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APPENDIX 2

Personal Protective Equipment Requirements

Purpose

To define the general and specific requirements for PPE supply and use.

Target Audience

- *Asset Managers;*
- *Department Heads;*
- *HSE Professionals;*
- *Contract Holders*
- *All Personnel (Staff and contractor).*

General PPE Requirements

1. Head Protection

- 1.1. All Head Protection shall be in compliance with the following International standards:
 - ANSI Z89.1 Protective headwear for industrial workers; and
 - EN 397 Industrial Safety Helmets.
- 1.2. Head protection shall be in compliance with GOST 12.4.128-83 Occupational Safety Standards System. Safety Helmets. General Technical Requirements and Test Methods.
- 1.3. In areas where people are exposed to head injury hazards, personnel shall wear correctly fitted safety helmets.
- 1.4. Personnel shall correctly use safety helmets to ensure maximum protection against impact (e.g. helmets shall not be worn at the back of the head or aslant).
- 1.5. The internal headband shall be properly adjusted according to the head size to ensure the required clearance between the helmet shell and the headband. It is prohibited to modify or change helmet's internal support system or place any objects between the head and the headband.
- 1.6. Helmet liners used in cold weather shall be mounted in compliance with manufacturer's guidelines.
- 1.7. It is prohibited to use safety helmets made of metal.

2. Eye- and Face Protection

- 2.1. All eye- and face protection equipment shall be in compliance with the following International standards:
 - ANSI Z87.1 Methods of eye- and face protection at industrial facilities and in educational institutions;
 - EN 166 Eye Personal Protective Equipment. Technical Requirements;
 - EN 169 Protective Glass for Welding Operations. Technical Requirements; and
 - BS 7028 Guide for Selection, Use and Maintenance of Industrial and General Eye-Protection.
- 2.2. All eye- and face protection equipment shall be in compliance with GOST 12.4.013-97 Occupational Safety Standards System. Safety Goggles. General Specifications.
- 2.3. In areas where people are exposed to a potential eye injury / irritation hazard, or where required by local rules, personnel shall wear eye protection.
- 2.4. Eye protection shall comply with the types of performed operations and shall be correctly fitted and worn.



- 2.5. Whenever eye protection is required, darkened-lens or transparent-lens goggles shall be available as required.
- 2.6. In addition to personal eye protection equipment, work sites where exists machinery with rotating parts such as stationary grinding machines, drilling machines, etc. shall be equipped with eye- and face protection, such as safety goggles (with impact-resistant glass) and face shields.
- 2.7. Wearing contact lenses with certified eye protection equipment is allowed as long as not specifically prohibited by work rules or guidelines.
- 2.8. Where personnel are required to wear eye protection, which cannot be used with prescription glasses, prescription eye protection shall be provided by the employing company.

3. Ear Protection

- 3.1. Hearing protection shall be in compliance with the following International standards:
 - EN 352 Ear Protection.
- 3.2. Hearing protection shall be in compliance with the following GOSTs:
 - GOST 12.1.003-83 Occupational Safety Standards System. Noise. General Safety Requirements;
 - GOST 12.4.092-80 Occupational Safety Standards System. Personal Protective Equipment. PPE Sound Muffling Method;
 - GOST 12.4.208-99 Occupational Safety Standards System. Hearing Protectors. Ear Muffs. General Technical Requirements. Test Methods; and
 - GOST 12.4.209-99 Occupational Safety Standards System. Hearing Protectors. Ear Plugs. General Technical Requirements. Test Methods.
- 3.3. In areas with equipment generating high levels of acoustic noise and/or where warning signs are fitted personnel shall wear properly fitted ear protection equipment allowing for adequate noise protection for their work. Assets may apply their own rules for use of hearing protection which shall not be less stringent than required by this Standard.
- 3.4. Information on Sakhalin Energy corporate standards for acoustic noise levels along with the guidelines to the use and maintenance of ear protection equipment, including training procedure, are provided in the [Occupational Health and Hygiene Standard](#).

4. Protective Footwear

- 4.1. Protective footwear shall have puncture-resistant soles to ensure protection against punctures and cuts; hard-wearing soles and heels to ensure abrasion protection; vibration absorbing elements; safety topcaps with varied impact resistance to ensure shock protection in the forepart region; special protective elements to ensure anti-impact protection in the ankle area, in the ball and in the shin-bone area of the foot; have anti-static properties and be oil/chemical resistant, in compliance with the following International standards:
 - ANSI Z41 Protective Footwear Standards and Reference;
 - EN 344-2 Protective and Occupational Footwear for Professional Use; and
 - EN 345/346 Protective Footwear for Professional Use. Technical Requirements.
- 4.2. Protective footwear shall be in compliance with the following GOSTs:
 - GOST 12.4.177-89 Occupational Safety Standards System. Personal Foot Protection Against Punctured Injuries. General Technical Requirements and Test Method for Resistance to Puncture;
 - GOST 28507-90 Safety leather shoes for mechanical action. General Specifications; and
 - GOST 12.4.137-84 Special leather footwear for protection from petroleum, petroleum products, acids, alkalis, non-toxic and explosive dust. Specifications.
- 4.3. In areas where people are exposed to foot injuries, or where required by local rules, personnel shall wear properly fitted protective footwear adequate for their type of work.



- 4.4. In low temperatures thermally-insulated protective footwear and thermal socks shall be used.
- 4.5. In wet conditions or high humidity water-proof protective footwear shall be used.
- 4.6. In winter conditions whilst walking on slippery ice-covered or snow-covered surfaces Is mandatory to use anti-slippery accessory for footwear (Heel Stop, Yak Trax Ice Grip, etc.) except when doing so will increase the slip, trip fall risk (e.g. ladders, gratings or indoors). This requirement is not applicable to offshore facilities.

5. Hand Protection

- 5.1. Gloves are used to protect hands against the impact of chemical-, physical- and biological hazards. There does not exist multi-purpose type of gloves suitable for all cases, therefore a variety of glove types shall be available related to the hazards associated with the work performed. These shall be available in a range of sizes.
- 5.2. Hand Protection shall be in compliance with the following International standards:
 - EN 374 Protection from Chemicals and Micro-organisms;
 - EN 388 Protection from Mechanical Risks;
 - EN 407 Protection from Thermal Hazards;
 - EN 421 Protection from Ionising Radiation and Radioactive Contamination; and
 - EN 511 Protection from Cold.
- 5.3. Hand Protection shall be in compliance with the following GOSTs:
 - GOST 12.4.020-82 Occupational Safety Standards System. Means for Personal Protection of Hands. Nomenclature of Quality Indices; and
 - GOST 12.4.010-75 Occupational Safety Standards System. Personal Protective Equipment. Special Mittens. Specifications.
- 5.4. In areas where people are exposed to hand injury hazards, or where required by local rules, personnel shall wear properly fitted gloves adequate for their type of work. Gloves ensuring protection from mechanical risks EN 388 are marked with a pictogram displaying a shield and a hammer with the digits from 0 to 5. The *Mechanical Risks* pictogram is accompanied with the following 4-digit code:
 - A – abrasion resistance of protective gloves material;
 - B – cutting resistance of protective gloves material;
 - C – tear resistance of protective gloves material; and
 - D – puncture resistance of protective gloves material.

In all cases, [0] stands for the lowest level of efficiency, as shown below:

Test	Efficiency level rating					
	0	1	2	3	4	5
A. Wear resistance (cycles)	< 100	100	500	2,000	8,000	-
B. Blade cutting resistance (index)	< 1.2	1.2	2.5	5.0	10.0	20.0
C. Tear resistance (Newton)	< 10	10	25	20	75	-
D. Puncture resistance (Newton)	< 20	20	60	100	150	-

- 5.5. Special protection of hands and forearms is required for some of work types, e.g. grit-blasting, handling of chemical agents, welding, etc. Site supervisors are responsible for provision of personnel with gloves, ensuring compliance of the type and material of gloves to the type of work and proper use of gloves by personnel.
- 5.6. In addition to regular control and replacement of gloves in the event of physical wear and tear, hand protection equipment shall also be replaced if contaminated with hazardous substances such as lubes, paints, drill mud or chemical agents.



6. Protective Clothing

- 6.1. For work within hydrocarbon Assets, protective clothing shall be made from fire retardant material and have anti-static properties in compliance with the following International standards:
- BS 1547 Flameproof Industrial Clothing. Technical Requirements;
 - EN 531 Occupational Clothing and Standards for flame resistance and heat transfer;
 - EN1149 Protective Clothing – Anti-static properties;
 - EN 469 Fire Fighting Protective Clothing – Requirements for Fire Fighting Protective Clothing;
 - EN 340 Special Protective Clothing. General Technical Requirements;
 - EN 342 Suits Sets for Protection against Low Temperatures;
 - EN 471 High-visibility clothing; and
 - EN 381 Protective clothing for users of hand held chain saws.
- 6.2. Protective Clothing shall be in compliance with the following GOSTs:
- GOST P 12.4.236-2011 Occupational safety standards system. Protective clothing for low temperatures. Technical requirements;
 - GOST P 12.4.236-2007 Occupational Safety Standards System. Protective clothing for low temperatures. Technical requirements;
 - GOST 12.4.185-99 Occupational Safety Standards System. Personal Protective Equipment against Low Temperatures. Methods of Determination of Ensemble Thermal Insulation;
 - GOST 12.4.108-82/109-82 Women/Men Suits for Protection against General Industrial Contaminations and Mechanical Impacts;
 - GOST 29058-91/29057-91 Women/Men Suits for Protection against Non-Toxic Dust. Specifications; and
 - GOST 9282-76/12.4.043-78 Women/Men Suits for Protection against Mechanical Damage and Industrial Contaminations;
 - GOST 12.4.044-87/12.4.045-87 Occupational Safety Standards System. Women/Men Suits for Protection against High Temperatures. Specifications; and
 - GOST 12.4.176-89 Occupational Safety Standards System. Special Clothes for Protection from Thermal Effects. Requirements for Protective Properties and Method of Determining Human Thermal Condition.
- 6.3. Protective clothing shall be worn where specified by site rules or whenever required to provide protection during work. Flame resistant clothing shall cover the entire body (from neck to ankles, and from shoulders to wrists). It is prohibited to cut or roll up the sleeves of flame resistant clothing.
- 6.4. Flame resistant clothing shall be used as outer wear except where other type of protective clothing is required e.g. chemical protective suit, waterproof coat, welder's leather clothing, disposable protective suit.
- 6.5. Protective clothing of the correct size shall be provided by the employing company and shall not be customized to fit by the user, as this can inhibit the antistatic properties.
- 6.6. Protective clothing shall have sufficient thermal insulation proprieties for winter wear in Climatic Zone 4 areas (Northern and Offshore Assets).

7. PPE for Marine Facilities

- 7.1. Personnel working at the marine facilities, vessels or in close proximity to water shall wear self righting Personal Floatation Devices (PFDs) that have the capability to upright an unconscious person in the water. The buoyancy properties of PFD shall be at least 27.5 kg (275 Newton).
- 7.2. If operations are performed inside a shore line or in close proximity to water, personnel shall wear self righting Personal Floatation Devices (PFDs) that have the capability to upright an unconscious person in the water. The buoyancy properties of PFD shall be at least 15 kg (150 Newton).



- 7.3. All PFDs shall meet the requirements of the International Life-Saving Appliances Code (LSA), SOLAS 74/96, the resolutions of the International Maritime Organization (IMO) MSC.81 (70), MSC.A.689 (17).

PPE Special Requirements

8. Respiratory Personal Protective Equipment (RPPE)

RPPE is required to protect respiratory organs from inhaling hazardous substances if concentration of such substances at work area is equal to or exceeds maximum permissible levels. Such hazards include insufficient contents of oxygen, existence of gases, vapours and solid particles in the atmosphere such as dust, smoke, chemical mist, soot and aerosols. More detailed requirements for the use of RPPE are covered in task specific work instructions.

- 8.1. Respiratory Personal Protective Equipment shall be in compliance with the following International standards:
- EN 136 Respiratory Protective Devices. Full-Face Masks;
 - EN 138 Respiratory Protective Devices. Fresh Air Hose Breathing Apparatus for Use with Full-Face Mask, Half Mask or Mouthpiece Assembly;
 - EN 12083 Respiratory Protective Devices. Filters;
 - EN 12941 Respiratory Protective Devices. Power Assisted Filtering Device with Helmet or Hood;
 - EN 269 Respiratory Protective Devices. Powered Fresh Air Hose Breathing Apparatus Incorporating a Hood;
 - EN 12942 Respiratory Protective Devices. Compressed Air Line or Powered Fresh Air Hose Breathing Apparatus Incorporating a Hood; and
 - CR 529 Guidelines for Selection and Use of Respiratory Protective Devices.
- 8.2. RPPE shall be in compliance with the following GOSTs:
- GOST 12.4.121-83 Occupational Safety Standards System. Industrial Filtering Gas Masks. Specifications;
 - GOST 12.4.246-2013 Occupational Safety Standards System. Respiratory Personal Protective Equipment. Particle Filters. General Specifications; and
 - GOST 12.4.034-2001 Classification and labelling of Respiratory Personal Protective Equipment.
- 8.3. In areas where people are exposed to the hazard of inhaling harmful substances, or where required by local rules, personnel shall wear properly fitted RPPE adequate for their type of work.
- 8.4. Permit to work requiring use of RPPE, must be issued only to the personnel who have medical certification of their fitness to use RPPE and properly trained. Confirmation that RPPE is suitable for use to be obtained.
- 8.5. Before any work commences with RPPE the responsible supervisor shall make the personnel involved aware of any limitations regarding RPPE, in particular, verbal communication.
- 8.6. Components of different types of RPPE shall not be integrated and non-certified components shall never be used.
- 8.7. Before donning full face-mask respirator, the wearer shall remove headwear, goggles and any foreign objects from the mouth. If the wearer requires prescription glasses provision shall be made to secure correction lenses to full face-mask respirator.
- 8.8. In addition to periodic inspections and maintenance, RPPE shall be checked every time before use. After each use, RPPE shall be checked, cleaned, disinfected and packed for storage in compliance with manufacturer's guidelines.



9. Fall Protection

9.1. Fall protection shall be in compliance with the following International standards:

- EN 353-1 Ram-type PPE against fall from height on non-flexible life line;
- EN 353-2 Ram-type PPE against fall from height on flexible life line;
- EN 354 PPE against fall from height. Lanyards;
- EN 355 PPE against fall from height. Energy absorbers;
- EN 358 PPE against fall from height. Harnesses to ensure retention and positioning on-site and lanyards for occupational positioning;
- EN 360 PPE against fall from height. Inertion interlocking devices;
- EN 361 PPE against fall from height. Safety belt systems for the entire body;
- EN 362 PPE against fall from height. Connecting devices;
- EN 363 PPE against fall from height. Safety systems; and
- EN 813 PPE against fall from height. Harnesses for seated positions.

9.2. Fall protection shall be in compliance with the following GOSTs:

- GOST 12.4.089-86 Occupational Safety Standards System. Building. Safety Belts. General Specifications;
- GOST P EH 361-2008 Fall Protection PPE. Safety harnesses;
- GOST 12.4.223-99 Occupational Safety Standards System. Personal Protective Equipment against Fall from Height. Lanyards. General Technical Requirements. Test Methods;
- GOST P EH 358-2008 Personal Protective Equipment against Fall from Height. Harnesses and lanyards to ensure retention and positioning;
- GOST 12.4.222-99 Occupational Safety Standards System. Personal Protective Equipment against Fall from Height. Energy absorbers. General Technical Requirements. Test Methods;
- GOST P EH 353-2-2007 Occupational Safety Standards System. Ram-Type Personal Protective Equipment against Fall from Height on Flexible Life Line; and
- GOST EH 813-2008 Personal Protective Equipment against Fall from Height. Harnesses for seated positions.

9.3. In those areas where there is a risk of falling from a height, or where it is regulated by the rules of the security staff must use protective equipment against falls from a height corresponding to the nature of her work.

9.4. Personnel shall use a body harness with slings whenever fall protection is required during work on non-enclosed elevated surfaces, in the areas where handrails do not provide for adequate protection and during work at height more than 1.3 m above ground or any adjacent platform or work surface.

9.5. It is prohibited to use safety belts for fall protection.

9.6. Harnesses, lanyards and other fall protection components shall be used in compliance with manufacturer's guidelines. Employees are prohibited from modifying such components.

9.7. Retention systems and components (except for lanyards) that were exposed to significant or maximum load shall immediately be marked as "unserviceable" and withdrawn from use. Any further use of such components is prohibited until they are checked and recertified. Lanyards that were exposed to significant or maximum load shall immediately be marked as "unserviceable", withdrawn from use and destroyed.

10. PPE for Helicopter Travel

In addition to general and special requirements set out herein, below are additional requirements applying to Offshore Installations.

10.1. Personnel involved in supporting of the helicopter operations shall wear their safety helmets with chinstraps fastened at all times.

10.2. Each helicopter passenger shall be issued helicopter transit suit. Whenever the flight route runs over water, it is mandatory to wear transit suit with cold protection provisions.



- 10.3. Each helicopter passenger shall be briefed on how to use transit suit and how to proceed in emergency.
- 10.4. Hearing protection equipment shall be used during the entire flight.

11. Protective Clothing for using Chainsaws

- 11.1. Personnel using chainsaw shall wear full length “type C” chainsaw protective trousers which comply with International Standard EN 381-5. Trousers shall be a minimum of Class 1 or higher but aligned with the maximum chain speed.
- 11.2. Personnel using chainsaws should wear gloves of similar material to the trousers.
- 11.3. Chain saws are typically > 115 dB so personnel using chainsaw shall wear appropriate which comply with EN352 Standard.
- 11.4. Personnel using chainsaws should wear a hard hat with full face visor which complies with EN1731.

12. Grit blasting

- 12.1. Personnel conducting Grit blasting shall wear Respiratory Protective Devices which comply with International Standard EN 271 and include a compressed air line or powered fresh air hose Breathing Apparatus incorporating a hood for use in abrasive blasting operations, which prevents any ingress of dust and abrasive material into the helmet.
- 12.2. Personnel conducting grit blasting shall always wear safety helmet which:
- Covers the head, neck, chest and back to prevent ingress of abrasive materials;
 - Is fitted with a transparent shield allowing for a wide field of view and easy replacement, if damaged, but shall not be interchangeable with helmets of any different design; and
 - Shall be fitted with differential-pressure fresh air supply system to prevent ingress of dust and abrasive material into helmet.
- 12.3. Air supplied into helmet shall come from clean air source. Air flow, pressure and filtration level shall be as recommended by helmet manufacturer.
- 12.4. Personnel involved in grit blasting work shall wear gauntlets, long apron and high protective boots.
- 12.5. As determined by the volume of consumed air used material and the site of operations, the noise level may reach 110 dB and higher. Use ear plugs or ear-pieces for hearing protection.
- 12.6. In addition to periodic checks and maintenance, all PPE used for grit-blasting work shall be examined by the operator in the beginning and in the end of each shift and whenever a new operator is engaged. Defective components shall be replaced immediately. Special attention shall be paid to critical components such as helmet shield, air filtration system and air supply hose.

13. Welding, Grinding and Cutting

- 13.1. These operations require, as a minimum, the use of the following personal protective equipment:
- Safety helmets and protective footwear (if required, safety helmets may be replaced by welding helmet or mask);
 - Flame resistant clothing not contaminated with lubes, oil and other combustible substances;
 - Additional special clothing allowing for adequate protection of all parts of body against sparks and hot slag;
 - During welding or cutting operations, the welder, assistant welder and Fire watcher shall wear special welding helmets, masks or goggles with darkened lenses (Table 3). Besides, when engaged in welding operations, the welder shall wear flame resistant gauntlets and apron; and
 - During grinding operations it is necessary to use gloves, goggles and face shield or welding mask.

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- 13.2. For welding or cutting of materials which emit toxic or harmful vapours or smoke when heated, it is necessary to provide exhaust ventilation or forced air draught. In any case personnel involved in welding, cutting and grinding shall wear disposable respirator against dust and welding fumes.

TABLE 3: TECHNICAL REQUIREMENTS FOR DARKENED-LENS GLASS (EN 169/ANSI Z87.1)

Welding Operations	Level
Shielded metal arc welding: electrode diameter 1.6, 2.4, 3 or 4 mm	10
Gas-shielded-arc welding (non-ferrous metals): electrode diameter 1.6, 2.4, 3 or 4 mm	11 or 12
Shielded metal arc welding: electrode diameter 4.8, 5.6, or 6.3 mm	12
Shielded metal arc welding: electrode diameter 7.9 or 10 mm	14
Atomic hydrogen welding	10, 11, 12 or 14
Carbon arc welding	14
Soldering	2
Torch brazing	3 or 4
Cutting of metal up to 25.4 mm thick	4 or 5
Cutting of metal from 25.4 up to 152.4 mm thick	4 or 5
Cutting of metal from 152.4 mm thick and more	5 or 6

14. Lead Paint and Coating

- 14.1. Personnel working with lead based paints or coating shall use appropriate respiratory personal protective equipment, specified in the Risk Assessment for the particular activity.
- 14.2. Other PPE shall include disposable coveralls gloves, shoe covers and masks or goggles. Any waste shall be disposed of as per [Waste Management Standard](#).

15. Naturally Occurring Radioactive Materials (NORM)

- 15.1. The PPE required for handling NORM is detailed in the Occupational Health and Hygiene Standard: NORM Specification
- 15.2. GOST 12.4.120-83 Occupational Safety Standards System. Means of Collective Protection against Ionising Radiation. General Technical Requirements.

16. Electrical Shock Hazard Protection

- 16.1. To ensure protection against electric arc thermal effects during operations performed at indoor and outdoor electrical installations (equipment of electrical power networks, stations and substations, overhead railway system), either live-wire or with stress relief, it is necessary to use additional safety thermal-proof sets including safety clothing, footwear, head and hand protection.



- 16.2. To ensure electrical shock hazard protection in cases when employees may touch the voltage-induced elements of electrical installations resulting from the electromagnetic effects of electrical installations with operational voltage (double-chain overhead power transmission lines, overhead ground-wire cables, cable lines, fibre-optical communications lines and AC overhead railway system), it is required to use bridging (electrically conducting) sets including safety clothing, footwear, head and hand protection.
- 16.3. Primary devices include those that are capable to ensure protection against voltages exceeding 1,000 V. Auxiliary protective devices include those that are not considered electric current conductors, so they cannot ensure protection against voltages exceeding 1,000 V. Requirements for electrical shock hazard protection in the [Electrical safety regulations](#).
- 16.4. Electrical Safety shall be in compliance with the following GOSTs
- GOST P 12.1.019-2009 Occupational Safety Standards System. Electrical Safety. General Requirements and Nomenclature of Protection Types.
 - GOST12.4.172-2014 Occupational safety standards system. Set individual shielding for protection against industrial frequency electric fields. General technical requirements and test methods.
- GOST 13385-78 Footwear special dielectric polymeric materials. Specifications.