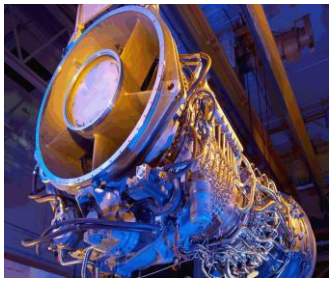
شريكة كواس براكس سندیرين برحد
BERAKAS POWER COMPANY SDN BHD
Providing Power and Expertise to Serve You

BPC Contractor Handbook



Berakas Power Company

February 2021, Revision 3.

Content

1. Introduction

BPC values the safety of all works and the protection of our environment. Our company is committed to having incident-free operations (IFO). We can only achieve this by working as a team with our contractors.

Handbook Terms

The following terms are used in this handbook to describe the contractor company and personnel mentioned in the guidelines:

Contractor

A Contractor is defined for the purposes of this document as any company or individual, which by contract, subcontract, or purchase order performs work or provides services or equipment to or for BPC.

Contractor Supervisor/Person-In-Charge (PIC)

This individual represents the contractor company that supervises the work of a contractor or contractors.

This handbook provides guidance and a minimum set of expectations for contractors regarding contractor work performed for BPC. As the contractor, you are required to follow the policies and procedures established by the contractor's company in addition to any of BPC site-specific policies.

This handbook is intended to supplement, not replace, the contractor's company safety program, which the contractor is required to implement. In the event of a conflict between this handbook and the contractor's company safety program, the more stringent rule shall apply. The Contractor Company's contract with BPC may be cancelled, or an individual may be requested to leave BPC premises and not return if the guidelines of this handbook are not followed.

BPC is continuously looking for ways to improve our health, safety and environment (HSE) programs. To communicate feedback for improvement or changes to this document, please contact the BPC HSE Department directly.

The BPC HSE system for managing the areas of the reliability and efficiency of our contractors is one of our critical drivers for business success. The contractor shall be exposed to this and our efforts to achieve incident-free operations (IFO) while working for BPC. Both of these goals are important to our business, and it is essential that our contractors and their employees understand and are familiar with them.

How to use this Handbook

The intent of this handbook is to provide guidance to our contactors regarding BPC's expectations of its contractor workforce. All BPC's contractors shall have a copy of this handbook accessible to them. The contents of this handbook shall be reviewed, discussed, and understood by contractor personnel before any work is performed for BPC. If an HSE issue arises that is not addressed in the handbook or by the contractor's own safety program, you shall ask for guidance from the contractor representative or a BPC representative.

Contractor HSE orientation meetings are available to supplement this handbook. The contractor may schedule an orientation by contacting the BPC person overseeing the work.

BPC's Principles of Safe Operation

BPC Principles of Safe Operations is based on ten principles that BPC is committed to use to guide decision making, working planning and execution in all situations. We expect that contractors working under BPC's operational control shall abide by these principles as well.

All accidents are preventable!

1. Operate within the design and environmental limits.
2. Operate in a safe and controlled condition.
3. Ensure that safety devices are in place and functioning.
4. Follow agreed safe work practices and procedures.
5. Meet or exceed customers' requirements.
6. Maintain the integrity of dedicated systems.
7. Comply with all the applicable rules and regulations.
8. Address any abnormal conditions.
9. Follow the written procedures for high-risk or unusual situations.
10. Involve the right people in decisions that affect procedures and equipment.

Stop-Work Authority

It is Your Responsibility & You Have the Authority

Your ideas and concerns are important.

We always comply with the Principles of Safe Operations shown in the previous section.

At BPC, we always comply with the safe work policies and procedures of the project. As a contractor, you are responsible and authorized to stop any work if it becomes apparent that harm could occur to ourselves, our co-workers, our assets, or the environment, and we shall support you. That is our commitment to you.

2. Responsibility Overview

Contractor Responsibilities

The contractor company is responsible for the contractor's employees' safety and for ensuring that the contractor's employees perform their day-to-day work safely and properly.

The contractor shall read, become familiar with, and follow the contents of this handbook and consult with the contractor's supervisor if the contractor has any questions about its contents.

The Contractor shall become familiar with BPC's requirements and expectations, many of which are presented in this handbook. These guidelines are intended to supplement, not replace, the contractor's own safety program. If BPC's procedures and the contractor's procedures conflict, the more stringent rule should be followed.

Stop-Work Authority

BPC is committed to following the Principles of Safe Operations listed in Section 1 at all times. All contractors and employees are authorised to stop and are responsible for stopping any work that does not comply with these principles. It is BPC's commitment that there shall be no repercussions upon any contractor for taking such action.

The contractor is empowered and expected to stop the work of co-workers, BPC employees, or other contractors if any person's safety or the environment are at risk. No repercussions shall result from this action.

If the contractor, the contractor's employees, or subcontractors are discouraged from exercising their Stop-Work Authority (SWA) or are penalised for doing so, they should report this action to the BPC representative or BPC HSE Manager.

If a contractor has a concern about a safety or compliance issue, or wishes to provide a suggestion for improvement in these areas, it is critical that the contractor's comments are heard and any resulting actions are communicated to the contractor. Safety or compliance issues can be communicated in one of these methods:

1. Notification of BPC Competent Person: Any safety or compliance issue that arises should be brought to the attention of the BPC supervisor or representative. Depending on the significance of the item, raising a concern in this manner can be done verbally or in writing. BPC supervisors shall respond to the contractor with a description of how the concern shall be resolved.

2. Notification of the BPC HSE Manager: Any safety or compliance issue that has not been resolved or agreed upon by a contractor and respective BPC supervisor/representative can be raised to the BPC HSE Manager. Contractors may leave a phone or email message, or a letter prefaced by the statement, "I am reporting an HSE concern for your review." This notification can be made anonymously. The HSE manager shall then review the contractor's concern and report the outcome of the review to the appropriate BPC management.

3. BPC Workplace Policies & Principles

Professional Conduct

BPC respects every individual who works for our company. We expect our employees and contractors to conduct themselves in a professional manner. Horseplay, practical jokes, and harassment are not allowed. No form of harassment or fighting shall be tolerated while on locations under BPC's operational control. Depending on the severity, additional repercussions, such as involvement of regulatory agencies and law enforcement, may result.

Contraband: Drugs, Alcohol, and Weapons

Any person under the influence of alcohol, controlled substances, or any intoxicating substance is prohibited from entering company premises, engaging in company business, or operating company equipment;

Entry into or exit from any BPC office or work location is provided under the condition of the company's right to search any person, vehicle, or the personal effects or any employee or contractor for illegal drugs, intoxicating beverages, firearms, weapons, or pyrotechnics. As a safety precaution, and to preclude the loss of BPC's tools, materials, or equipment, authorized representatives of BPC may search those entering, working in, or exiting BPC locations without prior announcement.

Alcohol

BPC prohibits the unauthorised use, possession, distribution, purchase, or sale of alcohol while on company premises, conducting company business, or operating company equipment.

Illegal Drugs

BPC prohibits the use, possession, distribution, purchase, or sale of illegal drugs while on company premises, conducting company business, or operating company equipment.

Prescription Drugs

If a contractor brings prescription drugs into a BPC facility, the medication shall be in the bottle or container in which it was originally dispensed and shall be prescribed to the individual.

The contractor's employees shall report the use of medication to the supervisor employed by the contractor. That contractor supervisor should report to the BPC supervisor, in general terms, that one of the contractor's employee on location is using medication and has reviewed such use with the contractor's medical sources, and that the contractor's employee has been cleared for work. If the contractor's supervisor cannot assure the BPC supervisor that, these steps were taken, or if the worker appears to be impaired or endangering himself or herself or to others, said worker may be removed from BPC premises.

Use of a prescription or over-the-counter medication is permitted only if such use does not have side effects that could adversely affect the contractor's work performance, Contractors should consult with their physician before taking any medications that may interfere with their ability to work safely.

BPC prohibits the use, possession, distribution, purchase, or sale of any controlled substance while on company premises, conducting company business, or operating company equipment.

A contractor who uses or possesses a controlled substance with a prescription not in the employees' name is in violation of BPC's policy prohibiting controlled substances.

Explosive and Firearms

BPC prohibits the use, possession, transportation, or sale of unauthorised explosive, unauthorised flammable materials, firearms, or other weapons while on company premises, engaged in company business, or operating company equipment.

Housekeeping

It is the contractor's responsibility to keep their work areas clean, orderly, and in a condition conducive to safe work while under BPC's operational control. The Contractor shall:

- Keep all work areas, walking surfaces, handrails, equipment, tools, life-saving and fire-fighting equipment clean and free of obstructions.
- Store tools or tie them off, so they do not cause a hazard to people in the surrounding area.
- Use only commercial fire-safe solvents for cleaning. A safe solvent is a class IIA liquid; it has a flash point above 140^{o}F (60^{o}C) and below 200^{o}F (93^{o}C). Prohibited cleaning agents include, but are not limited, to, petrol, diesel, and methyl ethyl ketone (MEK). Questions on appropriate solvents should be directed to the BPC Person-in-charge.
- Segregate wastes, including discarded oily rags, from regular trash.
- Use plastic buckets appropriately; they should not contain any hydrocarbons or flammable items.
- Appropriately label all loose materials, small tools, and other small objects with the name of the owner before use or transport.
- Properly label all containers (e.g., spray bottles, jugs) with name of substance contained.

Smoking

All BPC buildings and facilities are designated as "non-smoking" areas, except for areas specifically designated for smoking. BPC shall provide, or request the contractor to designate, a facility for smoking in a separate room with outside ventilation or, if there is no alternative, an appropriate, designated outside smoking area.

Smoking is permitted only in designated smoking areas. Smoking is not allowed in any common use area, as per local laws, e-cigarettes are now classified the same as regular cigarettes and not allowed to be used indoors.

Language Requirements

All Contractor personnel shall be able to read or understand the posted warning signs while working at a location under BPC's operational control. Contractors shall write all HSE documentation (policies, procedures, risk assessments/method statements (RAMS)), etc. in English but brief the workforce in their native tongue. Risk Assessments (RA) shall be translated by the contractor into the native tongue of the team preforming the work and reviewed/posted along with the English copy onsite while the work is being performed.

Security

Contractor companies shall be responsible for their own equipment and accountable for controlling the actions of their employees while working at locations under BPC's operational control. BPC is not responsible for lost or stolen articles. Contractor employees are discouraged from bringing large amount cash or other valuables of a financial or personal nature to work sites. If they choose to do so, however, it is their own responsibility to keep those items adequately secured. Company and contractor employees are encouraged to practice good security awareness and vigilant behaviors and alert company personnel to any suspicious behaviors.

BPC is required by governmental regulations to develop and implement plans to address security risks related to transporting and storing hazardous materials. The BPC security policies have identified areas of our facilities as restricted areas that potentially store or transport hazardous materials.

Safety Induction Training (Reference BPC HSE 005)

General BPC Induction

- The Contractor shall ensure that a suitable and sufficient safety induction training program is provided to their employees prior to commencement of work for BPC.
- All Contractors and any Sub-Contractors working on behalf of BPC shall first attend a BPC conducted safety induction training course relevant to the type of work activities.
- BPC shall maintain a record of all Contractors' employees who have attended the BPC Safety Induction Training. The Contractor shall also retain records of induction carried out for their own employees. These details shall be available for review by BPC.
- BPC shall charge the Contractor $20.00 per persons for inductions (BPC pass issued upon completion).
- This payment shall be made before undergoing the Safety Induction.
- If a contractor employee has lost his pass, then the contractor must notify BPC HSE Section immediately to cancel the pass.
- A replacement fee of $30.00 shall be charged.

PIC Training Course

BPC operates a "Non-Employee" permit which is designed to provide information for any Non-BPC Employee (Contractor) executing specific tasks on BPC Sites, facilities, or operational areas of control.

To be issued this Permit, the Contractor Employee shall have successfully attended and passed the BPC Person-In-Charge (PIC) training course after undertaking the main HSE induction. This PIC cannot be issued with any other BPC Permit unless BPC has given written authority of Competence for the specific Permit.

- BPC undertakes various induction training sessions. Contact the BPC HSE Dept. to ensure that the correct induction was attended for the scope of work.
- The Electricity Order (EO) Training level 1, 2&3 are acceptable equivalents to the BPC PIC training therefore the contractor shall not require further instruction.

BPC shall charge the Contractor $30.00 per person for the Person-In-Charge (PIC) Training. (These passes shall be valid for 1 year from date of issue).

It is the responsibility of the Contractor to ensure that all passes are valid for use. To renew any expired passes, contact the Contract Owner.

Orientation of Visitors at all Locations

All personnel are required to sign a login sheet when arriving at a BPC site. When arriving at a BPC location for the first time, individuals are required to attend an orientation meeting that shall cover emergency procedures, including the Emergency Evacuation Plan (EEP) and site-specific information.

Permit Systems (Reference BPC HSE 023 & PMO 037)

BPC operates a "Non-Employee" permit which is designed to inform any Non-BPC Employee (Contractor) to carry out specific tasks on BPC sites, facilities or areas of operational control.

- To be issued with this Permit the Contractor PIC shall successfully attend and pass the BPC PIC brief.
- This PIC cannot be issued with any other BPC Permit unless BPC has given written authority of Competence for the specific Permit.

The permit systems are controlled and systematic safety documentation system formally documenting safety procedures designed to provide additional safeguards for specific activities by providing a clear written record of the identified hazards and adequate control measures implemented for those activities. Examples of BPC Permit include the Hot Work Permit, Confined Space Permit, and Permit to Work on MV/HV Electrical Apparatus (11kV equipment).

- Where a Permit is required, the Contractor shall provide a RAMS approved for the task, and any other documents requested by the Permit issuer.

Contractors working under a Permit shall strictly ensure the following:

- The work area and activity described by the Permit is clearly defined, understood & adhered to.

- The period of time for which the Permit is approved is clearly defined & adhered to.
- Ensure that the correct personal protective equipment (PPE) is provided and used by all personnel.
- The Permit is accepted by a suitably competent and trained "Person-In-Charge" of the work to be undertaken.
- If the time period of the Permit expires before the work is completed, the Permit shall either be extended, or a new Permit issued.
- Only the Person-In-Charge who has accepted the Permit can request to cancel it. If the Person-In-Charge has to leave the work areas, then the Permit shall be cancelled, and the Contractor shall then provide an alternative Person-In-Charge to create a new Permit.
- Person-In-Charge shall ensure that all personnel under their control are provided with adequate information, instruction and supervision to ensure the effective implementation of the Permit.
- All Persons-In-Charge shall have undertaken the relevant instruction with the HSE or Training Section and been specifically registered in the BPC records as a Person-In-Charge.
- Where the PIC requires to leave the worksite then all work shall stop and the workers removed from the area.

Root Cause Analysis/ Incident Investigation

Contractors are required to conduct, and in some cases may be asked to lead, a root cause analysis (RCA) team. Root cause analysis investigations are required for:

- Any accident resulting in a Workplace Safety and Health Order (WSHO) recordable injury.
- Any oil and chemical spills. (in excess of 10 liters)
- All fires.
- Any "near miss" or minor incident that has the potential to result in a serious injury, oil spill, property loss, fire, or MVC.
- Incidents that occur frequently, at the request of BPC management.

RCA investigations shall include, but are not limited to:

- A description of the event
- A determination of the actual potential loss or losses
- A list of the root causes of the incident
- An evaluation of the risk of recurrence
- A list of system control and/or process changes to reduce the risk of recurrence
- A plan to communicate fully and lessons learned.

All RCAs completed for incidents on BPC property shall be shared with the contractor's BPC representative as soon as possible. BPC may request to participate on all incidents requiring investigations while under their operational control.

In situations where an incident involves multiple contract companies or BPC personnel, BPC may commission a team composed of personnel from all affected companies.

Any contractor who has incurred a WHSO recordable injury or illness while working for BPC shall schedule a meeting with the BPC HSE Manager or designee to review the details of the incident and any lessons learned. This meeting should be scheduled within a reasonable time frame after the RCA is complete.

Reporting Incidents to BPC

- Verbally-immediately (after preliminary facts have been obtained)
- Initial Report-24hrs (cover page with incidents synopsis and initial cause)
- Written Report-72hrs (if requested by BPC)

All reports shall be detailed, include a chronological account (to include just before, during, and after the event), witness statements, copies of certificates (if applicable) etc.

Cell Phone Usage While Operating a Motor Vehicle

Following safe work practices, contractors may not use a cell phone while driving or operating heavy equipment while on BPC locations or while operating a BPC owned or rented vehicle. Contractors are discouraged from other forms of "multitasking" such as using two-way radios, eating, or taking notes, while operating motor vehicles.

Management Field Visits

Strong leadership is a critical success factor for any safety program. Contractor management is required to visit work sites periodically.

Sub-Contractors

Primary contractors shall be held accountable to ensure that their subcontractors are held to the same standards as their employees. This includes ensuring that subcontractors are qualified to perform the work and are meeting BPC's expectations while working under BPC's operational control.

For ongoing work, the contractor is required to notify the BPC Contract Owner when the contractor shall be using subcontractors.

For project proposal, contractors are required to submit a subcontracting plan, including:

- Products and services to be subcontracted
- Selection criteria to be used to select subcontractors
- Plans to ensure HSE Performance from subcontractors

4. Emergency Procedure

Medical Coverage

Contractors are responsible for providing medical coverage as appropriate for their scope of work. This may range from first aid-trained personnel to licensed paramedics. If medical coverage provided by the contractor is not available, BPC shall take necessary and reasonable steps to ensure that care is provide to contract employees working on BPC property.

Proximity to addition medical support or hospital facilities should be considered when determining appropriate medical coverage.

Incident Reporting Procedures

Incidents are defined as identifiable and un-intentional deviations from planned operations, caused by factors that may or may not be within BPC's span of control, that result in an injury to an employee or contractor or cause environmental consequences, property damage, or a near miss that could have resulted in any of the above.

All incidents, near misses, property damage, spills, releases, fires, harassment, and permit violations shall be reported as soon as possible to BPC personnel. A BPC incident report shall be completed and any statements needed for the report shall be taken at the time. Failure to report an incident may result in termination of the contract.

Any contractor who has incurred a Workplace Safety & Health Order (WHSO) 2009 recordable injury or illness while working for BPC shall schedule a meeting with the BPC HSE Manager or designee to review the details of the incident and any lessons learned. This meeting should be scheduled within a reasonable time frame after the RCA is complete.

If an injury classification changes over time, the contractor is required to notify BPC and update their Management System Questionnaire (MSG). Failure to do so may result in termination of the contract.

Oil Spill Response Plan and Notifications

BPC's Management team shall coordinate responses to oil or hazardous material spills that originate from BPC facilities or assets. This includes complying with government planning requirements. Contractors who observe or discover a spill from a BPC facility or asset shall take the following actions:

- Safety first – Ensure the safety of all personnel. Anyone who observes the spill should act carefully, cautiously, and reasonably.
- Notify the contractor's PIC, and the BPC Contract Owner
- Control the source – Qualified personnel, when feasible, should take actions that may include, but are not limited to: Actuating emergency shutdown (ESD) device(s)

Contractors are responsible for developing oil and spill response plans that meet government regulations for spill that originate from their property, facilities, or assets. Contractors are therefore responsible for managing and responding to all oil and hazardous material spills that originate from their property, facilities, or assets.

Emergency Response and Drills

Emergency drills are conducted at BPC facilities in accordance with all applicable laws, regulations, and facility policies. To ensure familiarity with the emergency procedures, BPC periodically conducts drills as if an actual emergency exists. Contractors are required to participate in all drills.

5. HSE Meetings

Onsite HSE Meetings

Contractor's shall conduct or actively participate in onsite HSE meetings (Toolbox talk) as made available, but at least daily. (Does not apply to general work contractors; i.e. grass maintenance, housekeeping, etc.)

These meetings can include:

- Interactively reviewing the Risk Assessment & Method Statement (RAMS). Think Incident Free (TIF), etc., with team
- Discussing work is to be completed and how to do the work safely
- Analyzing lessons learned
- Sharing incidents and near misses
- Recognition
- Conducting a learning exercise
- Observing trends and discussing the corrective actions tied to those trends

Pre-job Meetings

Before a new job, at the beginning of each workday, or in the event of a significant operational change, the Person-In-Charge shall hold pre-job meeting to discuss job planning, job assignments, the completion of a written Risk Assessment & Method Statement (RAMS), and any unique or unusual project hazards.

The Person-In-Charge shall hold a pre-job meeting:

- Before a new job
- At the beginning of each work day
- In the event of a significant operational change

These meetings should contain, but not be limited to:

- Job planning
- Job assignments
- Completion of written RAMS
- Any unique or unusual project hazards

6. Personal Protective Equipment (Reference BPC HSE 004)

General

All personnel working for BPC shall wear appropriate personal protective equipment (PPE) as determined by the Risk Assessment. It is the responsibility of each contract company to provide PPE required by the specific task being performed, the potential hazards to which the person shall be expose, and the specifics of the job site. Contractors shall adhere to the minimum PPE requirements recommended on the Material Safety Data Sheets (MSDS) for material they are handling.

- Contractors and any personnel under their control shall be provided with and use suitable PPE, as required by relevant statutory provisions and BPC requirements.
- All PPE shall meet internationally recognize standards, such as ANSI, ISEA, BS, EN, AS, NZS etc.
- Where required a separate PPE assessment shall be carried out and recorded by the Contractor
- The Contractor shall be responsible for the maintenance, cleaning, replacement, and storage of PPE and for providing training on its use.
- All Contractor personnel shall ensure that site-specific rules on the use of PPE are observed.
- Contractors working at any Department of Electrical Services (DES) facility are required to wear a one-piece fire-retardant coverall along with any other specified PPE.
- The Contractor shall ensure that all people working on their behalf are easily identifiable as an employee working with the company. Company logos should be visible on PPE clothing, such as coveralls with the company's logo.

Action when Arriving Without Appropriate PPE

If, upon arrival at a BPC facility, a contractor does not have the appropriate PPE for the job requested, BPC shall:

- Send the contractor back to retrieve the appropriate equipment at the Contractor's expense.

Head Protection

- Contractors shall wear a hard hat when working in construction areas.
- Contractors shall maintain and replace the hat's suspension system, as needed.
- No one is to alter (drill, rivet, or paint to change the design) hard hats in any way.
- Hard hats shall be made of nonmetallic material and shall comply with ISO3813/EN397 (or any successor standard).
- Contractors shall wear their hand hats squarely on their head and not cocked to one side or turned in a reverse position.
- Welding hard hats shall be provided during welding operations where overhead hazards are present. The only exception to this guideline is when the welding hard hat poses a hazard to welders due to body positioning while performing their work. This exception to the policy, along with explanation, shall be documented on the Hot Work Permit and noted on the RAMS with all potential hazards mitigated.
- Do not store hard hats in direct sunlight.

- Hard hats shall be replaced as per manufacturer's recommendations or legislation.

Eye Protection

Safety eyewear, clear (for night operations) or tinted, is mandatory for all personnel in site operations (including visitors) and shall be worn outside of operating facilities and worksites:

- All safety eyewear (prescription and nonprescription) shall have side shields or wraparound protection that meets BSEN166 or ANSI standard Z87.1.
- Safety eyewear shall meet EN166/ISO 12312. This includes prescription eyewear used as the only source of eye protection.
- Personnel should always shield their eyes from the direct sun or welding arc rays, including reflected rays from another surface, such as the water. In addition, personnel shall wear tinted glasses or goggles when helping or working near welders.
- Safety eyewear other than safety glasses may be required for certain tasks, according to the following chart:

Choose the most appropriate shade number form the list for the particular activity.

Welding Operations	Min. Shade No.
Shielded metal-arc welding, up to 5/32-in. electrodes	10
Shielded metal-arc welding, 3/16- to ¼-in. electrodes	12
Shielded metal-arc welding, over ¼-in. electrodes	14
Gas metal-arc welding (nonferrous)	11
Gas metal-arc welding (ferrous)	12
Gas tungsten-arc welding	12
Atomic Hydrogen welding	12
Carbon arc welding	14
Torch soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 in.	3 or 4
Medium cutting, 1 to 6 in.	4 or 5
Heavy cutting, over 6 in.	5 or 6
Gas welding (light), up to 1/8 in.	4 or 5
Gas welding (medium), up to 1/8 to ½ in.	5 or 6
Gas welding (heavy), over ½ in.	6 or 8

Selecting Eye Protection

Eye Protection equipment shall meet EN166/ISO 12312 or a recognized international standard (or any successor regulation). The following table is a guide for selecting eye protection.

Type of Work (Activity)	Possible Danger to the Eyes	Min. Eye Protection Needed
1. Acetylene-burning, cutting or welding OR 2. Electric (arc) welding	• Sparks • UV rays • Molten metal • Flying particles	1. Welding helmet with appropriate tinted lenses AND safety glasses or goggles. OR 2. Face shield with tinted-plate lenses AND safety glasses or goggles. OR 3. Welding goggles, eyecup type, with tinted* lenses, AND face shield. OR 4. Goggles, cover-spec type with tinted-plate lenses, AND face shield *Shade V or current ISO standard

Type of Work (Activity)	Possible Danger to the Eyes	Min. Eye Protection Needed
1. Bleeding down a pressure line or vessel OR 2. Changing a choke	• Flying particles Hydro-carbon splash/spray	1. Chemical goggles AND face shield OR 2. Goggles, flexible fitting, regular ventilation, AND face shield
1. Chemical handling OR 2. Laboratory OR 3. Paint handling, mixing, pouring	• Chemical splash • Acid burns • Fumes • Glass breakage • Splash	1. Chemical goggles AND face shield OR 2. Goggles, flexible fitting, regular ventilation, AND face shield May require hooded ventilation. Follow current MSDS guidance.
1. Chipping OR 2. Grinding OR 3. Wire brushing OR 4. Power tool cleaning the rust off steel for painting operations	• Flying particles	1. Face shield AND either goggles (flexible fitting, regular ventilation or safety glasses) OR 2. Full sandblasting hood with inner and outer shield (option for paint operations) Goggles provide more protection from impact than safety glasses and are the preferred and HSE recommended choice over normal safety glasses under the face shield in these operations.
1. Fire watch (welding) OR 2. Confined Entry Watch	• Flying particles • Splash/spray	1. Safety Glasses OR 2. Goggles, flexible fitting, with regular ventilation OR 3. Face shield AND safety glasses or goggles Note: Determined by hazard analysis of work done and proximately of fire watch to the work performed.

Type of Work (Activity)	Possible Danger to the Eyes	Min. Eye Protection Needed
1. Sandblasting	• Flying particles	1. Sandblasting hood with inner shield Note: Sandblasting hoods have an outer shield and inner shield that protects the eyes even when changing the outer shield.
1. Painting (using a paint gun)	• Spray	1. Roll-film goggles, such as Advanz A030 or equivalent These offer unique eye protection for spray painting applications. When spray paint accumulates and obstructs vision, the painter simply turns the knob, advancing the film and clearing the vision. OR 2. Full sandblasting hood with inner and outer shield
1. Painting (using paint brush or roller)	• Splash	1. Face shield and goggles or safety glasses OR 2. Roll-film goggles, such as Advanz A030 or equivalent OR 3. Full sandblasting hood with inner and outer shield
1. Water cleaning using water hose (0 to 100 psi)	• Splash/spray • Flying particles	1. Goggles OR 2. Face shield and goggles or safety glasses
1. Low pressure washing (100 to 10,000 psi) OR 2. Ultra-high pressure washing (10,000 to 40,000 psi or higher)		1. Face shield AND goggles OR 2. Full sandblasting hood with inner and outer shield
1. Hot fueling	• Splash/ spray	1. Goggles, flexible fitting, regular ventilation

Contact Lenses

Contractors wearing lenses shall follow these guidelines for eye protection in addition to those listed in the previous table:

- Inform the contractor's supervisor when you are wearing contact lenses.
- Do not wear contact lenses in areas where there is potential exposure to a welding arc.
- Wear soft or gas-permeable lenses.
- Have spare pair of contact lenses or prescription glasses readily available to you.

Foot Protection

Safety footwear is mandatory in site operations. Open-toed shoes, such as sandals, slippers, and flip-flops are prohibited footwear when on the work site.

- Visitors and employees not actually involved in daily site operations, such as Office Management and Office Assistants, are not required to wear safety footwear unless going onto the work site.
- Types of safety footwear allowed:
  - Lace-up, or leather shoes or boots with steel toe and ankle support
  - Leather sport shoes with steel toe
  - Steel-toed rubber boots where identified by assessment
  - Synthetic leather boots
- Types of safety footwear not allowed:
  - Deep lug sole and hiking styles
  - Shoes with crepe pattern soles or smooth leather soles
  - Narrow-throated boots
  - High-heeled footwear (heel in excess of one inch)
  - Footwear constructed of materials other than leather, synthetic leather, or rubber

Hand Protection

Appropriate gloves shall be worn when the contractor's hands are exposed to hazards, such as cuts, punctures, or abrasions (cloth, cut-resistant, leather, or lather-palmed gloves), when handling chemicals or hazardous material where absorption is a concern (rubber gloves), and when performing electrical work (certified gloves for electrical work).

- Welding-Specific: Flameproof gauntlet glove shall be used during all arc welding, gas welding, or gas cutting operations, except when engaged in light work, such as testing-fitting pieces.
- Rigging-Specific: Gloves shall be worn when performing rigging duties.
- Personnel using fixed or locking blade knives shall wear KEVLAR or leather gloves.
- If a knife is the appropriate tool for the job, the employee's company is expected to provide the fixed or locking blade knife and maintain it for that specific task. The use of such knives shall be included in the RAMS.

Type of Hand Protection	Possible Uses for This Type of Hand Protection
	These are best used when handling pipe and large items where less dexterity is needed (i.e., drilling operations) They are well designed and protect the hand from: Hairline fractures
Leather gloves 	For protection from rough objects, sparks and heat, and for cushioning from blows in heavy-duty work. All kinds of leather provide comfort, durability, dexterity, mild heat resistance, and abrasion protection. These advantages make leather a traditional favorite for industrial workers.
Leather-palmed gloves 	Provide maximum protection against abrasive and puncture hazards of the palm area only. In most cases, other areas of the glove are thin for more dexterity.
Mechanics' style gloves 	These gloves are designed to be thin, which allows for high dexterity, and are very durable. This is a generic catch-all name for an all-purpose glove; there is a variety of versions and different looks. Note: Not liquid-proof
Welding gloves 	Made of leather with heat-resistant panels. A special feature of effective welding gloves is fully welted seams, some sewn with KEVLAR fibers, which are five times stronger than steel and are flame and heat-resistant. These fibers protect the seams from degeneration due to exposure to abrasion, heat, spark, or flames.

Note: Make sure you ask the right questions when selecting a particular application. Using the right glove for the task is worth the investment compared to potential hand injuries.

Example of Chemical Hand Protection

The material on the following list is only intended to provide an overview of the chemical protective glove categories. Remember, coated gloves (i.e., chemical or liquid-proof/resistant gloves) are available in a few versions:

- Full-coverage for complete liquid-proof or chemical-proof protection.
- Palm, finger, and fingertip coverage for a breathable glove
- Palm, fingertip, and knuckle coverage

Type of Hand Protection (photos are only examples)	Possible Uses for This Type of Hand Protection
Latex rubber	Is an inexpensive, waterproof glove that works well but has limitations. It shall, however, blister and separate or peel off in thin layers when in contact with petroleum-based products. Best used during first aid and food preparation.
Type of Hand Protection (photos are only examples)	Possible Uses for This Type of Hand Protection
Nitrite rubber	Resist grease, oil, and other petroleum-based products and is water-resistant or waterproof (if fully coated)
Both PVC and neoprene 	Offer excellent chemical-resistant properties. Polyvinyl chloride (PVC) gloves frequently are used in the petrochemical industry. Neoprene gloves provide excellent chemicals, including acids, alcohols, oils, and inks. Although neoprene gloves can offer good grip, they generally are thicker and heavier.
 Polyurethane	Provide extra abrasion resistance and extended wear. The coating does provide waterproof protection but only limited chemical resistance.
Polyvinyl alcohol-coated (PVA) 	PVA gloves are nearly inert to strong solvents, including aromatics, aliphatic, and chlorinated solvents, chemicals which quickly deteriorate natural rubber, neoprene, and PVC gloves; PVA also offers good resistance to snags, punctures, abrasion, and cuts. Caution: PVA coating is water-soluble. Do not use in water or water-based solutions.
Note: Makes sure that on the glove the coating is resistant to the types of chemicals that are present. Select glove material based on the manufacturer's product literature to determine the gloves' effectiveness against specific work place chemicals and conditions.	
The U.S. Department of Energy Occupational Safety and Health Technical Reference Manual rate various as protective against specific chemicals and shall help you select the most appropriate gloves to protect your employees. You can find the glove ratings Table 4 Chemical Resistance Selection Chart for Protective Gloves at: http://www.osha.gov/Publications/osha3151.html	

Hearing Protection

Contractors shall provide hearing protection to their personnel and ensure they are worn whenever those employees work in areas requiring protection, such as:

- In posted areas
- In high-noise areas

Protective Clothing

This policy applies to ALL Contractor personnel who work on, in or around BPC areas or equipment. Tour groups/visitors are required to wear long sleeves. Exceptions to this policy for visitors shall be at the discretion of the BPC employee in charge.

This policy DOES NOT apply to:

- Personnel passing through production areas

Contractors shall observe the following clothing standards while working on construction sites, around production equipment, or other BPC designated areas:

All cotton, long-sleeved, button-up shirts, and long pants. Overalls, coveralls with zippers, are acceptable, as long as they are all cotton.

Fire Retardant (FR) coveralls shall be worn where there is a flammable risk (Switch room, substations, hydrocarbon etc.)

Synthetic garments, such as polyester, nylon, or rayon, may not be worn while doing hot-work or during sub-station maintenance.

- Clothing shall be orderly – no holes, tears, frayed, or loose material – and fit appropriately, with sleeves rolled down and shirttails tucked into trousers.
- Rings, necklaces, and other loose jewelry, including exposed body piercings are prohibited when working in areas where they could catch on moving objects or sharp protrusions or come in contact with electrical circuits.
- Watches may be acceptable if protected by the employee's long sleeves.
- Suitable protective clothing (specified on current MSDS/RAMS) shall be worn when handling chemicals or hazardous substances.

Clothing and shoes saturated with petroleum products or chemicals shall be removed immediately to prevent skin irritation and possible ignition.

- Rain gear is acceptable as an outer layer in appropriate weather conditions.

Fire Resistant Clothing

FRC

Contractors shall provide Fire-Resistant Clothing (FRC) and PPE to their personnel and ensure they are worn based upon the incident energy exposure associated with the specific task.

At a minimum, FRC is required for all contractor electricians and mechanical construction specialists working on BPC facilities. FRC selected by a contractor shall provide for electrical arc protection. Clothing shall meet ISO Standards.

Respiratory Protection

The contractor's company shall ensure that their personnel are properly trained, medically cleared, and fit-tested, and that the program is properly implemented.

7. Environmental Stewardship

BPC is committed to working to prevent pollution and waste, striving continually to improve environmental performance and limit environmental impact from our operations.

This shall be in accordance with the Brunei Darussalam Environmental Protection Management Order 2016.

Waste Management

For waste generated by the contractor (e.g. paint waste from painting the contractor's equipment or used motor oil resulting from an oil change in the contractor's equipment), it is the contractor's responsibility to handle, document, and dispose of that waste in accordance with all applicable government regulations.

Prohibited Practices

The following waste management practices are prohibited:

Burning of liquid or solid materials in pits, piles, drums, or other open containers.

- Disposal of liquid waste in landfills.
- Disposal of oily wastes (sand, scale, rags, filters, PPE, etc.) in containers not dedicated to such material.
- Disposal of BPC waste in disposal facilities not approved by BPC. Consult with your BPC contact for information on approved disposal facilities.

Prohibited Materials

The procurement of new materials or any equipment (new or used) containing materials listed below is prohibited.

- Ozone-Depleting Substance (ODS). As defined by the Montreal Protocol. These are the specific chemicals that have been defined by the Montreal Protocol as having adverse effects on the stratospheric ozone layer. Existing equipment containing ODS may be operated and maintained until the end of it normal life cycle.
- All forms of asbestos-containing products, defined as any material containing more than 1% asbestos. While not an exhaustive list, the following products may fall into this category: pipe-covering, insulating cement, insulating block, asbestos cloths, gaskets, packing materials, thermal seals, refractory and boiler insulation materials, transit board, asbestos cement pipe, fireproofing spray, join compound , vinyl floor tile, ceiling tile, mastics, adhesives, coatings, acoustical texture, duct insulation for heating, ventilation, and air condition (HVAC) systems, roofing products, insulated electrical wire and panels, and brake and clutch assemblies.
- PCBs. Polychlorinated biphenyls are employed in industry as heat exchanged fluids, in electric transformers and capacitors, and as additives in paint, carbonless copy paper, sealants, and plastics. PCB- contaminated materials are defined as materials exceeding 50mg/kg of PCB oil.
    - Lead-based paint.
    - Leaded-thread compound (pipe dope).

Waste Minimization

BPC operates under the following waste management hierarchy guidelines:

- Reduce the amount of waste at the source by ordering only the amount of chemical or other materials needed to do a job.
- Return unused portions of the chemicals or materials to the vendor.
- Reused a material, if possible
- Recycle or regenerate wastes for continued use.
- Dispose of waste at a facility approved by BPC

When dealing with waste, it is important to identify the material and use it as intended or to find an alternate user. If the material cannot be used, keep it segregated and obtain guidance form a BPC representative on how to identify and dispose of it. Waste transported from BPC locations shall be accompanied with the proper paperwork and have the correct markings.

Guidance for handling, storing, documenting, and disposing of waste can be found in the BPC Environmental Plan.

Waste Categories

Wastes generated from BPC generation activities include those defined as hazardous waste, solid waste, and other regulated waste, whether recycled or disposed.

Hazardous Waste

Waste shall be classified as hazardous if any of the following conditions exist:

- The waste is listed as a hazardous waste in OSHA 40 CFR 261, The European Waste Catalogue or in applicable Brunei government hazardous waste regulations.
- The results of laboratory analysis indicate that the waste meets one of the following criteria specified in the regulations to be classified as characteristically hazardous:
  - Ignitability – D001: flashpoint less than 140^{o}F
  - Corrosiveness – D002: pH <2 or pH > 12.5
  - Reactivity – D003: explosive or release harmful quantities of cyanide or sulfide gas
  - Toxicity – D004: through D043: leaches certain metals, organics, chlorinated organics, pesticides, or herbicides

The company requires that the waste be treated as a hazardous waste, even though it is not a regulatory requirement.

Solid Waste

Examples of solid wastes are:

- Commercial solid waste
- Construction/demolition debris
- Industrial solid waste
- Residential solid waste
- Garbage
- Trash

Other Regulated Waste

Some types of waste shall be handled and disposed of in accordance with other regulations in addition to the local Brunei Government Regulations Examples of waste include in this category are:

- Asbestos
- PCB Waste

Pollution Prevention

BPC expects pollution prevention to be a responsibility of contractor companies and their subcontractors when working for BPC. Furthermore, BPC expects the contractor company and its subcontractors to comply with all government laws, rules, and regulations relative to and concerned with spill prevention and pollution control.

- If BPC's contractors and/or their subcontractors encounter or foresee a potential pollution hazard or spill event occurring during and operation, immediate steps shall be taken to eliminate the hazard and/or minimize the effect. The responsible BPC representatives shall be notified of the event.
- BPC expects contractor companies and their subcontractors to maintain their immediate work areas free of all harmful spillage, discharge, or other pollutants.
- BPC shall furnish the status and other necessary information on systems, or pressure vessels for the contractor's and its subcontractor's activities, where appropriate, at the beginning of or during a particular operation.
- If work involves pressure, the system may be bled down before initiating service work. Flow lines may be displaced with water where practicable to prevent pollution. Performance of these items shall be coordinated with the responsible BPC representative.
- Drip pans or equivalent containment devices shall be positioned to catch oil, which may have to be drained or allowed to run out of pipelines or equipment to allow work to progress. Additionally, appropriate plugs shall be in place.
- In the performance of all work, contractor companies and their subcontractors shall perform the same in accordance with the best technical procedures and professional manner, and they shall obey and comply with all government laws, and regulations.

8. Occupational Health and Industrial Hygiene

Fit for Duty

Contractors are responsible for ensuring that employees who are sent to work under BPC's operational control are physically capable of performing their job function. This includes a government approved medical for all foreign personnel.

To meet this responsibility, the contractor shall train their employees to:

- Implement and enforce their safety program, and ensure that all employees are properly trained for their assigned tasks.
- Ensure that personnel assigned to work BPC locations are fit for duty and physically capable of performing all aspects of their jobs.
- Follow safe work practices and procedures.
- Provide their employees with proper personal protective equipment in good working condition.
- Notify a supervisor when the employee is taking medication, both prescription and nonprescription, that could impair his/her ability to work safely.
- Ensure that the contractor's employees know and comply with BPC's drug and alcohol requirements.
- Conduct appropriate industrial hygiene monitoring and, if requested, provide copies of the results to BPC.
- Obtaining the chemical identities and MSDS on hazardous chemicals the contractor may bring onto BPC locations and informing the employees at the location of the associated hazards of each chemical.

MSDS Program (Reference BPC HSE 003)

If a contractor brings a chemical to a BPC facility, the contractor is required to have the chemical labeled properly, to travel with a valid and current MSDS, and to report the chemical to the Contract Owner upon arrival.

The Contract Owner at the facility shall ensure that contractors are informed of the hazardous chemicals their employees may be exposed to while working on BPC property. The Person-In-Charge is responsible for:

- Communicating the identity of any hazardous chemicals to contractors, employees or visitors who may be immediately exposed while working at the location.
- Informing contractors of the labelling system in use, the protective measures to be taken the safe handling procedures to be used, and the location and availability of MSDS while working on BPC locations.
- Obtaining the chemical identities and MSDS on hazardous chemicals the contractors may bring onto BPC locations and informing the employees at the location of the associated hazards of each chemical.

General Industrial Hygiene Principles

Contractors are responsible for identifying health hazards that may be present in their scope of work, ensuring that appropriate programs and monitoring are in place to protect their employees.

Industrial hygiene is defined as “that science and art devoted to the anticipation, recognition, evaluation, and control of those environmental factors or stresses arising in or from the workplace, which may cause sickness, impaired health and well-being, or significant discomfort among workers or among the citizens of the community.

BPC’s industrial hygiene objectives are to:

- Protect the health of all personnel working under their operational control.
- Provide a framework for recognizing and managing health hazards.
- Comply with regulatory requirements.

Some key industrial hygiene issues are described in the following sections.

Asbestos

Asbestos is generally used as pipe and vessel insulation, in brake pads, and on structural materials, such as transit panels, floor tiles, and roofing felts. It is often difficult to differentiate between asbestos and non-asbestos without laboratory equipment. Asbestos may remain in some older facilities.

Asbestos can be dangerous if not handled properly. Breathing asbestos dust is hazardous. Asbestos insulation that is not damaged or friable (hand pressure can crumble, pulverize, or reduce it to powder when dry) generally does not produce asbestos fibers at a dangerous level, especially in non-enclosed structures.

To minimize health risks, it is important not to drill, cut remove, tear, step on, brush against, hammer on, or in any way disturb suspected asbestos. Contact a BPC representative if it is necessary to disturb any suspected asbestos, or if you notice any deterioration in the condition of the suspected asbestos. Only trained personnel with proper equipment shall disturb or remove asbestos.

Lead

Overexposure to lead can result in serious short-term (acute) or longer-term (chronic) health effects. Inorganic lead may be absorbed into the body by ingestion or inhalation. Lead is most commonly found in paints and coatings.

Abrasive blasting or burning of painted surfaces probably poses the greatest potential for lead exposure. Interim protection shall be used until an exposure assessment has been done to determine whether exposures exceed the Action Level (AL) of 30mg/m3, eight-hour, time-weighted average, which triggers specific monitoring, training, and medical surveillance requirements.

The Permissible Exposure Limit (PEL) for lead is

50mg/m3 for an eight-hour, time weighted average, BPC shall inform contractors if lead-based paints or coatings may be present before soliciting or bidding on a project.

Contractor companies whose workers shall be exposed to lead shall have a written program in place to monitor their workers' blood-level exposure. The program shall be reviewed by BPC before starting the project.

Heat Stress

Due to environmental conditions in Brunei, heat can be a major health hazard that should be recognized in job planning and RAMS activities. Contractors are responsible for ensuring that appropriate controls are identified and in place to ensure the safety of their employees before beginning work. Appropriate controls include, but are not limited to, personnel acclimatization, work mission duration, provision of drinking water, and regularly schedule breaks.

Fatigue

Workers fatigue can be a factor in incidents or risk to personnel working under BPC's operational control. When they feel fatigued, workers should notify their supervisor and handle their fatigue appropriately. Contractor companies are responsible for monitoring employee activities and behavior to determine if an employee should be removed from the work site to obtain rest or should be given a rest period upon arriving at the work site before beginning work.

BPC has adopted the following international guidelines and expects all contract companies to comply:

- Worker should be limited to 12 to 14 planned work-hours per day and are not to exceed 16 hours per day, including travel.
- After two consecutive, 16 work-hour days, contractor companies shall allow workers eight hours of an uninterrupted rest/sleep period.
- The BPC Contract Owner, using the BPC management of change process, should approve any deviation from these general guidelines.

9. General Operations

Lifting of Loads by Personnel (Reference BPC HSE 014)

Where necessary it may be required to undertake a Manual Handling Risk Assessment.

Employees and contractors shall not manually lift loads over 30Kg.

The contractor shall determine whether assistance is needed to lift heavier weights.

Before lifting, determine the following:

- Can a mechanical device move the object?
- Is the object bulky? Shall it obscure vision? If so, get another person to help carry it.
- Is the object within the contractor's capability to lift?

Is the walking surface free of obstructions? Use proper lifting procedure:

- Bend legs at the knees, keep the back nearly vertical. Position the body as close to the object as possible. Place feet apart, but no more than shoulder width.
- Firmly grasp the object and straighten the legs. Keep the back straight and upright.
- Pull the object close to the body, leaning back slight to keep the center of gravity over the feet.
- Avoid twisting the body when lifting or carrying loads.
- When handling material with others, teamwork is important. Agree on who shall be the leader, and give signals to indicate instructions. Release the materials only when everyone is ready.

Requirements for Third-Party Equipment Brought to BPC Facility

General

All equipment delivered to a BPC facility shall meet or exceed BPC's Lifting Operation Procedure.

- Make sure that all equipment and materials have the contractor's company name clearly and permanently marked on it.
- Ensure that all equipment is inspected for dropped object hazards.

- Determine if equipment is fit for purpose and if it has been adequately maintained with necessary documentation.
- Ensure that all drain pans are in good condition and are kept clean and dry with drain plugs wrenched tight.

Operating Equipment

Operating equipment typically refers to rotating or reciprocating equipment, such as compressors, pumps, pumping units, etc.

- Only trained operators shall start and stop operating equipment.
- Do not wear jewelry, such as rings, watches, wrist chains, key chains, or loose clothing when working around operating equipment.
- Do not make repairs to, service, or alter equipment that is in operation. All equipment shall be shut down and an Isolation device used Lock Out Tag out (LOTO) to prevent accidentally starting equipment while the work is conducted. Guards and other safety devices shall be fit for purpose and in place before the equipment is operated.

Use of Hand and Power Tools (Reference BPC HSE016 & 019)

- Refer to the BPC Hot Work Procedure when using electric power tools.
- Maintain tools in good condition, and replace or have defective tools repaired by qualified personnel.
- Power tools should be included in a planned maintenance program.
- Power tools should be de-energized when not in use.
- Use hand tools for their intended purpose only. For example, do not use wrenches as hammers or screwdrivers as chisels or pry bars. Do not use pipe wrenches on hex nuts, make sure that grinder wheels are properly rated for the speed of the grinder, and obey all other relevant specifications.
- Verify that guards are in place, unaltered, and properly installed.
- Ensure that power tools are equipped with a three-wire grounded conductor cord. Use the IP44 three-pronged plug only in three-prong service outlet per IP44 for external work.
- Verify that a Residual Current Device (RCD) exists on outlets that are not part of permanent buildings or structures supplying power to portable electric tools.
- Most portable electrical or air-operated tools contain a motor that can generate sparks hot enough to ignite a mixture of natural gas and air. Use the facility's Hot Work Permit process to ensure that these tools are used safely.

Ladders (Reference BPC HSE 001)

- All ladders shall be equipped with anti-slip safety feet.
- Do not use ladders as scaffolding components.
- Do not use metal ladders when working with electrical equipment.
- Allow only one person on a ladder at a time.
- Inspect ladders before they are used.

- If the ladder is not in a safe operating condition, tag it for maintenance, and remove it from site.
- Tie/fasten single and extension ladders at the top.
- Ladders used on poles shall have a pole rung fitted.

Working Overhead

Before working overhead, notify anyone who shall be below you. Then follow these procedures:

- Never throw hand tools or materials to anyone: hand them up or down.
- When working at heights, handle tools to prevent them from falling or being dropped.
- Contractors shall take all precautions to guard against falling objects by properly identifying and mitigating hazards using the Hazard ID tool.
- Barricades or other suitable safeguards should be placed below overhead work to prevent personnel from entering that area below overhead activity.

Repetitive Stress

Contractors should be trained in and aware of the effects of repetitive movements during work activities. Observe caution when performing any task that requires repetition. So that your body does not experience discomfort in many cases, proper handling or using correct posture for certain tasks shall reduce risk.

Employees are encouraged to report early signs of repetitive stress injuries to their supervisor as soon as possible.

10. Specialized Operations

Scaffolding Safety (Reference HSE 001)

Scaffolds are temporary elevated platform structures, which shall be provided for all work that cannot be done safely from ladders or from permanent or solid constructions.

- Erection and dismantling of scaffold shall be performed under the supervision and direction of a qualified person experienced with or trained in scaffold erection, dismantling, and use, as well as knowledgeable about the hazards involved.
- All scaffolds shall be erected, used, and dismantled in accordance with SHENA IGN/2020/01 or any successor regulation.
- No “A” frame structures are permitted.
- Contractors shall ensure scaffolding is inspected by a competent person at appropriate intervals, not exceeding seven (7) days or after extreme weather conditions.
- All scaffolds shall be tagged as safe to use or identified as unsafe for use.
- Written results of these inspections shall be kept available in the Contractor’s records.
- scaffolds shall be provided with suitable access. Where ladders are used, they shall be of adequate length and properly secured to the scaffold.
- Suitable warning signs shall be displayed on or near scaffolds under the Contractor’s control.

- The Contractor shall ensure that scaffolds are not overloaded.
- Where necessary, adequate temporary lighting shall be fitted to scaffolds.

(See http://www.hse.gov.uk/construction/safetytopics/scaffoldinginfo.htm for Scaffolding Checklist.)

Paint and Waste Blast Media Discharges

Maintenance waste, such as removed paint and materials associated with surface preparation and coating applications shall be contained to the maximum extent practicable to prevent discharge. This includes airborne material, such as spent or over-sprayed abrasives, paint chips, and paint overspray. Before conducting sandblasting or similar maintenance activities develop and implement a best management practices (BMP) plan for the containment of waste materials.

Sandblasting

The potential hazards during sandblasting operations include, but are not limited to:

- Inhalation of dusts (including lead from the paint or silica from the blasting medium)
- High noise levels
- High operating pressure of equipment

Contractors are responsible for the appropriate disposal of accumulated waste.

The following guidelines minimize the possibility of an HSE incident during sandblasting operations:

- Contractors performing sandblasting operations for BPC shall have a medical surveillance program in place to monitor employee's blood-level exposure to lead.
- Wear appropriate eye protection
- Sandblasting sand shall be double washed to minimize fires and to minimize exposure to silica dust.
- Consider the paint coatings removed by sandblasting operations as lead until proven otherwise.
- Check all hoses every day for leaks and signs of water.
- Maintain adequate ventilation, either mechanical or natural, to keep work atmosphere less than a 10% lower explosive limit (LEL) and the oxygen (O2) content greater than 19.5% when working in a confined space.
- Bleed or depressurize all lines before disconnecting.
- Use a blasting nozzle with a cutoff device (dead-man's switch) in all situations, except underwater grit blasting.
- Pin or wire all air hose connects (crow's feet) to keep them from coming apart.
- Gather waste over solid flooring.

Painting at BPC facilities

Before beginning any blasting and painting work at a BPC facility or project under BPC operational control contractors shall prepare a written RAMS with additional consideration given to the following items:

- Hold daily safety meetings so that personnel can review activities of the day.
- The painting personnel shall use PPE when paint-related products are mixed or applied, if they are within 50 feet of any work.
- Review the potential health risks during abrasive blasting operations (e.g., all personnel not wearing forced-air breathing equipment shall stay clear of the area of operations).
- Store all paints and thinners in baskets or paint lockers and protect them from their surrounding environment.
- Ensure that any accumulated waste is disposed of appropriately.
- Take all appropriate measures to minimize waste in accordance with industry practices.
- Use filter media to protect the internal working components when painting or blasting in the immediate vicinity of a panel board.

The BPC Contract Owner shall conduct an inspection of the location to identify potentially critical areas before starting blasting operations. team

Compressed Air Used for Cleaning

Compressed air used for drying or cleaning shall be limited to 30 psig by a pressure regulator or pressure-reducing nozzle.

Do not, for any reason, direct compressed air toward a person. Compressed air introduced into the body can cause injury or death. When using compressed air for cleaning in a dry and dusty situation, the contactor shall wear, at a minimum, protective eye goggles, gloves, and a dust filter for respiratory protection.

Regulatory Compliance

It is BPC's expectation that all contractors and personnel shall comply with BPC policies, procedures and appropriate government and industry regulations.

11. Fuels and Gases

Petrol

Petrol is the most widely used flammable liquid. It generates flammable vapors at ambient temperatures. Storing, handling, and using petrol requires special attention.

Storing and Handling

- Petrol shall not be used as a cleaning solvent.
- Because of its low flash point (-45^{o}F), petrol presents a greater potential fire hazard than most other fuels.
- For this reason, do not store petrol in office buildings or near accommodation areas. Store containers in their designated place.
- Clearly label petrol containers.
- Use petrol only as fuel.
- Petrol vapours are heavier than air and have tend to collect in low-lying areas. Take special precautions to ensure proper ventilation when using petrol.
- Use petrol engines only when other power sources are not available. Acceptable uses are equipment such as outboard motors, lawn mowers, and chain saws.

Fueling

Be cautious when fueling petrol engines. Observe these guidelines:

- Eliminate sources of ignition, such as open flames. Turn engines and motors off.
- Make sure the delivery nozzle is in contact with the fill pipe before starting fuel delivery. Maintain this contact continuously until the flow stops. If the contractor ignores this rule, the contactor can create a serious fire hazard from static discharge generated by this action.
- Do not fill tanks completely. Allow a minimum of 2% of the tank space for expansion.
- After the fuel flow has stopped:
    - Tighten the fill cap.
    - Clean any spillage.
    - Ventilate areas and check for petrol vapors before starting engines or operating equipment.

Compressed Gas Cylinders (Reference BPC HSE 026)

The following link should be used for compressed Gas guidance: http://www.bocoline.co.uk/en/sheq/gas-safety/cylinder-safety/index/html

Moving Cylinders

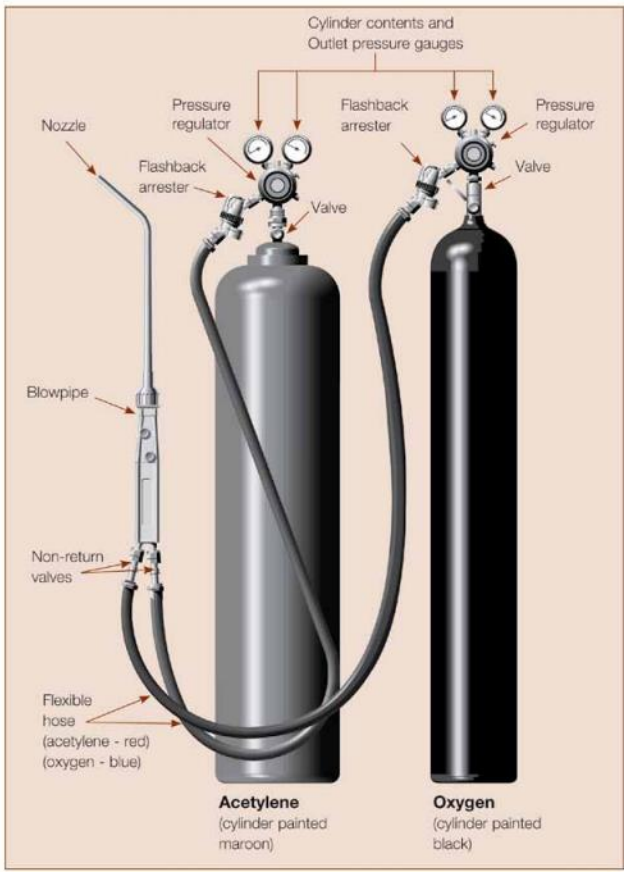
- Transport compressed gas cylinders in-approved, corrosion-resistant racks.
- Make sure the valve protector cap is secure before moving cylinders, Keep the protector caps in place when cylinders are not in use.
- Do not use slings, ropes or chains to lift a cylinder.
- Do not lift cylinders by protector caps.
- Use a hand truck to move cylinders to prevent sliding or dragging, securely fasten the cylinders to the hand truck.

Storage

- Store cylinders in shaded areas.
- Keep caps in place when cylinders are not in use.
- Keep compressed gas cylinders at least 20 feet from highly combustible or flammable materials, such as oil or chemicals. Alternatively, separate the cylinders with a metal wall 5 feet high and ¼ inch thick.
- Do not place compressed gas cylinders where they might become a part of an electrical circuit.
- Do not expose cylinders to an open flame, a temperature above 125^{o}F/50^{o}C or an area where heavy equipment is being moved.
- Do not use compressed gas cylinders as rollers or supports, or for any purpose other than to contain the content as received.
- Secure cylinders upright with a nonflammable device to prevent them from being knocked over or damaged. Do not use a rope to secure cylinders.

Use

- Cylinders shall be secured and protected from impact, including falling objects, while in use.
- Keep the cylinder valve closed, except when the cylinder is in active use. Open the valve slowly with the valve pointing away from the contractor and other personnel.
- Do not use compressed gas for cleaning, because it may injure the eyes or body or create a fire hazard.
- Do not use cylinders that have been defaced, are missing identifying markings (labels, decals, tags), or have expired hydrostatic test dates.
- Use regulators, gauges, and hoses only for the particular gas or group of gases for which they are provided. Do not use them on cylinders containing gases with different properties.
- Use properly fitted and recommended wrenches with cylinder-valve accessories. Do not use these wrenches for any other task.
- Install flash back arrestors at the discharge of the regulators and the torch.



Oxygen Cylinders

Oxygen cylinders are pressurized to 2,400 pounds-per-square-inch-gauge (psig) at 70°F/19°C when full. Oxygen alone shall not burn; however, it supports combustion.

- Do not lubricate or allow oil or grease to contaminate oxygen connections to prevent spontaneous explosions and fires that may occur when oxygen contacts oil or grease under pressure.
- Separate oxygen and hydrocarbons.
- Do not use oxygen in place of compressed air or as a source of pressure.
- Separate oxygen cylinders and fuel-gas cylinders (such as acetylene, propane, and propylene) by at least 20 feet or by a metal wall 5 feet high, ¼ inch-thick, and as wide as the storage rack.

Acetylene Cylinders

- Use and store acetylene cylinders upright to prevent the acetone, a volatile liquid from draining into the valves or fittings.
- Do not use acetylene at a hose pressure exceeding 15 psig to reduce the possibility of an explosion. Acetylene is extremely unstable at pressure above 15 psig.

Natural Gas

- Do not use natural gas to power pneumatic tools.
- Do not use natural gas in areas that have an ignition source.
- Vent pump and start exhaust to a safe area. Do not vent or exhaust to confined areas, enclosures, or areas where the gas can be trapped.
- Do not use rubber hoses as supply or exhaust lines for natural-gas-powered equipment.
- Isolate natural gas and air supply systems from each other. Never commingle natural gas and air supply systems.

12. Safe Work Practices

The Safe Work Practices process applies to all BPC facilities. As stated in the Contractor Safety Management process, contractors are required to follow their own Safe Work Practices. If the contractor company opts to adopt the BPC Safe Work Practices, reference shall be made in their HSE plan. Where permits are required for either a BPC or contractor's process, they shall be reviewed by the BPC Contract owner.

Managing the Safe Work Process

The success of the Managing Safe Work (MSW) process requires that supervisors at every level understand their roles and responsibilities in MSW and translate them into actions and behaviors that are visible to the BPC workforce (including contractors). Recognizing that behaviors to support MSW are part of leadership accountability, this procedure provides guidance by identifying behaviors at every level of supervision specific to supporting MSW.

The following describes the relationships between this procedure and other behavior-shaping processes currently used by BPC:

1) Behavioral-Base Safety (BBS) – BBS is focused on shaping behaviors to ensure the safety of the individual performing work. The behaviors to Support MSW procedure is focused on shaping behaviors of supervision at each level to ensure that MSW procedures are followed without fail.
2) Incident free Operations (IFO) – The IFO program focuses on personal commitment, developing relationships, and acting in a safe and caring fashion. It assumes that processes and procedures for managing safe work are in place. The MSW process identifies and requires that procedures for managing safe work are in place. Behaviors to support MSW procedure ensures those procedures are followed.

The MSW process requires BPC to establish a measurement and track behaviors with appropriate accountability.

Safe Work Practices

- Permit to Work
- Isolation of Hazardous Energy

- Simultaneous Operations
- Hot Work
- Excavation
- Electrical Safety
- Confined Space
- Lifting and Rigging
- Bypassing Critical Protections

Permit to Work Process

The Permit to Work (PTW) Process, a formal written process, is also a means of communication between responsible persons, such as supervisors, team leaders, operators, contractors, and others involved in the planning and execution of work tasks. It is vitally important that each individual knows his/her own responsibilities and duties and carries them out property.

Contractors shall adhere to the BPC Permitting processes. Consult the with BPC Contract owner to determine the requirement before starting work.

The main functions of the PTW Process are to:

- Ensure the proper authorization of designated work.
- Make clear to people carrying out the work the exact identity, nature and extent of the job, the hazards involved, and any limitations on the extent of the work and the time during which the job may be carried out.
- Specify the precautions to be taken, including safe isolation from potential risks such as hazardous substances and electricity.
- Provide a procedure for times when work has to be suspended, i.e. stopped for a period before it is complete.
- Provide for the cross-referencing of safe work practices and associated permits for work activities that may interact with or affect one another.

A permit to Work shall be required for the following:

- Where specialized work permits are initiated (e.g. Hot Work, Confined Space, Isolation of Hazardous Energy, Excavation, Work at Heights, Electrical, etc.)
- Work or maintenance is performed in a process area that involves breaking into a line, equipment or vessel that contains actual or potential hazards.
- There is a transfer of work and responsibilities from one group to another.
- Communication across more than one area, group, or technical type is required to accomplish the task.
- If the Competent Person determines a permit is required.

Note: Do no use routine vs. non-routine work as a criterion for determining when the Permit to Work is needed.

- Refer to the individual BPC Procedures to help determine if a Permit to Work is needed.

Person-In-Charge (Ref HSE 044 Person-In-Charge)

The Person-In-Charge (PIC) is the contract representative in charge of the team doing the work. The PIC shall have met the requirements of BPC HSE 044 and have correct identification on his person at all times. For each permitted work activity there shall be a designated person to lead the work. That person leading work could be a company contractor, operations representative, facility representative, paint inspector, team superintendent, X-ray technician, etc.

- The PIC is on location and acknowledges that all permit conditions in the PTW form are met, and the work site has been inspected before beginning work.
- The PIC is a competent individual assigned the responsibility of verifying the work site activities are in compliance with the permit conditions.
- The PIC is a competent individual responsible for the safe execution of the work.
- The PIC shall have attended at the BPC PIC briefing.

Behaviors of the Person-In-Charge (PIC):

- Sets expectations
- Plans the work with the team
- Collaborates and coaches throughout the job
- Provides performer feedback

Risk Analysis

Introduction

The Risk Assessment or Hazard Analysis procedure follows the three phases of risk assessments as it applies to our work. From the initial planning phase, to the work group pre-job onsite Risk Assessment/ Method Statement (RAMS) discussion, to the individual's ongoing effort to Think Incident Free (TIF), risk assessment tools are critical to identifying potential hazards and developing actions and strategies to prevent incidents from occurring, Risk analyses may also be used as a training tool for new employees, as the basis for HSE checklists, BBS observations, and safety meeting topics and to write HSE procedures and standard operating procedures (SOPs) for new or modified jobs.

Requirements

A written method statement of the work to be performed shall first be compiled before a risk assessment can be undertaken.

The risk assessment shall be conducted for work performed where BPC has operational control. For contractor activities where BPC does not have operational control, we shall encourage them to use their risk analysis tools.

Planning Phase Risk Assessment

Consequences						
Risk Matrix		Insignificant	Minor	Moderate	Major	Catastrophic
		1	2	3	4	5
Description	Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	5	5	10	15	20	25
Likely	4	4	8	12	16	20
Possible	3	3	6	9	12	15
Unlikely	2	2	4	6	8	10
Rare	1	1	2	3	4	5

RMS Descriptions	Abbreviation	Levels start at:
Extreme	E	15
High	H	10
Moderate	M	5
Low	L	3
Insignificant	L	1

The risk assessment performed as part of job planning provides a structured approach for identifying potential hazards and developing control measures. This should ensure that the proper people, equipment, preparation, and HSE processes are identified and acted upon before commencing work. This also provides the opportunity to adjust the work plan to reduce risk.

A qualified standard operating procedure (SOP) or HSE procedure may be used as the hazard analysis for job planning.

Risk Assessment/Method Statement (RAMS) (Reference BPC HSE 008)

The RAMS is a tool for analyzing a task, specifically in the area of health, safety, and environment. This analysis occurs before work begins and involves those individuals that may be affected by the task. The RAMS should identify the hazards present at the time the work starts as well as identify specific mitigation actions necessary to prevent incidents. After the analysis is done, it may be kept as a reference for future similar operations. All RAMS documentation shall be written in English as the industry accepted language. Since the RAMS is a tool intended for individuals and teams performing the work, the Risk Assessment shall be translated by the contractor in the language appropriate for the entire work team (sometimes multiple language and/or verbal translation may be needed).

Think Incident Free

Think Incident Free should be used by everyone before beginning any activity. These self-assessments focus on the fact that each worker shall take responsibility for his or her own health and safety in all activities, as well as protect the environment. Many tasks have risks associated with them that could potentially result in injuries, environmental impact, and losses.

Before these risks can be eliminated or controlled, they shall be identified. TIF enables employees to observe day-to-day operational and procedural systems to identify potential hazards that could threaten the health or safety of our personnel or contract workforce, company facilities, or the environment.

- The steps in an effective TIF assessment are:
  - Determine the potential hazards.
  - Determine what can be done to eliminate the hazard.
  - Take action to prevent any negative consequences.

Hazard Analysis Content

A hazard analysis is not:

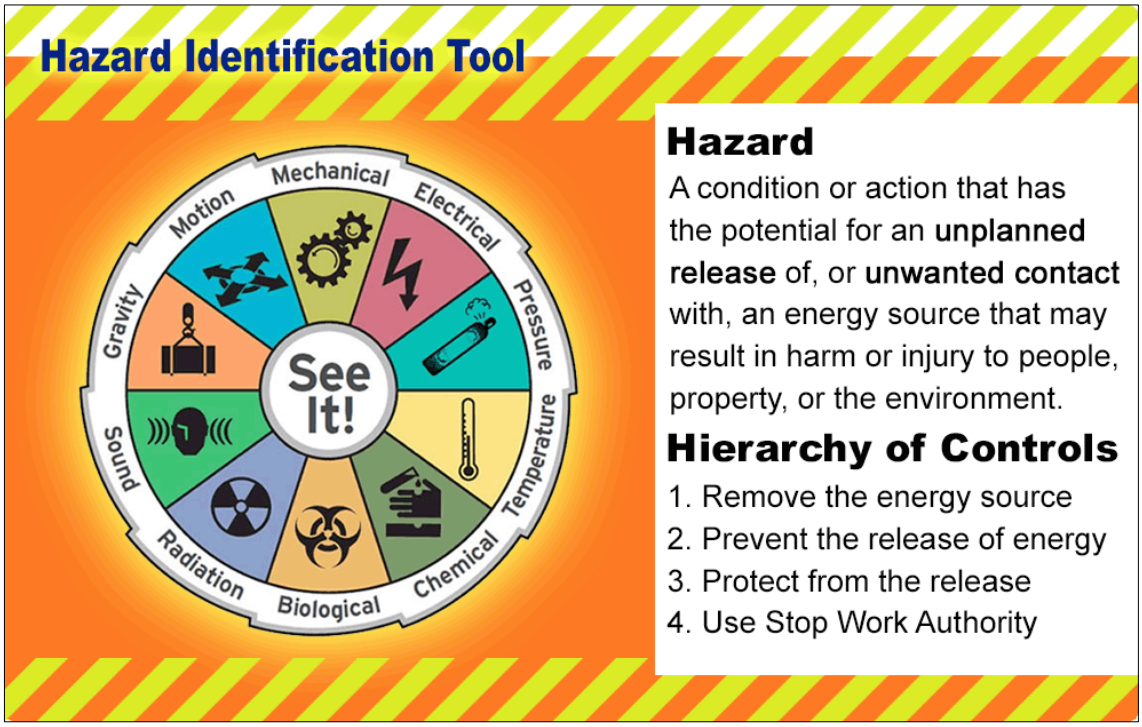
- A detailed work procedure (either maintenance or operation).

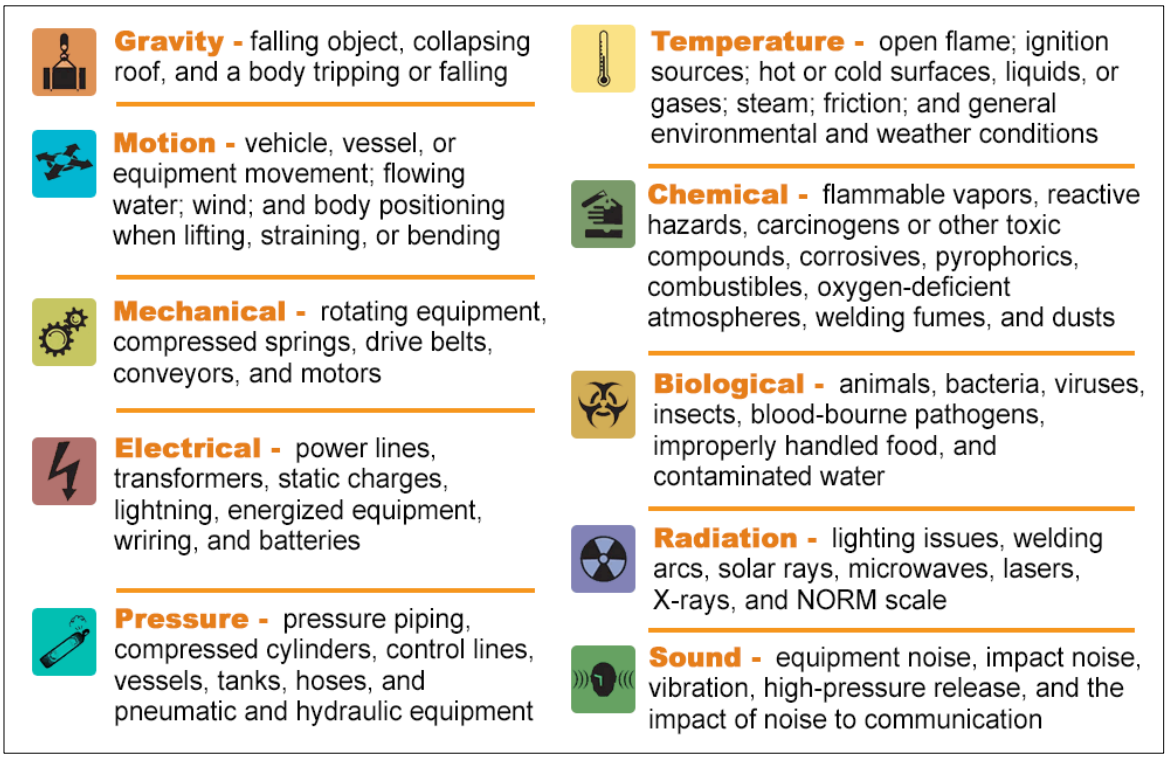
- A Permit to Work is not a RAMS.
- A recyclable document (it shall be refreshed for each job). Items that should be included in the different levels of hazards analysis are listed in the Hazard Analysis Content table.

Hazard Identification – Using the Tool

The Hazard Identification Tool is a visual aid that shall help you focus on hazards associated with your work. This tool is used to identify energy sources in the workplace that could result in a hazard to people, the environment, or equipment. This is not new; this is just a systematic approach to correctly and consistently identifying workplace hazards. Using this method shall help you complete daily activities and task safely and reliably.

The concept is very simple: you identify what energy sources are present in the work place and analyze if they have any potential for causing harm. Once the hazards are identified, you can take actions to prevent their occurrence.





The Hazard Identification Tool easily integrates with existing hazard assessment methodologies such as Risk Assessment & Method Statements (RAMS), Safe Performance Self-Assessment (SPSA), Job Safety Evaluation Assessment (JSEA), JSA, JHA, Task Hazard Analysis (THA), TIF, Job Loss Analysis (JLA), etc.

Hazard Identification – BPC's Expectations

It is BPC's expectation that all our contractors shall use the Hazard Identification Tool when identifying hazard associated with work to be completed.

Use this tool from the initial planning phase, to the permitting phase during the work group's pre-job onsite Risk Assessment, to the implementing phase with the individual's ongoing effort to Think Incident Free.

The Hazard Identification Tool is critical to identifying potential hazards an enables the development of actions and strategies to prevent incidents from occurring.

Isolation of Hazardous Energy; each contractor company shall have an Isolation of Hazardous Energy process in place, and the company shall train its employees in using the process per applicable regulations, laws, or policies.

Isolation of Hazardous Energy Procedures at BPC Facilities

All isolations of hazardous energy shall conform to the BPC Standard operating procedure PM068.

Work at Height (Reference BPC HSE 001 &)

The primary objective of the Work at Height Procedure is to prevent incidents and injuries cause by falling through floor and openings or by falling while working at elevations. This plan applies to both BPC and contract personnel conducting work at BPC facilities, including all locations under BPC operational control.

When Fall Protection/Arrest Equipment Is Required

Personnel shall assess the use fall protection equipment when performing any of the following:

- When working at assessed elevations of no minimum height but have a potential to cause injury, or over the unprotected edge of a work platform, floor, walkway, or floor
- When working in an area where it is possible to fall through floor and floor openings
- When working on a fixed or portable ladder
- When working on a landing or level when not surrounded by handrails
- When working on scaffolding that is not green-tagged

Note: Individual contractors may require personnel to tie off even if scaffolding is green-tagged.

Required Documentation

Before beginning work that involves the use of fall protection, personnel shall complete or verify the following:

- Permit to Work
- Fall Protection Checklist
- Rescue Plan
- Inspection forms

A rescue plan shall be developed and included in the RAMS for jobs requiring the use for fall protection equipment. Each contractor shall be able to provide verification of an annual inspection for all equipment onsite. The inspection forms may be hard copy or electronic and shall be available upon request.

Training Requirements

BPC recommended Fall Protection training for contractors is as follows:

- One-Day Fall Protection class (typically eight hours) for employees that use fall protection equipment, which includes hands-on use and demonstration of competency by the student.
- Two-Day Competent Person training for at least one person per team onsite.
- Rescue training for at least one person per team onsite.
- Verification of Contractor Fall Protection training:
  - Onsite documentation may be requested from contractors to provide verification of compliance with BPC requirements.

- If discrepancies are identified, a review of the contractor's fall protection training/training provides shall be conducted to ensure that it meets BPC's expectation/training criteria.

If observations performed during climbing activities indicate less than satisfactory performance, Stop-Work Authority may be exercise and a review of BPC expectations shall take place. If agreement to proceed is not reached, a review of the contractor's training and policy shall be initiated.

Open Hole

The primary objective of Guidelines for Guarding Openings is to prevent incidents and injuries caused by falling through floor and floor openings, or falling on open-sided floors, platforms, or runaways at elevations of no minimum height.

Opening smaller than 1 ft. x 1 ft. are not required to meet the guidelines; but it is recommended, however, that any opening that presents a potential hazard be guarded to prevent a person's foot or body from inadvertently passing through the opening.

For cases where fall protection equipment is required, see section Work at Height standard.

Requirement for Guardrails

Guardrails shall meet the requirements of SHENA IGN/2020/01. The minimum requirements of the regulations as follows:

- Minimum vertical height of 970mm to the top of the guardrail.
- A guardrail is capable of supporting a load of at least 200 pounds applied in any direction (except upward) at any point on the top rail or corresponding member.

The guardrail has a standard toe board and intermediate rail or fencing from top to bottom. Examples of fencing materials are chain link and orange safety netting.

Hot Work (Reference BPC HSE 029)

(See http://www.hse.gov.uk/sragtecj/techmeasareacls.htm for further reference)

All contractor employees working at a BPC location or under BPC's operational control shall be aware of potential operations and ignition sources that may require a permit, as well as the process required to obtain this permit.

To perform this task, contractors should work closely with BPC personnel and project planners to assure that all safeguards and procedures are in place and are allowed.

Contractors working under BPC's operational control at locations other than on BPC property are required to have a hot work program that ensures that this kind of work can be conducted safely and in compliance with local rules, regulations and requirements. All contractor employees performing hot work shall be trained in this program and able to conduct these operations safely.

Fire Prevention

Fire prevention is vital to safe operations.

Fire Watch

A fire watch is a person adequately trained, capable of, and solely designated to operate gas detection and incipient firefighting equipment during all welding and burning operations performed outside approved designated safe welding areas. The fire watch assists the inspection of the work area.

During all welding, one or more person shall be designated as a fire watch. Separate fire watches shall be stationed at each area where welding is in progress and shall have no other duties while standing watch.

Specific requirements for fire watch include:

- Before any welding, have usable fire-extinguishing equipment readily available and be trained in its use. Fire watch shall not rely on facility-mounted fire extinguishers as the primary fire extinguisher. 2 separate fire extinguishers need to be provided as part of the job planning for the fire watch to use as the primary, with the facility fire extinguishers used only if inspected before each use and have the proper inspection tag.
- Be familiar with the facility's Emergency Response Plan and procedures for sounding an alarm in the event of a fire.
- Wear proper PPE including but not limited to UV arc protection.
- Perform continuous monitoring with a portable gas detector before and during welding. Hot work is prohibited when the presence of a flammable atmosphere than 10% of the lower explosion limit (LEL) is detected.
- Remain on duty for 30 minutes after welding ends.

Ignition Sources

Contractor personnel should be aware of typical ignition sources, such as welding arc, cutting torches, electric power tools (such as drills, sanders, and grinders), dew point testers, and lighters.

Pneumatic tools that chip, gouge, grind, or drill are also ignition sources that could require the use of hot work permits.

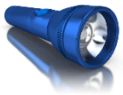
If there is any doubt whether a piece of equipment can ignite an air-natural gas mixture, contact the BPC Contract Owner for guidance.

Some specific ignition sources that are not hot work – related are described below.

Personal Electronic Devices

- Personal electronic device (phones, pagers, cameras, and computers) may require a hot work permit approved by BPC HBPC HSE Section.
- Unless cameras have been properly evaluated, they are assumed to be an ignition source (particularly those cameras with flash attachments or motor drives). Do not use them in or around explosive atmospheres.

Flashlights



- Use flashlights approved by a recognized testing laboratory, such as Underwriters Laboratories (UL), as suitable for Class I, Division 1 or Division 2 Group D hazardous (classified) locations.

Portable Communication Radios

- Use portable communication radios approved and identified by a recognized testing laboratory, such as Underwrites Laboratories as suitable for Class I, Division 1 locations.
- Contractors shall have approval to use portable radios from the Contract Owner.

Other Electronic Equipment

- Many types of electronic equipment are not intrinsically safe. When using non-intrinsically safe equipment, take the same precautions as used during welding operations and complete and obtain approval for a hot work permit. If contractors are in doubt about the equipment, they should ask the contactor's supervisor or Contract Owner for guidance.

Use of Solvents

- Do not use petrol, mineral spirits, or any other flammable liquid as a cleaning fluid. Painters are excluded from this requirement only when cleaning their paint-spraying equipment.
- Use commercial fire-safe solvents for cleaning mechanical equipment. A safe solvent is a class IIIA liquid; it has a flash point above 140^{o}F and below 200^{o}F. If in doubt about fire-safe solvents, consult the BPC HSE Section for guidance.
- Refer to the MSDS for safety precaution information and for guidelines about the proper PPE to use when handling solvents.

Electrical Safety (Reference BPC HSE 018)

Electric Safe-Work Practice

Each contractor company shall have an electrical safety awareness program in place, and the contractor company shall train its employees per applicable regulations, laws or policies. At a minimum, this training shall include the following topics. However, contractor employees required to perform work on electrical installations may need additional training and/or certificates as determined by BPC.

- Do not work on or alter electrical circuits, extension cords, tools, or any other types of electrical equipment, unless you are qualified to do so. Individuals performing electrical work shall be able to meet the competency requirements and have personal PPE and tools needed to perform a specific task.
- Be cautious when working around electrical equipment.
- Do not touch electrical equipment while standing in water, on metal floors or ladders, on damp concrete, or on other well-grounded surfaces.
- Do not operate electrical equipment when your skin surfaces are damp or when you are wearing wet shoes or damp clothing.
- Follow the appropriate Isolation of Hazardous Energy procedure when working on any electrical equipment.
- All work is to be done in a de-energized state. (except where it can only be done live with the authority of the BPC Operations & Maintenance HOD)
- Use explosion proof and non-speaking tools and extension cords where potentially explosive atmosphere exits.

Electricity – Low Voltage (Below 11,000 Volts)

The Contractor shall ensure that all work under their control is undertaken in accordance with the requirements of the 'Electricity Installation Requirements' (EIR) of Brunei Darussalam and the BPC Safety Regulations.

- Installation, modification or repairs of any electrical equipment shall only be carried out by a competent and qualified electrician, and such work shall comply with the requirements of the Electricity Installation Requirements (EIR) the BPC Safety Regulations and/or BS 7671
- All equipment is to be treated as "live" until such time as the appropriate isolation and testing confirms the equipment as de-energized.
- Electrical equipment under the Contractor's control shall be subject to a program of tests and inspections as regular intervals.
- Where practical, battery powered or low voltage tools should be used, and all tools be powered from a supply protected with a residual-current detecting circuit breaker.

Electricity – Medium and High Voltage (11,000 Volts and above)

- All activities to be carried out on Medium Voltage (MV) and High Voltage (HV) apparatus require additional training covered by the BPC Safety Rules and System Operating Regulations.
- Regulations for work on MV and HV mains and apparatus cover areas of safety such as Switching, Isolation, Testing, and Earthing (S.I.T.E) and require a separate safety induction training and specific experience of the contractor to undertake such work.
- All work carried out on or near normally energize MV or HV apparatus require a "Permit to Work" to ensure the Contractor's safety. This Permit is issued in coordination with the SCADA department and the Authorised Person issuing the Permit.
- Where Contractors are required to work within the vicinity of any electrical equipment, including overhead and underground power cables, the Contractor shall ensure that all necessary precautions to avoid accidental contact with the live conductors have been taken.
- Refer to the BPC Training and HSE sections for proper training related to work on MV and HV apparatus.

Electrical Fuses

- Testing for the absence of voltage is an essential part of establishing an electrically safe work condition, and requires employees demonstrate the ability to use voltage detectors.
- De-energize circuits by using Isolation of Hazardous Energy procedures before replacing fuses.
- Do not bridge fuses or circumvent the normal operation of circuit breakers.
- Do not replace blown fuses with fuses having higher amperage or lower voltage rating. To maintain proper circuit protection, only qualified workers shall replace blown fuses.

Extension Cords

- Use extension cords only in temporary situations. Use proper construction methods to create permanent electrical connections where more than temporary needs exist.
- RCDs on all cord-connected electric power tools and other cord-connected devices are required. These whip cords (not more than 2 feet in length) should be plugged directly into the premise receptacle if non-explosion proof.
- Where premises wiring connections originate at an explosion proof receptacle, an explosion proof adapter cord (not more than 2 feet) should be used, power extended to the work site using suitable extension cord, with an RCD whip cord connected for equipment connections at the hazardous area.
- Always test RCDs immediately before use to ensure proper working order.

- Protect cords against contact with oil, welding hoses, chemicals, and hot surfaces.
- Do not hang cord over nails or sharp edges.
- Do not place them where vehicles may run over them.
- Always connect the non-explosion proof connection first and disconnect it last when using adapter cords, such as pigtails.

- Inspect all extension cords before use. Address the following items during the inspection and take appropriate action to use the extension cord:
  - Use extension cords in classified areas that are designed for explosion proof service.
  - Do not connect multiple cords to extend the length.
  - Discard cords found with abrasions, cuts, or repairs covered with electrical tape.
  - Make and break all connections under zero energy state.
  - Tape connections with electrical tape when connecting electrical tools and whips for shock protection.
  - Do not place cords in walkways or areas that impose a tripping hazard.

Static Electricity

- Electricity bond equipment, plant and trucks to loading and unloading lines before connecting hoses and opening hatch covers.
- Bond nozzles to the vessel first if using steam or water to clean oil storage tanks and separators.
- Use antistatic sandblasting hoses, or electrically bond the nozzle to the vessel being blasted.
- Do not use plastic buckets to collect hydrocarbons. A metal bucket with a metal handle is acceptable, as long as the handle does not have a plastic or wood grip. Plastic or wood grips event buckets from bonding to the valve or other metals parts, and the static charges generated cannot dissipate.
- Onshore – bury rod 8-feet deep to ground it.

Confined Space (Reference BPC HSE 020)

Refer to SHENA IGN/2019/03 Guidance for Confined Space.

Confined space is defined as a space that:

- Confined space is a place which is substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen).
- Is large enough and so configured so that an employee can enter the space and perform the assigned work.
- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults and pits).
- Is not designed for continuous employee occupancy.

To clarify; a confined space is a space that has one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere
- Contains a material that has the potential to engulf and entrant
- Has an internal configuration where an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a small cross section.
- Contains any other recognized serious safety or health hazard.

Each contractor company shall have Confined Space Entry program in place, and the contractor company shall train its employee to use the process per applicable regulations, laws or policies. At a minimum, this training shall be recognized and accepted training course to include the ability to recognize a confined space and an awareness of the requirements for entering.

Work in a confined space is allowed only after the appropriate permits are obtained and training is completed.

When a contractor enters a confined space, both BPC Contract Owner and the contractor have responsibilities as outlined in the following section.

These regulations contain the following key duties:

- Avoid entry confined spaces, e.g. by doing the work from the outside;
- If entry to a confined space is unavoidable, follow a safe system or work; and
- Put it place adequate emergency arrangements before the work is started.

SHENA IGN/2019/03-Guidance to Confined Space

Other legislation may apply, depending on where the confined space is situated or on the task being carried out, for example:

- Workplace Safety and Health Order 2009
- IGN-2020-03 Guidance to Permit to Work
- IGN2020/04 Guidance to Risk Management
- Workplace Safety and Health Order (Construction Regulations)

BPC Responsibilities

BPC has these responsibilities when someone enters a confined space:

- Assign a BPC onsite representative to provide oversight during the entry. This person shall be qualified to oversee work in confined spaces either through training or experience.
- The operator shall review and sign the Confined Space Permit before work begins.
- Take effective measures to prevent entry by unauthorized personnel. If inspection or work verification requires entry by BPC personnel, each person entering shall be trained as an authorized entrant.
- Make visitors aware of confined space activities.
- When personnel perform work that involves confined-space entry:
  - Select a qualified contractor to perform entry work.
  - Using the Permit to Work process, obtain approval for a plan for isolating, cleaning, and entering the confined space.
  - Using the proper procedures, to isolate, lock, and block all potential sources of energy and contamination.
  - Empty or drain the confined space of liquids and gases that are flammable or toxic.

- Turn the confined space over to qualified contactors to perform assigned work.
- Inform the Contractor of the elements associated with the hazards that make the space a permit space. Provide copies of all MSDS associated with the prior contents.
- Inform the contractor of any precautions or procedures (such as Isolation of hazardous energy sources) that BPC has implemented for the protection of employees in or near confined spaces where contractor personnel shall be working.
- Coordinate entry operations between BPC and contractor personnel when BPC personnel shall be working near confined spaces.
- Appoint the prime contractor to govern and coordinate entry operations when more than one contractor is participating in entry operations.
- Debrief the contractor at the conclusion of the entry operations. In brief narrative form, identify all hazards confronted during entry operations. Send a copy of the permit and narrative to the Contract Owner.

Contractor Responsibilities

All qualified contractors who perform confined space entry operations shall:

- Obtain information regarding confined space hazards and entry operations from BPC.
- Coordinate entry operations with BPC
- Provide the BPC location with a copy of the confined space program that the contractor shall follow and maintain a copy at the work location for the duration of the job. Program shall meet or exceed the program outlined here and shall identify the entry permit that shall be used by the contractor.
- Initially monitor and then continue to monitor the confined space in accordance with the procedures established in Evaluating Permit-Space Conditions (a written record of atmospheric tests).
- Participate in the debriefing at the conclusion of the entry operations to communicate any hazards confronted during entry operations.
- Provide BPC with a copy of the completed entry permit and include any debriefing notes. A copy should be kept by the Contract Owner for 3 months.

Excavation (Reference BPC HSE 021) WSHO (Construction Regulations)2014; Part XI

An excavation is any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal. When BPC personnel and a contractor enter a permit-required space, each has responsibilities as outlined below.

Requirements;

- Carry out a RAMS for the operation.
- Identify and mitigate hazards associated with excavations before work begins.
- Complete the steps necessary to properly and safety prepare the job site and equipment for the start of work.

- Protect personnel who enter excavations by using support (e.g., shoring, bracing, sloping, benching, and shields). Design and construct the excavation support system using competent, trained persons.
- Train personnel performing work for competence in the roles for which they are responsible.
- Inspect excavation shoring or bracing systems daily and after a rainstorm, earthquake, or other hazard-increasing occurrence.
- Cease all work in the excavation until necessary precautions have been taken to safeguard personnel.

Roles and Responsibilities

- Competent person
- Registered professional engineer
- Person entering excavation
- Operator of powered excavating equipment
- Qualified gas tester

A single individual may fulfill more than one role as long as he or she meets the training and knowledge requirements, and is able to fully meet multiple responsibilities.

Competent Person

Has received additional third-party training and has been qualified as an excavation competent person.

Is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees and has authorization to take prompt corrective measures to eliminate them.

Critical Components

- Pre-Job Planning and Hazard Analysis (RAMS)
  - The scope of the job and the hazards that can be encountered shall dictate the amount of planning that is required.
- Collect Site Date
  - Soil analysis is important to determine appropriate sloping, benching, and shoring.
  - Utilities and Pre-Work Site Inspection
- Permit to Work Site Inspection
  - Before excavation, the work team leader shall thoroughly inspect the site to determine if special safety measures shall be taken.
  - Underground utilities such as sewers, telephone, fuel, electric, water lines, or any other underground installations that may be encountered during excavation work shall be located and marked, and proper notifications made, before excavation with powered equipment begins – A Permit to Work and Excavation Permit are required for any excavation work and before breaking the surface. Additional permits may also be required depending on the nature of the work (i.e., hot work, confined space entry, electrical).

- Inspections – A competent person shall conduct inspections before the start of each shift or when conditions change.

Modes of Failure

- All excavation, no matter what depth, may be hazardous. Personnel involved shall recognize modes of failure and understand Soil Type A (most stable)-B-C.
- Excavations greater than or equal to 5 feet deep are particularly hazardous and shall be shored unless:
  - The face is cut back to a safe slope and the material in the face shall remain stable under anticipated conditions of work and weather; or
  - Shoring is impracticable or unreasonable, and a civil engineer or other qualified professional has certified that adequate safety precautions have been taken; or
  - No one shall be entering the excavation
- Excavations shallower than 5 feet have been known to collapse. Provide protection of personnel in excavations lower than 5 feet where hazardous ground movement may be expected.
- Control exposure to vehicular traffic.
- Erect barriers to prevent unauthorized people from entering the excavation area or accidentally falling into the excavation.
- Locate the exact position of the services precisely by hand digging or probing with a blunt object.
- A civil engineer or other qualified professional shall review excavation in close proximity to buildings, roads, retaining walls and other structures before the excavation is stared to determine the appropriate controls to address the risk of cave-in.
- Control surface water and run off drains.

Excavation Permits

- The BPC Excavation Permit shall be completed for all excavations and trenches where equipment is used and soil removed to a depth greater than 12 inches.
- All excavations where employees are to enter are to be assessed where it may be evaluated as a confined space.
- Note: The Competent Person (CP) listed at the bottom of the form can be either a BPC CP or a contractor CP.

Leadership Expectations

- Implement this standard at all facilities.
- Ensure contractors involved in excavation understand and follow this standard when they are under BPC's operational control.

13. Lifting and Rigging Safety (Reference BPC HSE 002)

The following requirements apply all contract companies operating cranes under BPC's operational control. Some sections contain information specific to cranes on BPC facilities. These requirements do not apply to contractor cranes not on BPC facilities.

Note: The use of site-modified or non-certified lifting and hoisting equipment is prohibited. Field modified or non-certified lifting equipment shall be removed from service immediately and reported to your Contract Owner. Speak with your supervisor if you have any questions.

Training

All contractor employees who perform rigging or operation of cranes on BPC property shall have current documentation verifying successful completion of Qualified Crane Operator/Rigger training in accordance with accepted international standards.

Heavy Lifts/Hazardous Lift (BPC HSE 002)

Evaluate all lift paths to minimize exposure where possible. Review the load chart before the lift to determine if heavy lift inspection is required.

All sling tags shall reference the rated capacity of a Horizontal sling angle minimum of 45 degrees.

Note: The optimum angle for rigging practices is zero (maximum load) to 60 degrees.

- Hazardous lift – At a minimum, hazardous lifts are defined as any lifts made over unprotected pressurized equipment where the consequence of a dropped load could result in significant damage or injury to personnel. Additional consideration should be given to non-routine lifts of hazardous materials (acids, flammable liquids, pressurized equipment, etc.)
- Heavy lift - A non-routine lift is equal to or greater than 75% of the rated capacity per the load chart, at the anticipated minimum boom angle/maximum radius of the lift, at either a dynamic or static condition.

Weather

All contractors operating cranes under BPC's operational control are required to define environmental operating parameters for crane operation. These parameters shall reflect the limitations of the crane(s) used and the requirements of the contract company's crane program.

For contract company cranes of BPC facilities, the following environmental parameters have been established:

- Crane operations shall be stopped under these conditions:
  - Winds meet or exceed the crane manufactures' recommendations. All crane operations, static and dynamic.

- Lightning is in the vicinity. All crane operations, static and dynamic.

Crane Repairs and Alterations

- Take the crane out of service or restrict its operations to eliminate the unsafe condition if adjustments or repairs to the crane are necessary or any deficiencies that impair safe operation are known.
- Perform repairs to critical components in accordance with OEM requirements.
- A qualified crane inspector shall approve/authorized a crane taken out of service for repair of critical components before it can go back into service.
- If a crane is taken out of service, place an Out of Service sign over the primary controls (should be isolated using local Isolation of Hazardous Energy procedures). If a crane has been out of service for more than 12 months, perform and annual inspection before the crane is placed back into service.

Sling Certification

Do not use the sling if the identification tag is missing. Render the sling unusable and dispose of it if a replacement tag cannot be obtained.

All wire rope slings and nylon slings shall contain identification tags consistent with the following required information:

- Diameter and length
- Pertinent working and load limits
- Name of manufacturer
- Proof of test certification number and date
- A valid color code identification to indicate that an annual sling inspection has been conducted.

Sling Inspections

Pre-Use Inspection

A qualified rigger shall visually inspect all slings before each lift operation. This inspection should include visual examination for kinking, crushing, bird-caging, or any other damage to the wire rope or end attachments. For synthetic web slings, inspection should include holes, tears, cuts, embedded particle, and broken or worn stitching. Additionally, the qualified rigger shall verify that all slings have proper certification tags.

No foreign substance, including spray paints, marker ink, lubricants, or protective coatings shall be applied to synthetic straps and slings, unless specifically approved by the manufacturer.

If a foreign substance is found on nylon slings and straps, a qualified person should evaluate the sling or strap to determine suitability for its intended use. Render unusable any sling or strap found unfit for intended use, and properly dispose of it.

Annual Inspection

The annual inspection of third-party slings is the responsibility of the vendors providing the slings. Render inoperable all slings taken out of service, and properly dispose of them.

Annual Sling Inspection and Color Identification

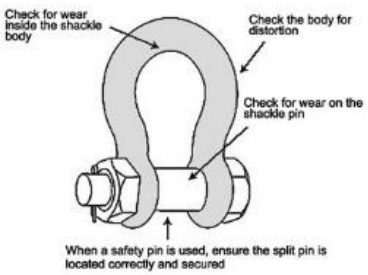
- For wire rope slings, during the annual inspection, paint all sling sleeves in acceptable condition (crimps only) with the appropriate color code for that year. Refer to the Color Code table.
- Nylon (web) slings shall be inspected on an annual basis, less if instructed by the competent person. (12 months from "born on" date). Slings shall be marked with "born on" date, the sling's certification number, and the color code for the year that the sling is purchased. All qualified riggers are trained to perform the annual sling inspections
- Slings that fail the annual inspection are removed from service and are destroyed and discarded (rendered unusable).
- All qualified crane operators and riggers are trained to conduct pre-use inspections to identify damaged or defective rigging as per national standards.
- All crane operators, riggers, and associated individuals that are using slings can remove any questionable slings from service.
- All crane operators, riggers, and personnel monitor slings during their pre-use inspection to ensure that each sling has the current color code

Sling storage

Do not store slings on the ground. Store and maintain slings in a well-ventilated building or shed to minimize corrosion. Store nylon slings in a way that provides UV protection.

Never use the guardrail or handrail as an anchor point for lifting or supporting a load (i.e., sling storage), or as an anchor point for fall protection gear.

Rigging Hardware – Maintenance and Inspection Shackles



Before making a lift, visually inspect shackles used in lifting:

- Check the pin for straightness and complete seating.
- Look for cracks, deformities, and evidence of heat damage or alterations.
- Check the distance between eyes for signs of opening up.
- Check eyes for roundness and twisting.
- Discard unsuitable shackles. Also, discard those shackles that do not clearly show the rated capacity.

Eyebolts

- Carefully inspect eyebolts before each lift. Check them for wear or damage, cracks, bending, elongation or other deformities, and damaged or dirty threads; also check the receiving holes. Look for evidence of grinding, cutting, machining, or other alterations.
- Remove from service and discard any unsuitable eyes bolts exhibiting any of the above conditions.

Hooks

- Visually inspect hooks for cracks, corrosion, bending, twisting wear, general damage, and missing or corroded pins and bolts.
- Make sure that all hooks, except sorting and choker hooks have functioning latches.
- Verify that there is no paint on the hook.

Pad Eyes

- Flame-cut pad eyes are prohibited in operations under BPC's operational control, unless followed by machining away at least 1/8 inch from the material after burning. All pad eyes shall be of an engineering design suitable for the intended load and service.
- Visually inspect pad eyes before making a lift by checking them for evidence of bending, crushing, bulges, burrs, or other deformities. They should also be inspected for cracks, excessive rust, wrinkled paint, and indications that the pad eye has been modified.
- Make sure that all pad eyes are smooth in the direction of the lift to prevent point-load stress failures during lift operations. Replace the pad eyes if they exhibit any of these conditions.
- Drill, ream, punch, or cut holes in pad eyes fabricated in the shop or fabrication yard with a mechanically guided torch at right angles to the surface of the metal to ensure a smooth surface in the direction of the lift.
- Punching shall not be used on plate more than ½ inch-thick; other methods may be used, if they are approved by BPC Engineering personnel.
- If the pad eye design includes addition of cheek plates, all holes shall be fabricated after the cheek plates are completely welded in place. Holes shall be cleanly cut and shall not have torn or ragged edges. All holes shall be made before surface preparation and painting.

On site construction of pad eyes is discouraged. However, if this becomes necessary, the pad eyes shall:

- Be properly designed and approved by a qualified engineer.
- Be properly installed by a qualified/certified welder.
- Have smooth bearing surfaces in the directions of the lift ground.
- Pass inspection by the appropriate and/or nondestructive testing techniques (ultrasonic, x-ray, or magnetic particle examination).

Delivering and/or Handling of Loads at BPC Facilities

To assure safe operations at our facilities, the following guidelines for contractors operating cranes or delivering material and cargo to BPC facilities shall be enforced.

- BPC personnel shall examine loads and refuse to attach or lift any load they judge to be unsafe.
- The contractor shall be asked to correct situations when their company is involved in improper crane operations or rigging practices. Improperly prepared loads ~~cargo~~ may be returned to the contracting company at the contracting company's expense.
- All lifting equipment and containers shall be in good condition and capable of handling intended loads.
- Do not use chains as slings.
- Do not cut or weld lifting equipment.
- Use bolt-type safety shackles (with cotter pin or keeper ring) for permanent rigging. Only shackles with the manufacturer's name or logo and the load-bearing capacity embossed in raise letters on the shackle body are permitted.
- Do not alter lifting equipment, such as shackles, hooks, or pad eyes, by welding or cutting.
- Use only stainless and forged alloy shackles.
- Verify that all hooks, including choker hooks and sorting hooks have functional safety latched and that the latch is completely closed when in use.
- Use steel thimbles on all wire rope sling eyes.
- Upon request, the operator shall be able to provide documentation certifying that the ~~cargo~~ containers and skids are of an engineered design capable of withstanding the stated maximum loads.
- Attach slings to loads with shackles, rather than hooks, except in these circumstances:

A stringer is attached directly to a load for a one-point lift.

- Adjustable choker slings are used.
- Only use synthetic web slings and adjustable sliding choker slings for choker configurations.
- Use bolt-type safety shackles (with cotter pin or keeper ring) for permanent rigging.
- Do no shorten or alter a sling by knotting, clipping, or other means.
- Inspect and verify that the slings have certification tags.
- Do not externally cover slings with any material that would prevent visual inspection. For example, do not cover wire rope slings with a rubber hose.
- Place loose items, such as drums, sacks, valves, and buckets in appropriate containers to make loading and offloading more safe and efficient at facilities.
- Truck drivers are required to use personal protective equipment in accordance with BPC PPE requirements
- The freight company shall furnish fastening equipment for securing loads on motor vehicles on BPC property.
- Contractors should direct any questions about these guidelines to their appropriate Transportation or Operations supervisor.

Tag Lines

All lifts shall have tag lines(s).

The tag line should extend between 15 to 20 feet from the load. The line shall be attached to the load.

- For large loads, two tag lines are recommended with one placed at each end of the load.
- When using a tag line to direct a load into place, be aware that the load can swing into other objects when you apply too much force in the wrong direction at the wrong time. Pull easily until the load turns, and then direct it into place by using only enough force to get it there.
- Special lifting configurations may require longer tag lines.
- Tag lines shall be free of any knots, splices, or loops.
- There are additional risks to be aware of when using tag line, which include, but are not limited to:

  The possibility of injuries from falling objects as a result of personnel handling cargo working in closer proximity to loads.
  There are potential injuries resulting from personnel handling loads:

  Being dragged if a heavy load rotates in an uncontrolled manner.
  The tag line could be fouled in limbs or clothing.

  There are potential injuries resulting from tag lines secured to adjacent fixed structures, parting due to a heavy load, and snapping in an uncontrolled manner.

When using tag lines, observe the following:

- Tag lines are an aid in positioning the load.
- Keep all sections of the line, including slack, in front of the body, between the people handling the tag line and the load.
- Hold tag lines where they can be quickly released. Do not wrap tag lines around the hands, wrists, or any other part of the body.
- When wearing gloves, take care that the tag line does not foul the glove.
- Do not secure or attach tag lines to any structure, equipment, handrails, stanchions, cleats or any other items.
- Where tag line has already been installed on the load, consider using a hook to retrieve the tag line to avoid being to or under the load.

Overhead Hoists

- Any BPC or contractor personnel who operate an overhead hoist under BPC's operational control shall be a qualified rigger.
- Maintain a file at each site for all overhead hoists installed in that field.

- This file contains copies of the pre-use inspections forms, annual inspection forms, and all maintenance and repair documentation. These records shall be retained for a period of four years for BPC facilities.
- A qualified rigger shall perform and document a pre-use inspection on the Overhead Hoist Pre-Use Inspection Form before operating BPC-owned overhead hoists. Pre-use inspections are required once per day when a hoist is operated.

Requirements for Contractor Cranes at BPC Facilities

Weight Indicators

If weight indicators are installed, they shall be maintained in operational condition, or they shall be removed. All components of the weight indicator (e.g. hoses, cells) shall be removed from the crane when the indicator gauge is removed. If needed, weight indicators can be temporarily installed for periods of high crane usage.

When a dynamometer is used to determine weight, the dynamometer serial number and load weight shall be recorded on the shipping manifest. For loads sent from field locations to the BPC locations, the load weights shall be verified with the BPC location cranes. Any significant deviations from the shipping manifest shall be communicated to the Operations Supervisor.

The calibration frequency for dynamometers should follow the manufacturers' recommendations (typically annually).

Unattended Loads

If leaving the lifting Operation unattended for a prolonged period, the crane operator shall follow these steps:

1. Land any attached load.
2. Disengage the master clutch where applicable.
3. Set all locking devices.
4. Put controls in the off or neutral position.
5. Stop the prime mover.

Bypass of Safety Devices

The Bypass of safety devices during pre-use inspections is acceptable. However, bypassing the boom kick-out, anti-two blocking, or other limiting device on a crane for reasons other than inspections shall not be allowed, unless authorized and properly tagged and documented.

A tag listing the date and name of the authorizing person shall be attached to the crane whenever a bypass is authorized. This information shall also be documented in the crane logbook. The tag shall be in plain view of the crane operator. In addition, a written RAMS is required before performing the lift.

Communication

- Discuss with the lift team (the qualified crane operator, qualified rigger(s) the circumstances of the lift before making the lift.
- The qualified crane operator shall obtain all pertinent information contained on the shipping manifest before lifting begins.
- The qualified crane operator is responsible for the safe operation of the crane and has the authority to refuse to make any lift.

Radio Communication

Lift team members may use radios and hand signals to communicate during the lift operation. If radio communication is not available for key members of the team, the RAMS shall note it as additional hazard/limitations.

Pre-Lift Checklist and RAMS

The lift team should prepare a written RAMS before beginning a lift operation. In certain cases, a specific written RAMS is required (e.g., heavy lifts, complex lifts)

Use a Crane Pre-Lift Checklist and the Normal Crane Operations RAMS in lifting operations.

The checklist/crane operations RAMS are tools containing a bulleted list of key safety checkpoints and hazard mitigation controls for crane operation. Before beginning the lift operation, all members of the lift team shall have access to a copy of this checklist and verbally review each bullet to ensure all safety requirements have been met.

Lift Team Responsibilities

The lift team consists of all key personnel involved in the planning and execution of lift operations. The team typically includes a qualified crane operator, one or more qualified riggers, and the lift supervisor. Depending on the scope of the lift operations, the lift team may also include the BPC representatives(s).

Key responsibilities of the lift team are outlined in the following list. The specific responsibilities of key lift team members are provided in later sections of this handbook.

Pre-operation

The lift team has these responsibilities before beginning the operations:

- Conduct a pre-lift meeting to review the scope of work and the execution plan.
- Review the Crane Pre-Lift Checklist with all members of the lift team.
- Prepare a lift specific written RAMS for all heavy lifts and non-routine lifts (outside the Normal Lifting Operations RAMS).
- Evaluate life operations to determine if additional qualified riggers are needed to assist in loading or offloading operations.
- Ensure that clear method of communications is established.

- Assess site conditions to ensure that the lift operations can be conducted safely, taking care to include wind speed and direction, weather, position offload, and adequate lighting.
- Review the lift path and the weight of the loads to determine if specific simultaneous operations procedures are required to protect equipment from falling loads.

During Operation

The lift team has these responsibilities during the operation:

- Maintain constant communication between all lift team members.
- Stop work and conduct another pre-lift meeting if site conditions change or if the lift operations change from the original plan.
- Complete a Crane Pre-Lift Checklist and update RAMS, as required, before continuing with the lift.

Crane Operator Responsibilities

A qualified crane operator shall be requalified every four years, at a minimum. A qualified crane operator shall also meet the requirements of a qualified rigger.

Pre-operation

Before the operation, the crane operator has these responsibilities:

- Participate in the pre-lift meeting as discussed in the Lift Team Responsibilities.
- Conduct a pre-use inspection before beginning crane operations.
- Ensure that heavy lift inspections were completed within 21 days of making a heavy lift.
- Verify that all personnel involved in executing the lift operation, such as the crane operator and rigger, have the proper qualifications.
- Designate a qualified rigger as a signal person to relay signals any time the qualified crane operator is unable to see a load.
- Ensure that only qualified riggers and essential personnel are allowed in the work area during lift operations
- Verify load weights by load markings and shipping manifest documentation.
- Verify that the appropriate load-rating chart is in place and that the rigging is properly configured to accommodate the planned loads.
- Ensure that the proper rigging equipment is selected and inspected by a qualified rigger before the lift take place.

During Operation

During the operation, the crane operator has these responsibilities:

- Assume ultimate responsibility for safe operation of the crane.
- Do not start machine movement unless the load or signal person is within range of vision. Appropriate signals (audible or visual) shall be given.

- Respond to signals only form the appointed signal person and respond to emergency stop signals from anyone at the time.
- Make sure that you do not exceed the crane capacity, shown in the load chart, during crane operations.
- Ensure that you do not exceed the crane capacity, show in the load chart, during crane operations.
- Ensure there is sufficient lighting for safe operation when cranes are operated at night. The load and landing area shall be illuminated.
- Wear proper work clothes and personal protective equipment in accordance with BPC PPE requirements.
- Stop any lift operation that is deemed unsafe (exercise Stop-Work Authority)
- Re-evaluate crane operations during bad weather or when the ability to communicate with the signal person is impaired.

Post-Operation

After the operation, the crane operator has these responsibilities:

- Ensure that the crane is properly secured and controls are turned off or in the neutral (for hydraulic cranes) position before leaving the crane.
- Do not leave an unattended crane with a load in the air. Always lower the load to the ground before leaving the crane.

Rigger Responsibilities

All BPC or contract personnel, participating in rigging operations on BPC facilities shall be qualified riggers. The riggers shall provide documentation indicating that they have successfully completed a rigger training course that meets internationally accepted standards. Rigging operations include, at a minimum, attaching and detaching lifting equipment to loads and providing signals to crane operators. Communication among lift team members is one of the team's most important responsibilities.

Pre-Operation

Before the operation, the rigger has these responsibilities:

- Participate in the pre-lift meeting as discussed in section Lift Team Responsibilities.
- Ensure that only qualified riggers and essential personnel are allowed in the work area during lift operations.
- Verify load weights by load markings and shipping manifest documentation.
- Select the proper rigging equipment and ~~cargo~~ container for the lift.
- Make sure that the safe working loads of the equipment and tackle are never exceeded.
- Inspect all hardware, equipment, tackle, and slings before use. Destroy or render unusable any defective components.
- Verify that all slings have proper certification tags. If the identification tag is missing, do not use the sling. If a replacement tag cannot be obtained, notify the BPC representative.

- Inspect all loads or ~~cargo~~ containers, including permanent slings or tackle. Evaluate load stability and potential for spill or release of fluids.
- Ensure that a designated signal person is identified and that the team agrees upon a communication method.

During Operation

During the operation, the rigger has these responsibilities.

- Assume responsibility for the safety of all personnel around the crane and crane operating area, including the riggers personal safety.
- Act as a signal person, when designated, during the lift operation.
- Look for potentially unsafe situations and warn the crane operator and others in the crane operations and crane operating area.
- Do not stand between the load and another stationary object or boat railing (pinch zone). The rigger should be facing the crane at a safe distance and never stand directly beneath the load.
- Wear proper work clothes and personal protective equipment in accordance with BPC PPE requirements.
- Stop any lift operation deemed as unsafe (exercise Stop-Work Authority).

Post-Operation

After the operation, the rigger has these responsibilities:

- Properly secure loads, using the equipment furnished by the company.
- Properly store and maintain rigging equipment and tackle.

Pre-Use Inspection

The pre-use inspection shall be performed and documented before the crane is used. The inspection is typically performed on a daily basis. An inspection is also performed during extended operations whenever the qualified crane operator deems it necessary.

This documentation should be maintained in the vicinity of the crane. A qualified crane operator performs this inspection. The inspection applies to all cranes, regardless of usage category. If the qualified crane operator deemed it necessary.

The pre-use inspection also includes rigging gear, such as:

- Slings
- Drum racks
- Trash baskets
- Tool boxes
- Gas Cylinder racks
- Hazard material bins

- Portable tanks
- Shackles, hooks and any attachments.

As a minimum requirement, each crane (excluding out-of-service cranes) shall be operated once a month. This includes the operation of all crane functions and the testing of each safety device (one completed pre-use inspection). The crane operation requirement helps extend component life and, because of regular lubrication, helps prevent sticking of other components.

14. Mobile Telephones, Cameras and Social Media Use.

It has been identified that the use of mobile phones/cameras is now one of the main contributing factors to accidents at the worksite and also unsolicited negative comments in regards to business practices.

Therefore, at any BPC worksite only authorized persons can use mobile phones and cameras.

Where an agreed contractor's person requires using a mobile phone or camera then a helmet identification sticker shall be provided by BPC HSE Department.

The use of social media shall be strictly controlled in regards to BPC facilities and worksites.

No contractor employee shall take any picture on site unless authorized to do so.

Any pictures that are taken on BPC property or controlled tasks shall not be uploaded to any social media site without the permission of BPC Management.

The posting of certain pictures could infringe certain legal rites of BPC, our customers, vendors or partners including the disclosure of intellectual property rights, copyrights & trademarks.

The taking and posting of social pictures is also prohibited as this could show BPC in an unjustified position, where pictures are taken out of context.

15. BPC HSE Procedures Index

(All documents are available on request from the BPC HSE Department)

- HSE 001 Working at Height
- HSE 002 Lifting Operations and Lifting Equipment
- HSE 003 Control of Hazardous Substances
- HSE 004 Personal Protective Equipment (PPE)
- HSE 005 Inductions Staff/Contactors/Visitors
- HSE 006 Reporting of Accidents, Incidents and Near Misses
- HSE 007 Health, Safety and Environmental Essentials
- HSE 008 Risk Assessments and Method Statements (RAMS)
- HSE 009 Site Safety Inspections
- HSE 010 Office Safety
- HSE 011 Fork Lift Trucks
- HSE 012 Control of HSE Documents
- HSE 013 Noise at Work
- HSE 014 Manual Handling
- HSE 015 Occupational Health
- HSE 016 Abrasive Wheels (Fixed and Portable)
- HSE 017 Driving Vehicles for Work
- HSE 018 General Electricity Safety
- HSE 019 Machinery and Work Equipment
- HSE 020 Confined Spaces
- HSE 021 Excavations
- HSE 022 Garden Maintenance and Tree Cutting
- HSE 023 Confined Spaces and Excavations
- HSE 024 Emergency Responses
- HSE 025 First Aid
- HSE 026 Gas Cylinders
- HSE 027 H2S
- HSE 028 Non-Compliance Reports
- HSE 029 Hot Work
- HSE 030 Mobile Elevated Work Platforms
- HSE 031 HSE Contract Owner
- HSE 032 Emergency Response to WHRU Fire
- HSE 033 Response to Fire and Alarms at Oregen
- HSE 034 Oregen Emergency Response
- HSE 035 Oregen Plant Process Safety Management
- HSE 036 Hazards and working with Cyclopentane
- HSE 037 Management of Operational Change and Project Management Change
- HSE 038 Use of Lorry Mounted Cranes (HIAB)

- HSE 039 Contractor Contractual Responsibility for HSE Compliance
- HSE 040 BPC DES Checklist Agreement
- HSE 041 Cable and Services Detection
- HSE 042 Use of Electrical and Electronic Devices in Oregen & Hazardous Areas
- HSE 043 Mandatory Equipment Inspections
- HSE 044 Person in Charge
- HSE 045 Physical Security at Company Locations
- HSE 046 Access Procedures at BPC Locations
- HSE 047 Signs and Barriers
- HSE 048 To Be Assigned
- HSE 049 Risk Assessment Tracking

This list is not definitive and is liable to be expanded. It is the Contractor's responsibility to ensure that they have the correct up to date information.

Confirmation of Acceptance of

BPC Contractors Handbook

Please complete the following acknowledgement of having received the BPC Contractor Handbook.

I, the undersigned, understand the information contained within this handbook and agree to abide by the rules and conditions as applicable to the work that is to be undertaken by me and any other persons under my control, on behalf of Berakas Power Company.

Company : _____

Name : _____

Signed : _____

Position : _____

Date : _____