

9.6.3 Potential reproductive and developmental hazards

9.6.3.1 Through the course of work at JSC, you may work with agents known or suspected to be hazardous to human reproduction. These agents include:

- a. Radiation
- b. Chemicals
- c. Biological agents
- d. Physical hazards
- e. Other factors such as standing, climbing, heat or cold exposure

NOTE: Since risk factors are encountered both at work and home, a review by the concerned employee's personal physician is recommended to get a complete picture.

9.6.4 JSC Policy for reproductive and developmental hazards

- a. Control of employee exposures shall be carried out without economic penalty or loss of job opportunity, including, if necessary, consideration for work assignment changes.
- b. JSC shall follow:
 - (1) Applicable OSHA permissible exposure limits
 - (2) ACGIH threshold limit values

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(3) NASA occupational exposure limits.

9.6.5 Controlling reproductive and developmental hazards

Reproductive and developmental hazards can result from exposures of shorter duration and at a lower level than those considered safe for most employees. Therefore, JSC strives to keep exposures as low as reasonably achievable, below published regulatory and recommended limits, using engineering and administrative controls when feasible, and only then PPE. If use of these methods cannot safely and effectively mitigate the risk, then use of the material will be denied.

NOTE: JSC is committed to providing reproductive and developmental health protection of all employees, students, and visitors through identification, management, and control of these hazards, whether chemical, biological, radiological, or physical. Assuring protection from exposures to reproductive hazards requires full cooperation with these procedures as soon as pregnancy is contemplated or determined.

9.6.6 When to evaluate exposure levels

- a. **Procuring Equipment.** If you procure a new piece of equipment that contains potentially hazardous material, such as a radiation source or a carrier gas, you shall include reproductive or developmental hazards in an update to your facility hazard analysis. The hazard analysis includes assessment of potential reproductive and developmental hazards as well as of general physiological hazards. If you find reproductive and developmental hazards, identify them and recommend controls in the facility and procedure documentation.
- b. **Procuring Chemicals or Materials.** If you procure a chemical or material, review the associated MSDS/SDS to see if it is known to pose, or is suspected of posing, a reproductive or developmental hazard. If you find such a hazard, identify it and recommended controls in each procedure that references the material or chemical.
- c. **Hazard Analysis.** You shall include an evaluation for potential reproductive and developmental hazards in job hazard analyses, facility hazard analyses, test hazard analyses, or other hazard analyses required in chapter 2.3. When you develop the hazard analysis, include reproductive and developmental hazards if present and document whether or not there is a permissible exposure level that is protective of reproductive or developmental health.

9.6.7 Medical Surveillance for reproductive and developmental hazards

9.6.7.1 The type of medical surveillance required is based on the specific chemical or physical hazard present and the degree of potential exposure. The content of medical exams shall be determined by a physician with input from the Radiation Safety Officer (RSO) or industrial hygienist, as appropriate, according to NASA occupational health guidelines developed for chemical and physical exposure hazards. Chapter 3.6 contains requirements for medical surveillance.

9.6.7.2 Employees working with reproductive health hazards shall undergo an occupational health consultation, if pregnant, as well as an examination, if deemed appropriate by the physician.

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9.6.8 Training for reproductive and developmental hazards

9.6.8.1 If you have the potential for occupational exposure to chemicals, biohazardous materials, or ionizing radiation, you shall complete initial and annual refresher health and safety training required for your job as follows:

a. Requirements are based on your potential exposures and may include the following:

- (1) Introduction to Laboratory Safety (Chemical Hygiene Plan review and training)
- (2) Introduction to Occupational Exposure to Bloodborne Pathogens
- (3) Initial Radiation Safety Training
- (4) Laboratory Safety Annual Update
- (5) Bloodborne Pathogens Annual Update
- (6) Radiation Worker Biennial Training
- (7) Human Immunodeficiency Virus (HIV)/Hepatitis B Virus (HBV) Training
- (8) Hazard Communication Training
- (9) Ergonomics Training

b. Training shall include:

- (1) Methods to identify reproductive and developmental hazards in the workplace
- (2) Safe work practices and PPE
- (3) Availability of the Reproductive and Developmental Health Program
- (4) Known reproductive hazards specific to a work area included in the job hazard analysis.
- (5) Individual operational training by the supervisor.

9.6.9 Responsibilities for reproductive and developmental hazards

a. If you are ***pregnant, planning a pregnancy***, or concerned that your job is affecting your reproduction:

- (1) Notify your supervisor for a review of the applicable job hazard analysis and any other hazard analyses relevant to your facility or procedures for reproductive or developmental hazards.
- (2) Consider contacting your employer's medical provider or the JSC Clinic for counseling.
- (3) Consider requesting a workplace hazard assessment by an industrial hygienist from your own company or from the Occupational Health Branch at x36726.
- (4) Follow all recommended work practices and wear appropriate PPE.
- (5) Report all exposure incidents to your supervisor.
- (6) Attend all required initial and annual training.

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- b. If you are a **supervisor**, you are responsible for:
- (1) Assessing the potential reproductive hazards of employees' jobs using MSDSs/SDSs or other information sources
 - (2) Including all known reproductive hazards in written job descriptions and job hazard analyses
 - (3) Providing specific operations training when required to protect reproductive health
 - (4) Protecting the privacy of employees
 - (5) Sending employees to required initial and refresher health and safety training
 - (6) Providing employees with appropriate PPE
 - (7) Ensuring employees use recommended PPE and other control measures provided
 - (8) Identifying alternative job duties or temporary reassignments when required. If alternative job duties are not immediately available, work with your Human Resources Office and the Equal Opportunity and Diversity Office to develop other opportunities or counsel on leave options.
- c. The **Occupational Health Branch** shall provide the field industrial hygiene support to perform workplace hazard assessments along with supervisors to determine where potential chemical, biological, or physical reproductive and developmental hazards exist, including:
- (1) Identifying if these potential hazards present an exposure risk
 - (2) Conducting a qualitative exposure assessment of concerned employees
 - (3) Performing area or personal exposure monitoring, if indicated
 - (4) Reviewing work practices and PPE, and recommending additional controls, if needed
 - (5) Reviewing past occupational health reports and historical sampling results, if available
 - (6) Reviewing MSDSs/SDSs for hazards
 - (7) Assisting with the developing and reviewing of the work procedures if a suspected reproductive hazard is identified
 - (8) Assisting with the development of training on specific reproductive and developmental hazards in the work area, including the proper use of PPE and safety devices, the use of engineering controls, and other methods of decreasing exposure, if a suspected reproductive hazard is identified
 - (9) Providing technical information to the JSC Clinic for decisions on the need for medical surveillance and for provision of employee counseling.
- d. The **Radiation Safety Officer (RSO)** is responsible for:
- (1) Evaluating activities that could result in plausible exposure to determine if radiation monitoring is required
 - (2) Providing radiation monitoring of employees if required. When exposure monitoring is conducted, provide a copy of the monitoring results to the employee and supervisor.

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(3) Investigating a radiation of 10 percent of the allowable limit for employees with declared pregnancy or planned pregnancy

e. The **JSC Clinic** is responsible for:

- (1) Counseling employees and performing medical surveillance, as appropriate, or assisting with referrals for medical counseling
- (2) Obtaining a written statement from the physician managing the pregnancy indicating whether or not the employee may continue working and listing any specific limitations, if any
- (3) Referring employees to the appropriate specialist (e.g., health physicist, industrial hygienist, or ergonomic evaluator) for evaluation, depending on the nature of a potential hazard
- (4) Managing the written declaration of pregnancies for workers exposed to radiological hazards or consulting with the employee's outside medical service provider
- (5) Maintaining complete, accurate records of all medical examinations conducted in house for employees in the medical surveillance program (Records shall be retained for 30 years plus employment. Results of examinations shall be discussed with employees as needed.)
- (6) Reviewing the following information with the assistance of an industrial hygienist or the RSO, as appropriate, during counseling: exposure potential, recommended work practices and PPE to minimize the risk of exposure, risks to reproductive health, the fetus, and breast milk, material safety data sheets for materials handled by the employee, occupational exposure limits, available toxicity data for the chemicals being used or handled
- (7) Identifying examination elements following an exposure incident and sharing that information with other medical providers providing services to exposed employees
- (8) Protecting the privacy of employees

9.6.10 For more information on reproductive and developmental hazards

- a. [OSHA Reproductive Hazards](#)
- b. [California Proposition 65 – Chemicals Known to the State To Cause Cancer or Reproductive Toxicity](#)
- c. [U.S. Nuclear Regulatory Guide 8.13 – Instructions Concerning Prenatal Radiation Exposure Commission](#)
- d. [NIOSH Publication Number 96-132 – The Effects of Workplace Hazards on Male Reproductive Health](#)
- e. [NIOSH Publication Number 99-104 – The Effects of Workplace Hazards on Female Reproductive Health](#)
- f. <http://www.nlm.nih.gov/medlineplus/reproductivehazards.html>