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I. PURPOSE

The purpose of this Safety Program is to provide those workers, who may be exposed to hexavalent chromium (Hex Chrome), with the proper health and safety guidelines to avoid any associated hazards.
Hex Chrome is a potential health hazard associated with the welding and cutting of stainless and alloy steels and many non-ferrous alloys, specialty paints and pigments, chrome plating, and in chemical synthesis. This Hex Chrome Program presents a rigorous exposure control program to prevent adverse health effects from occurring to our employees and subcontractors.

II. SCOPE

This program and procedures apply in its entirety to all Gallant Builders LLC (Gallant) projects unless a variance is granted by the Gallant Safety Director.

III. RESPONSIBILITIES

SUPERINTENDENT

The Gallant Superintendent is responsible to determine whether there is Hex Chrome on the project in quantities where workers' exposure may exceed the action level and, if so, that the requirements of this safety program are implemented.

SUPERVISOR

Supervisors are responsible for workers performing work covered this Hex Chrome Program and must confirm that each job has been properly evaluated for Hex Chrome hazards and that these hazards have been properly eliminated or controlled.

SAFETY DIRECTOR

The Gallant Safety Director shall

- Assist the Superintendent with identifying potential Hex Chrome exposure and addressing such in the project safety plan
- Review the planned personal monitoring program with internal industrial hygiene specialists
- Assure maintenance of all site logs and recordkeeping required by this program

IV. DEFINITIONS

Action Level (AL)	Means worker exposure, from site task to site task, without regard to the use of respirators, to an airborne concentration of Hex Chrome of 2.5 micrograms per cubic meter of air (2.5 ug/m^3) calculated as an 8-hour time-weighted average (TWA).
Hexavalent Chromium (Hex Chrome)	Means chromium in a +6 valence state in any form and in any compound. Other chromium valence states are less toxic, however, chromium can change valance states from non-Hex Chrome to Hex Chrome during heating or chemical processing.
Objective Data	Information such as air monitoring data from industry-wide surveys or calculations based on composition or chemical or physical properties of a substance demonstrating the worker exposure to Hex Chrome associated with a particular operating condition. The data must reflect workplace conditions closely resembling the processes, types of materials, control methods, work practices, and environmental conditions in the project's current operations.
Permissible Exposure Limit (PEL)	An airborne concentration of Hex Chrome at less than five micrograms per cubic meter of air (5 ug/m^3) over an 8-hour TWA.
Safe Harbor Level	Means worker exposures to Hex Chrome are consistently below 0.5 µg/m^3 based on 8-hour TWA exposure. Project-wide exposure below the Safe Harbor Level of 0.5 µg/m^3 exempts site operations from requirements of this HSEP.
Time-Weighted Average (TWA)	The average time, over a given work period, e.g., 8-hour workday of a person's exposure to a chemical or an agent. The average is determined by sampling for the contaminant throughout the time period. If an employee works more than 8 hours in one day, the PEL shall be reduced by the multiplier of 40 divided by the hours worked in a week.

V. HEX CHROME IDENTIFICATION

Scopes of work with the potential for Hex Chrome exposures must be reviewed to identify any potential Hex Chrome sources. This includes SDS/MSDS reviews of metal and paint compositions for welding, cutting, grinding, and abrasive blasting operations as well as process operations, chrome plating operations, and painting where Hex Chrome may be present, e.g., chromate pigments in paint formulations.
Note that chromium in most metal alloys is not in a Hex Chrome state; however, during heating operations, such as welding, the chromium fume or dust is converted to Hex Chrome. Thus SDS/MSDSs may not identify Hex Chrome as a constituent although chromium in another valence state is present.

VI. HEALTH HAZARDS

Hex Chrome exposure is associated with increased risk of lung cancer, asthma, nasal septum ulcerations and perforations, skin ulcerations, and allergic and contact dermatitis.

VII. ALLOWABLE LEVELS OF EXPOSURE

The action level established by OSHA is 2.5 µg/m^3, calculated as an 8-hour Time Weighted Average (TWA). This action level must be observed even if respiratory protection is provided to workers.
The Permissible Exposure Limit (PEL) is 5 µg/m^3. No worker shall be exposed to Hex Chrome at concentrations above the PEL averaged over an 8-hour period.
Project-wide exposure below the Safe Harbor Level of 0.5 µg/m^3 exempts site operations from requirements of this safety program.

VIII. PERSONAL EXPOSURE EVALUATION

Personal air monitoring is the primary method for evaluating worker exposure to Hex Chrome and evaluating the need and effectiveness of exposure controls.

IX. INITIAL EXPOSURE ASSESSMENT

For Hex Chrome related operations, affected scope of work categories shall be evaluated for the potential for Hex Chrome exposure. Work activities conducted adjacent to Hex Chrome related activities shall also be evaluated. An initial Hex Chrome personal monitoring strategy must be developed for each project based on the exposed scope of work categories identified. For each separate job category, at least one representative potentially highest exposed worker shall be chosen for monitoring.

- Within a scope of work category, if the work location or shift-work present significantly different exposure potential, additional personal monitoring must be conducted to include these variables.
- If historical personal monitoring data is available for an operation, that data may be used provided the sampling and analytical sensitivity meets the requirements presented in the Exposure Monitoring Requirements paragraph of this safety program.
- Where applicable, Objective Data may be used for specific operations in lieu of exposure monitoring. If Objective Data is used to determine the level of exposure, a regional or senior HSE manager must be notified and must approve the use of this data.

The exposure assessment must represent the worker exposure, which would occur without the use of a respirator.

X. EXPOSURE MONITORING PROGRAM

Based on the monitoring results from the initial exposure assessment for each job category with potential Hex Chrome exposure, the following sampling program must be implemented. Representative sampling of the potentially highest exposed worker(s) in a job category shall be chosen.

- If the results are above the PEL, periodic sampling must be repeated every three months.

- If the results are at or above the AL but less than the PEL, periodic sampling must be repeated every six months.
- Based on the initial exposure assessment, job categories with exposure levels below the AL are exempt from exposure monitoring.
- For ongoing exposure monitoring, if the results are below the AL, sampling may be discontinued for workers in that job category if a confirmatory sample is collected and verifies that results are below the AL. The confirmatory sample must be collected not less than seven days after the initial finding.

If changes are made to the process or work practice that could result in a potential increase in Hex Chrome exposure, additional monitoring for affected job functions must be conducted.

XI. EXPOSURE MONITORING REQUIREMENTS

Personal exposure monitoring shall be conducted for full work shift and the sample and analysis procedure shall follow the OSHA ID-215 method or equivalent.
The monitoring shall be collected outside of any respiratory protection being used.
If a method other than OSHA ID-215 is used, method documentation must demonstrate statistical accuracy of plus or minus 25% with a confidence level of 95% at or above the AL.

XII. WORKER NOTIFICATION

For exposure results exceeding the PEL, the worker or workers represented by the sample shall be notified in writing of the results or the results shall be posted in the workplace. Notification shall be made not more than five days after the receipt of the analytical results. This notification shall also include the corrective action to be taken to reduce affected worker exposure below the PEL.

XIII. EXPOSURE CONTROL

An exposure control program must be instituted to assure that no employees are exposed to Hex Chrome at concentrations above the PEL. The analysis must be based on exposures without the use of respiratory protection.
Appropriate control methods to reduce exposures below the exposure limits are presented below.

XIV. ENGINEERING AND WORK PRACTICE CONTROLS

Engineering and work practice controls shall be used if the exposure level is above PEL for more than 30 days. Engineering and work practice controls shall be used as the primary means to reduce Hex Chrome exposures to below the PEL. Engineering controls include

- ventilation,
- isolation of the worker from the Hex Chrome source, and
- substitution of the Hex Chrome source material with a non-Hex Chrome source or one with a lower Hex Chrome composition.

Work rotation shall not be used to reduce exposures to meet PEL requirements.

XV. RESPIRATORY PROTECTION

Where engineering controls and work practices are not sufficient to reduce exposures to below the PEL, they shall be supplemented with respiratory protection. This finding must be documented in writing and verified with Hex Chrome sampling data. Respiratory protection may also be used while engineering controls and work practices are being implemented.
Personnel required to wear a respirator will do so in accordance with the Gallant Respiratory Protection Program.
All costs for respiratory protective equipment required, including repairing and storage, shall be provided at no cost to employees.
The respiratory protection factors shall be based on Airborne Hex Chrome Concentrations and shall be used as minimum protection guidelines in selecting specific respiratory protection.

XVI. PROTECTIVE WORK CLOTHING AND EQUIPMENT

A hazard assessment of individual Hex Chrome related tasks shall be conducted to determine there are skin exposure hazards. If there is a skin or eye exposure hazard from Hex Chrome contact and with consideration of past medical cases associated with Hex Chrome skin exposure, a protective clothing program shall be instituted.
If workers must take off their street clothing to wear protective clothing, a worker change room shall be provided and procedures must be established to prevent Hex Chrome contamination from leaving the workplace or contaminating workers' street clothing.
Change rooms shall provide separate storage facilities to segregate work clothes from street clothing and designed to prevent cross-contamination.
For a reusable protective clothing program, contaminated clothing to be laundered must be placed in a closed container to avoid the dispersion of the Hex Chrome outside the change area. Hazard warning labels on the containers are required to identify that it is contaminated with Hex Chrome.
Disposable overalls, such as Tyvek, must be disposed of in sealed and labeled containers.
All costs for protective equipment required, including laundering, repairing, and storage of protective clothing, shall be provided at no cost to employees.

XVII. HYGIENE AREAS AND PRACTICES

For work involving Hex Chrome exposures above the AL:

- Washing facilities shall be provided to remove contamination from face, neck, hands and arms. Employees shall wash at the end of work shift.
- Prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using toilet facilities, workers shall wash their hands and face. Also, areas where these articles are used or stored shall be kept as free of Hex Chrome as possible.
- Before entering eating and drinking areas work clothing or equipment contaminated with Hex Chrome shall have Hex Chrome removed by vacuuming with HEPA filter attachment and/or wet methods, i.e., methods that do not spread contamination.

XVIII. REGULATED AREAS AND HOUSEKEEPING

Work areas with potential Hex Chrome exposure levels above the PEL shall be identified as Regulated Areas, cordoned off, and have hazard warning signage to restrict access to workers in the Hex Chrome medical surveillance and exposure monitoring program.
For construction projects, the Regulated Area requirement must be followed except for work task locations in which it is not feasible.
For work locations in which worker Hex Chrome exposure exceeds the AL, work areas and surfaces shall be cleaned regularly, where feasible, to minimize the accumulation of Hex Chrome dust. Vacuuming with HEPA filter attachment and wet methods should be considered.

XIX. MEDICAL SURVEILLANCE

Medical surveillance for Hex Chrome shall be provided at no cost to employees, who

- are exposed to Hex Chrome at or above the AL for 30 days or more a year,
- are experiencing health effects associated with Hex Chrome exposure, or
- are exposed to Hex Chrome in an emergency.

Examinations shall be provided within 30 days of assignment, annually, at termination, within 30 days of emergency exposure, or 30 days after a medical opinion recommending additional testing.

XX. CONTENTS OF EXAMINATION

A medical examination consists of:

- A medical and work history, with emphasis on
  - past, present, and anticipated future exposure to Hex Chrome;
  - any history of respiratory system dysfunction;
  - any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;
- A physical examination of the skin and respiratory tract; and
- Any additional tests deemed appropriate by the examining physician.

XXI. INFORMATION PROVIDED TO THE PHYSICIAN

The employer shall ensure that the examining physician has a copy of this standard and shall provide the following information:

- A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Hex Chrome;
- The employee's former, current, and anticipated levels of occupational exposure to Hex Chrome;

- A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and
- Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

XXII. PHYSICIAN'S WRITTEN MEDICAL OPINION

The employer shall obtain a written medical opinion from the physician within 30 days for each medical examination performed on each employee, which contains:

- The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to Hex Chrome;
- Any recommended limitations upon the employee's exposure to Hex Chrome or upon the use of personal protective equipment such as respirators;
- A statement that the physician has explained to the employee the results of the medical examination, including any medical conditions related to Hex Chrome exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

The Physician shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to Hex Chrome.
The employer shall provide a copy of the physician's written medical opinion to the examined employee within two weeks after receiving it.
The written medical opinion from the Physician shall be retained in the program files. A copy of the opinion for Gallant employees shall also be sent to Occucare International.

XXIII. TRAINING

Employees working on tasks with Hex Chrome shall have initial and annual Hazard Communication training on Hex Chrome.
The training shall be understandable and shall include the requirements of this safety program and the OSHA Standard 1926.1126 (construction) or 1910.1026 (general industry), whichever is applicable.
Employee training and quiz shall ensure that each employee can demonstrate knowledge of at least the following:

- The contents of this safety program and the contents of the OSHA standard,
- the health hazards associated with Hexavalent chromium exposure,
- location, manner of use, and any potential release of chromium in the workplace,
- engineering controls and work practice controls,
- purpose, proper selection, fitting, proper use and limitations of respirators and protective clothing,
- emergency procedures,
- measures employees can take to protect themselves from exposure,
- The purpose and a description of the medical surveillance program required as described above.

A copy of this safety program and the OSHA standard shall be readily available in the workplace without cost to affected employees.
Training shall be documented.

XXIV. RECORDKEEPING

All records of all personal air monitoring conducted for Hex Chrome exposure shall be maintained as long-term records as set forth in Gallant's recordkeeping requirements.
When historical data or Objective Data are used for compliance with this program, those records shall also be maintained as long-term records.
Medical records shall be retained for the duration of employment plus 30 years.

XXV. PROJECT-SPECIFIC WRITTEN PROGRAM

All projects with potential Hex Chrome exposure based on identification shall develop a written Project-Specific Hexavalent Chromium Protection Program.
The written program shall address all program elements presented above.