

# SAFETY AND HEALTH STANDARDS

## PERSONAL PROTECTIVE EQUIPMENT

Effective Date:	Standard: 9.1	Document Number: <b>KUCSH0045</b>	Rev: 07
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### 9.1.1 **INTRODUCTION**

9.1.1 The following KUC standard specifies the requirements for personal protective equipment use and sets guidelines for safe personal attire to be worn in the workplace. It is KUC's policy to meet or exceed applicable OSHA and MSHA personal protective equipment requirements.

### 9.1.2 **DEFINITIONS**

9.1.2.1 Personal Protective Equipment (PPE) - Devices worn or used to protect the individual. PPE includes, but is not limited to, specialized clothing, gloves, protective footwear, hard hats, respirators, hearing protective devices, and eye and face protection.

9.1.2.2 Operating Areas – Any controlled Kennecott area inside of a gate or fence line, and any Kennecott area where PPE is required to be worn.

### 9.1.3 **REQUIREMENTS**

- 9.1.3.1 PPE use and selection will be continually reevaluated through Risk Assessments, Safety Interactions / Audits, Job Safety Analyses, Industrial Hygiene exposure monitoring, and accident history analyses. Supervisors will procure plant appropriate protective equipment through the PPE Catalog located on the KUC Intranet.
- o PPE not located in the Catalog should not be purchased unless a risk assessment has been generated and reviewed by Safety / Industrial Hygiene personnel.
  - o Where the need for specialized protective equipment has been established due to unusual potential hazards, Safety / Industrial Hygiene personnel will assist supervisors by providing specifications for the purchase of such equipment.
- 9.1.3.2 Supervisors are responsible for assuring that personnel comply with requirements for using PPE and will train each employee in the proper use of such equipment. Supervisors will solicit information or assistance from KUC Safety / Industrial Hygiene or Environmental personnel as needed.
- o Employee training will include instruction in the following:
    - When PPE use is necessary.
    - What PPE is necessary.
    - How to use PPE properly, including direction on donning, doffing, adjusting, and wearing the equipment.
    - The limitations of PPE.

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- The proper care, maintenance, storage, service life, and disposal of PPE.
- o Employees required to use PPE will demonstrate an understanding of the items covered in the training session and the ability to use such equipment properly before performing tasks requiring its use.
- o Supervisors will verify that affected employees have received and understand the required training by documenting it on the appropriate training certificate form and forwarding it to the facility record center.
- o Supervisors will retrain employees whenever a lack of understanding and skill required to use PPE is demonstrated through one or more of the following: Safety Audits / Interactions, Job Safety Analysis reviews, employee counseling, formal training, or progressive disciplinary action. Other situations in which retraining is necessary include:
  - When changes in the workplace render previous training obsolete.
  - When changes are made in the type of PPE used.
  - When the employee demonstrates inadequacies in the use of PPE.

9.1.3.3 Employees will wear appropriate PPE as directed by their supervisors. Each employee is responsible and accountable for using and maintaining protective equipment and wearing it properly. The user will maintain PPE in effective and sanitary condition. Defective or damaged PPE shall not be used, and will be disposed of properly. PPE contaminated by hazardous materials must be disposed of as such.

9.1.3.4 SAFE PERSONAL ATTIRE IN OPERATING AREAS - Work clothes provided by KUC will be maintained in good condition and must be worn when provided. Work clothing should be comfortable, non-restrictive, and appropriate for the particular work area. Loose clothing or accessories such as ties, bows, bracelets, necklaces, or loose shirt tails or sleeves must not be worn around moving machinery. Clothing must include long sleeves and be appropriate for the work area or task and be worn as indicated by applicable procedures or risk assessments.

Flame Resistant (FR) Clothing – Flame Resistant clothing will be required, based on specific tasks or hazards present in work areas or plants. The FR rating required for the clothing will be specified by the specific plant, area, or by task.

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- The garment label must include the letters FR followed by the designation of the specific ASTM standard used to evaluate flame resistance, or
- A separate label indicating certification to NFPA 1977 or 2112 must be attached.

Hi-Visibility Clothing – Hi-visibility clothing must meet the minimum requirements of ANSI/ISEA 107-2015 *American National Standard for Hi-Visibility Safety Apparel and Accessories*. The minimum required level for high-visibility clothing for all RTKC facilities is Class 2 Type R. The outermost layer worn by an individual on their torso must meet these minimum requirements. Garments to meet the requirement on the torso can be shirts, vests, jackets/coats, as long as they meet the Class 2 Type R requirements. Sites may require additional hi-visibility based on specific area risk assessments by specifying the Class 3 garments

Below are some key components of the standard for Class 2 Type R garments:

- Component Colors - There are three different colors for background and combined-performance material from which to choose: fluorescent yellow-green, fluorescent orange-red and fluorescent red. Users should consider the work and natural environment to determine the most conspicuous color for daytime use. Are work zone devices and equipment yellow or orange? Choose the fluorescent color that achieves the highest degree of worker contrast.
- Background Materials Amount – The background material must cover a minimum of 775 square inches.
- Reflective Materials Amount – The reflective material must cover a minimum of 201 square inches.
- Width of Reflective Material – The minimum width for reflective material is 1.38 inches or 1 inch for split trim designs.

### Specific Marking

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Marking includes, at a minimum, the following information:

- Manufacturer's name or other means of identification.
- Item number or other identification of the specific style of product.
- Size.
- This ANSI/ISEA standard name including year (ANSI/ISEA 107-2015).
- Compliance with flame resistance can be indicated in one of 2 ways:
  1. The letters "FR" on the label followed by the designation of the ASTM or NFPA standard specification from the list of allowed standards in Section 10.5.
  2. Garments which fully meet the third party certification requirements to NFPA 1977, or 2112, may use the separate label indicated by the NFPA standard to indicate FR

compliance.

- If garment is not flame resistant, label must include the statement, "This garment is not flame resistant as defined by ANSI/ISEA 107-2015."
- Pictogram showing the garment Type, Class and Level of performance for the retroreflective material. Universal pictogram can be used or a pictogram that represents the garment being labeled.
- Maximum number of wash processes (i.e.: Max 50).

Figure 1 – Hi-Visibility Garment Label Example

### The following are not allowed inside gated or fenced Kennecott operating areas:

- o Short sleeves
- o Rings on fingers
- o Facial rings
- o Earrings other than small studs
- o Ear gauges must be plugged with plugs.
- o To prevent possible entanglement, hair shall be secured.
- o Chains, necklaces and bracelets that are not contained within clothing.
- o Exemptions for Medi-Alert (or similar) bracelets/necklaces need to be discussed with the Superintendent of the area.
- o Wrist watches must be covered by sleeves at all times.
- o Check with the area superintendent for any other restrictions specific to the operating area or Plant.

9.1.3.5 RESPIRATORY PROTECTION - Employees must be protected from exposure to airborne health hazards in the workplace. When

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respiratory hazards cannot be controlled or eliminated using engineering and / or work practice controls, respirators are required to be worn.

- o Supervisors, assisted by Safety / Industrial Hygiene personnel, will determine the need for respirators through workplace evaluation and Industrial Hygiene air monitoring.
- o Respirators will be selected based on the type and extent of potential exposure, and, where applicable, on the results of Industrial Hygiene air-monitoring data. All respirators selected and used must be NIOSH and / or MSHA approved.
- o Persons should not be assigned to tasks requiring the use of respirators unless it has been determined that they are physically and psychologically fit, and they are cleanly shaven except for modest moustache and sideburns which do not interfere with the respirator face piece seal.
- o A program will be established for the proper cleaning, sanitizing, use, and storage of respirators.
- o All employees required to wear respirators will be trained in the use and care of respirators and will be fit tested annually to assure that the respirator fits the wearer properly.

### 9.1.3.6

**HEARING PROTECTION** - It is KUC's policy to prevent harmful exposure of personnel to excessive noise through installation of feasible engineering controls and / or the implementation of administrative controls. Plant management, will develop plans and specifications for controlling noise at the source of emission and / or isolating the noise from personnel. Where such controls are insufficient, appropriate hearing protective devices will be provided and used by the employee.

- o In order to effectively deal with the potential for noise-induced hearing loss, a policy and program for identifying potential hearing loss, evaluating exposure and risk levels, and taking appropriate steps to reduce or control noise has been adopted. Information regarding the KUC Hearing Conservation Program can be found on the KUC Intranet:  
[http://kuc/kuc/documents/ehs/Hearing\\_Conservation\\_Program.doc](http://kuc/kuc/documents/ehs/Hearing_Conservation_Program.doc) .
- o Safety / Industrial Hygiene personnel will conduct sound-level surveys and personal noise exposure measurements to identify areas of excessive noise. New equipment or changes in process require updated sound level surveys and personal noise exposure measurements.

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- o Noise dosimeters will be used to determine the exposure to each employee who may be exposed to noise levels equal to or exceeding established standards for permissible noise exposure. Employees involved will be notified concerning the results of the noise-exposure measurements.

9.1.3.7 All personnel potentially exposed to noise exposure levels of 85 dB or above will receive annual training concerning the effects of noise exposure on hearing, and the proper use, care, and maintenance of hearing protective devices. The Hearing Conservation training module meeting applicable MSHA / OSHA / Rio Tinto regulatory requirements is located in Prospect.

9.1.3.8 The use of hearing protective devices is mandatory during the installation of engineering controls or when engineering and administrative controls are not capable of reducing the noise to acceptable levels that will prevent harmful exposures that can cause hearing loss.

- o Appropriate hearing protective devices are selected and approved by Safety / Industrial Hygiene personnel based on the results of the surveys. Approved hearing protective devices are available through the PPE Catalog located on the KUC Intranet.
- o Earmuffs - To be most effective, earmuffs must be properly fitted to the individual. If eyeglasses are worn, or heavy sideburns or other hair is present, care should be taken to ensure that the seal is not interfered with. Earmuffs should be checked, by a trained individual, for fit, conditions of seal, headband force, and general condition. Earmuffs should be assigned on an individual basis.
- o Earplugs - Of the various hearing protective devices available, earplugs typically give the greatest protection. Earplugs come in several shapes and sizes, and, therefore, the correct size and shape must be chosen to fit the individual's ear canal. Since the fit of the plug is most important in obtaining good results, a trained individual should fit the plug.
- o Supervisors will ensure that hearing protectors are readily available and that employees wear hearing protection as required.
- o Since all areas of harmful noise should be identified and posted, and the wearing of hearing protection is mandatory, there shall be no reason for a threshold shift. If a threshold shift is confirmed, the employee must be re-trained and given an opportunity to select a hearing protection device that provides equal or greater protection. All non-conformances relating to the use of hearing protection should be documented. Failure to wear

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hearing protection in posted areas will be addressed by employee counseling, and if necessary, progressive discipline.

- 9.1.3.9 Area supervisors will ensure that areas where hearing protection is required are posted with appropriate warning signs stating, "Caution - Hearing Protection Required". These signs must be maintained visible and in good condition.
- 9.1.3.10 **FOOT PROTECTION** - It is the KUC policy to require all employees to provide and wear appropriate protective footwear as a condition of employment. Specific requirements for footwear are based on the accident experience and potential hazards at each plant. All personnel will wear protective footwear while in all operations areas throughout KUC except when entering and leaving the plant at shift changes or while inside office areas.
- o Protective footwear will comply with the applicable International Standards. Footwear should have substantially constructed soles with adequate support, traction, and attached or formed heel. Construction of footwear will be of leather or rubber to provide adequate protection to ankle and skin. Height and fit of footwear should be sufficient to provide comfort and adequate protection and support of muscle, tendon, and joints as determined through a Risk Assessment.
  - o Where special conditions or hazards require the use of specialized protective footwear, the company will provide such footwear as necessary at a maximum of 1 pair per year unless otherwise approved by the Area Manager. Examples of "special conditions or hazards" include work centers affected by the arsenic, lead, or cadmium standards, and where chemical-resistant boots are required for protection against acid. This footwear must not leave the plant site unless properly decontaminated.
  - o Ice cleats or traction devices are to be used when walking in icy/snowy conditions on Kennecott Property. Ice cleats will be managed and issued similar to other required PPE. Ice cleats or traction devices are required to be available and in your possession from November 1 through April 30 of each year and used any time snow/ice is present on Kennecott property.
  - o Where hazards in certain areas and job classifications warrant, metatarsal guards on footwear may be required.
  - o Athletic type shoes are prohibited, regardless of whether or not they have safety toes.
  - o Employees are responsible for assuring that they wear protective

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footwear and that the footwear is in good, serviceable condition.

- o Supervisors, assisted by Safety / Industrial Hygiene personnel, are responsible for determining the need for specialized protective footwear and for assuring its procurement and use as required.

### 9.1.3.11

**EYE & FACE PROTECTION** - Safety glasses will be worn by all personnel at all times when in plant areas. Exceptions include inside enclosed cabs of vehicles, changerooms, lunchrooms, offices, and parking lots unless potential eye hazards are present or required by plant specific requirements.

- o Only safety glasses meeting or exceeding ANSI Z87.1 standards shall be worn where safety glasses are required. All safety glasses shall have approved side shields when worn in operating areas of the facilities or where required by plant specific requirements.
- o Where flying particles from grinding, chipping, molten material, etc. may be present; personnel must wear a full-face shield in addition to safety glasses with side shields. Approved full face respirators may be used in lieu of a face shield.
- o Where liquid chemical splash hazards exist, such as cleaning solvents, acids, or caustics, or where extreme dusty conditions are present, personnel will wear approved goggles. Where goggles must be used with prescription safety glasses, goggles designed to fit over prescription safety glasses without disturbing the proper position of the lenses must be used.
- o Employees will wear protective eyewear or face shields with filter lenses of appropriate shade number (See Exhibits 9.1.1 and 9.1.2) where injurious light radiation hazards exist. Where injurious light radiation is not present, the use of shaded protective eyewear indoors is prohibited.

### 9.1.3.12

Approved prescription safety glasses will be made available through KUC. Representatives of the Safety and Health Department will periodically review the selection of prescription and plano glasses and will institute changes as necessary to provide up-to-date, adequate eye and face protective equipment.

- o It is anticipated that prescription safety glasses should not be replaced more frequently than every 1 to 1-1/2 years. However, where warranted, prescription safety glasses will be replaced as often as necessary. Conditions that may warrant more frequent replacement include an early change in eye acuity, inadvertent damage to glasses beyond control of the employee, or a change in assignment requiring glasses with tinted lenses.
- o Where prescription safety glasses become damaged or lost due to



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the employee's negligence, the employee shall be held accountable for the cost of replacement.

- o Representatives from the Safety and Health and Purchasing Department will maintain a contract with an outside vendor to provide prescription-safety-glasses service for KUC employees.

9.1.3.13 A supply of approved plano (non-prescription) safety glasses for use by employees who do not require prescription glasses is available through the PPE Catalog located on the KUC Intranet. The Security Department will also maintain a supply of plano safety glasses at each plant security gate for issue to visitors for use while on KUC property and will recover the glasses as visitors leave the facility.

9.1.3.14 The use of contact lenses by employees in an industrial setting constitutes a distinct safety hazard and with rare exception is prohibited. Contact lenses do not provide eye protection in the industrial setting. In dusty environments, small foreign particles may become trapped beneath contact lenses and damage or scratch the cornea. Chemical fumes may damage contact lenses and irritate the eyes. Accidental displacement or loss of a contact may occur without warning. Exceptions shall be verified in writing by the employee's eye physician stating that he or she must wear contact lenses during working hours. Copies of the eye physician's letter will be presented to the Clinic and the facility Safety Department. Employees allowed to wear contact lenses must have immediate access to prescription safety glasses in case of accidental displacement or loss of a contact and while at work must wear plano safety eye wear with side shields at all times.

9.1.3.15 HEAD PROTECTION - Employees will be provided appropriate "Class B" hard hats specially designed to protect against both impact and electric shock hazards. All hard hats will meet the requirements of ANSI Z89.1 standard.

- o Hard hats will be worn by all personnel at all times when in plant areas and buildings except in designated areas exempted by a risk assessment for the area approved by a superintendent level or above. However, if the hazard of falling objects exists, hard hats must be worn without exception.
- o Hard hats shall be worn securely on top of the head with the brim in the forward position to assure maximum protection.
- o The integrity of the hard hat shall not be altered by painting, drilling holes, or cutting the shell. Painting or cleaning hard hats with solvents can adversely affect its integrity without being noticed. Hard hats are to be kept clean using a mild soap and

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warm water.

- o Bump caps do not provide adequate protection from falling objects and will not be worn by KUC personnel. Approved bump caps as part of a Powered Air Purifying Respirator can be worn in areas determined safe through a Risk Assessment.
- o Hard hats must be inspected by their users on a daily basis. Hardhat suspension liners will be replaced if torn, broken, or if signs of wear are evident. As a general guideline most manufactures recommend replacing hardhats every 5 years. If work conditions include higher exposure to temperature extremes or chemicals, hard hats should be replaced after 2 years of use.
- o A name tag should be on the front of the hard hat including the employee's first initial and last name. An emergency number phone sticker should be placed on the inside of the hat.
- o Ball caps shall not be worn underneath hard hats. Only approved PPE supplies available through the PPE catalog located on KUC intranet will be allowed to be worn between the head and a hard hat.

- 9.1.3.16 HAND PROTECTION - Appropriate gloves will be worn by all personnel at all times when in plant areas exception designated areas exempted by a risk assessment for the area approved by a superintendent level or above. Gloves must always be worn when potential hand hazards are present or required by plant or task specific requirements.

Appropriate hand protection (gloves) for personnel performing tasks in which the hands may be exposed to cuts, lacerations, abrasions, punctures, chemical burns, thermal burns, harmful temperature extremes, or harmful substances capable of being absorbed through the skin will be provided.

- o Gloves for a given task will be chosen based on the potential hazards of the task, the intended duration of use, and the glove manufacturer's guidelines.
- o Safety / Industrial Hygiene personnel will provide specifications for specialized hand protection for use during tasks involving unusual potential hazards.

### 9.1.4 RESPONSIBILITY

- 9.1.4.1 The Area Manager is responsible for:

- o Ensuring a program is established for the proper cleaning, sanitizing, use, and storage of respirators.

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- o Developing plans and specifications for controlling noise at the source of emission and / or isolating the noise from personnel.

#### 9.1.4.2 Supervisors are responsible for:

- o Procuring protective equipment through the PPE Guide located on the KUC Intranet.
- o Assuring that personnel comply with requirements for using personal protective equipment.
- o Training each employee who is required to use PPE in the proper use of such equipment.
- o Notifying employees concerning the results of the noise-exposure measurements.
- o Ensuring that areas where hearing protection is required are posted with appropriate warning signs.

#### 9.1.4.3 Employees are responsible for:

- o Inspecting and wearing appropriate PPE as directed by their supervisors.
- o Maintaining protective equipment that has been provided.

#### 9.1.4.4 Safety / Industrial Hygiene is responsible for:

- o Providing specifications for the purchase of PPE.
- o Determine the need for respirators through workplace evaluation and air monitoring.
- o Maintaining a contract with an outside vendor to provide prescription-safety-glasses service.
- o Maintaining the PPE Catalog located on the KUC Intranet.
- o Conducting sound-level surveys and personal noise exposure measurements to identify areas of excessive noise.

### REFERENCES:

29 CFR 1910.132, 133, 134, 135, 136, 138 Personal Protective Equipment for General Industry

29 CFR 1910.95 Noise Exposure

30 CFR 56 Subpart N Personal Protection

30 CFR 56.5050 Exposure Limits of Noise

KUC Reparatory Protection Program

KUC Safety and Health Standard 5.3 - Job Safety Analysis

KUC Health & Industrial Hygiene Training Manual

ASTM (F2412-05 F2413-05) ANSI (Z41)- Foot Protection

ANSI Z87.1 Eye and Face Protection

ANSI Z89.1 Protective Headwear for Industrial Workers

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### **REVISION HISTORY:**

MOC#	Description of Change	Prepared By	Date
14474	Revisions submitted by Mine Standards Custodian and IH Dept. Minor clarifications and updates added. Included a requirement that "ball caps" not be allowed to be worn under hard hat and only approved supplies available on the PPE catalog be allowed. Updated format and Document number added.	KUC Safety and Health Standards Committee	01/11
31217	Revisions to 9.1.3.14-Safe Personal Attire. Added restrictions list and updated appropriate clothing definition	KUC Safety and Health Standards Committee	Feb. 2016
43403	Addition of ice cleat requirements	KUC Safety and Health Standards Committee	Sept 2017
	Updated language for Safe Personal Attire in Operating Areas. Clarification of ice cleat, glove, and hard hat use requirements.		

## Exhibit 9.1.1

## Filter Lenses for Protection Against Radiant Energy

OPERATIONS	ELECTRODE SIZE 1/32"	ARC CURRENT (AMPS)	MINIMUM * PROTECTIVE SHADE
Shielded metal arc welding	< 3	< 60	7
	3-5	60-160	8
	5-8	160-250	10
	> 8	250-550	11
Gas metal arc welding & flux cored arc welding	-----	< 60	7
	-----	60-160	10
	-----	160-250	10
	-----	250-500	10
Gas tungsten arc welding	-----	< 50	8
	-----	10-150	8
	-----	150-500	10
Air carbon arc cutting	(Light)	< 500	10
	(Medium)	500-1000	11
Plasma arc welding	-----	< 20	6
	-----	20-100	8
	-----	100-400	10
	-----	400-800	11
Plasma arc cutting	(Light)**	< 300	8
	(Med)**	300-400	9
	(Heavy)**	400-800	10
Torch brazing	-----	-----	3
Torch soldering	-----	-----	2
Carbon arc welding	-----	-----	14

- \* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.
- \* These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used where the arc is hidden by the work piece.

## Exhibit 9.1.2

**Filter Lenses for Protection Against Radiant Energy**

OPERATIONS		METAL PLATE THICKNESS (inches)	METAL PLATE THICKNESS (mm)	MINIMUM * PROTECTIVE SHADE
Gas Welding:	Light	< 1/8	< 3.2	4
	Medium	1/8-1/2	3.2-12.7	5
	Heavy	> 1/2	> 12.7	6
Oxygen Cutting:	Light	< 1	< 25	3
	Medium	1-6	25-150	4
	Heavy	> 6	> 150	5

- \* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.