**HEXAVALENT CHROMIUM SAFETY**

**PURPOSE**

The purpose of this document is to provide a standard industry approach for establishing and implementing a hexavalent chromium program for Piedmont Service Group;hereafter referred to as PSG. This section applies to all occupational exposures to hexavalent chromium.

Workers in many different occupations are exposed to hexavalent chromium (Chromium (VI)), increasing the risk of developing serious adverse health effects. Occupational exposures occur mainly among workers who handle pigments containing dry chromate and spray paints and coatings containing chromate; operate chrome plating baths; and weld or cut metals containing chromium, such as stainless steel. Stainless steel welding involves the greatest exposure to Chromium (VI).

**DEFINITIONS**

**Action Level** = a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 µg/m³) calculated as an 8-hour time-weighted average (TWA)

**Chromium (VI) [hexavalent chromium or Cr (VI**)] means chromium with a valence of positive six, in any form and in any compound

**Emergency** means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI).  If an incidental release of chromium (VI) can be controlled at the time of release by workers in the immediate release area, or by maintenance personnel, it is not an emergency

**Worker Exposure** means the exposure to airborne chromium (VI) that would occur is the worker were not using a respirator

**Regulated Area** means an area, demarcated by the employer, where a worker’s exposure to airborne concentrations of chromium (VI) exceeds, or can reasonably be expected to exceed the PEL

**RESPONSIBILITIES**

**Employer Responsibility**

* The Supervisor or Safety Director will develop and enforce the hexavalent chromium policy.
* The Supervisor or Safety Director will provide the necessary training to all workers who could be exposed to airborne concentrations of hexavalent chromium.
* The Supervisor or Safety Director will ensure that a competent worker is assigned and available per local jurisdiction.

**SCOPE**

**Methods of Entry**

Hexavalent chromium exposure can occur through direct contact, or it can enter the body by breathing air containing the contaminant or by being swallowed. Workplace exposure to Chromium (VI) may cause the following health effects:

* Cancer — Chromium (VI) is classified as a known carcinogen. Workers exposed to hexavalent chromium in the workplace have much higher rates of lung cancer.
* Respiratory system effects — Chromium (VI) is a respiratory tract irritant to the nose and throat. Symptoms may include runny nose, sneezing, coughing, itching, and a burning sensation. Repeated or prolonged exposure can cause sores to develop in the nose and result in nosebleeds. If the damage is severe, the nasal septum (wall separating the nasal passages) develops a hole (perforation). Some workers can become allergic to hexavalent chromium so that inhaling chromate compounds can cause asthma symptoms such as wheezing and shortness of breath.
* Eyes — Chromium (VI) is an eye irritant. Direct eye contact with chromic acid or chromate dusts can cause permanent eye damage.
* Skin effects — Chromium (VI) compounds are not only powerful skin irritants but also can be corrosive. Contact with non-intact skin can also lead to chrome ulcers. These are small, crusted skin sores with a rounded border. Ulcers can penetrate deep into soft tissue or become the site of secondary infections. They heal slowly and leave scars. Common sites for these ulcers include the nail root, knuckles, and finger webs, back of the hands, and forearms. Some workers develop an allergic skin reaction, called allergic contact dermatitis. This occurs from handling liquids or solids containing hexavalent chromium. Once a worker becomes sensitized, contact with even small amounts can cause a serious skin rash. Allergic contact dermatitis is long-lasting and more severe with repeated skin contact.

**PROCEDURES**

**Engineering Controls and Safe Work Practices**

* Limit eight-hour time-weighted average hexavalent chromium exposure in the workplace to 5 micrograms or less per cubic meter of air.
* Perform personal air monitoring at least every six months if initial monitoring shows worker exposure at or above the action level (2.5 micrograms per cubic meter of air calculated as an eight-hour time-weighted average).
* Maintain or reduce hexavalent chromium exposure below applicable limits in accordance with local or federal jurisdiction.
* Provide appropriate personal protective clothing and equipment when there is likely to be skin or eye contact.
* Implement good personal hygiene and housekeeping practices to prevent hexavalent chromium exposure.
* Prohibit worker rotation as a method to achieve compliance with the permissible exposure limit.
* Provide respiratory protection as specified in the standard.

**Medical Surveillance**

While PSG’s work should not expose workers to at or above the action level, if those levels are reached, then a written exposure plan including annual reviews and updates will be required. Should worker(s) become exposed to at or above action levels related to work exposures and Hexavalent Chromium VI, then workers will receive a medical evaluation, which will include tests to determine exposure and a medical history. This is provided at no cost to the worker. As with all medical records, these are kept strictly confidential. The worker or representative is entitled to see the records of measurements of the exposure. The worker can also request that medical records for exposure be furnished to the worker’s personal physician or designated representative. The medical surveillance schedule is as follows:

* Within 30 days of initial assignment for workers who are or may be exposed at or above the action level for 30 or more days a year
* Annually
* To workers exposed in an emergency situation
* When workers experience signs or symptoms of adverse health effects associated with Chromium (VI) exposure
* At employment termination

**Permissible Exposure Limit (PEL)**

PSG shall ensure that no worker is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 µg/m³), calculated as an 8-hour time-weighted average (TWA)

* Below 0.5 µg/m³ under any condition – Exempt
* Between 0.51 and 2.5 µg/m³
	+ Housekeeping – no dust
	+ Clean eating and drinking areas
* Above action level 2.5 µg/m³ for more than 30 days per year
* Above the PEL 5.0 µg/m³
	+ Establish regulated areas – roped off, limited access, personal protective equipment (PPE), washing facilities
	+ Monitoring every 3 months

**Respiratory protection** – Fresh air will be the only method currently that will prevent airborne exposure and eye exposure when being exposed to the PEL.

**Skin protection** – if exposure or likely exposure is there, then appropriate skin protection such as Tyvek and gloves (disposable type PPE).

**Methods of Compliance**

* No PPE that is contaminated shall be removed from the job site, except by those workers whose job it is to launder, clean, maintain, or dispose of such clothing and equipment (all clothing/equipment being removed for laundering, cleaning, maintenance, or disposal shall be transported in sealed, impermeable bags or other closed, impermeable containers).
* Removal of chromium (VI) from protective clothing and equipment by way of blowing, shaking, or any other means that disperses chromium (VI) into the air or onto a worker’s body is prohibited.
* Access to regulated areas will be limited to those workers with the authority to be there.  Regulated areas will be marked as such:
* Workers authorized by the employer
* Workers with required work duties in the regulated area
* Workers are not permitted to eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area where skin and eye contact with Chromium VI may occur
* A medical surveillance program including notifications and medical follow-ups will be required for any worker who is exposed at no cost to the worker (medical examination to include: medical work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history; physical examination of the skin and respiratory tract; and any additional tests deemed appropriate by the examining physician).
* If any worker exposure exceeds the PEL, PSG will notify the worker within 15 days in writing of the exposure.
* When protective clothing is required, a change room facility must be provided, and the room will include separate areas for protective clothing and street clothes to prevent cross-contamination.
* Where skin contact with chromium (VI) occurs, washing facilities must be provided and workers must wash their hands and faces at the end of the shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet (none of these activities can be done in the regulated area).
* Housekeeping – all areas contaminated with chromium (VI) will be cleaned by HEPA-filter vacuuming or other methods that minimize the likelihood of exposure. All surfaces must be kept as free as practical of Chromium VI. Waste, scrap, debris, and other materials with Chromium VI must be placed in impermeable bags and labeled according to the Hazard Communication Standard prior to disposal.

**Training**

* Only trained and qualified personnel may operate or maintain welding, cutting or brazing equipment. Welders/Cutters who may be exposed or have the potential to be exposed will be trained per this policy and will possess the appropriate certifications for their work scope.
* Craft who perform any of the functions covered by this policy will be required to complete training per PSG’s Training policy including:
	+ A test or other method to determine competency
	+ Training initial to assignment and at least annually thereafter
	+ All training records shall be documented and kept on file for the duration of the covered worker’s employment
		- Documentation will include outline or class name, the names and worker numbers of the workers who participated in the training, names, and signatures of those who trained the class and a class date.