

## Arc Technical Specification

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### Title

### Construction of Transit Centre in Nimroz Province, Afghanistan

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# 1 Safety Plan

## 1-1. Introduction

### 1-1-1. Purpose and Policy

This Safety Plan (SP) has been developed to comply with the regulations under Occupational Safety and Health, Hazardous Waste Operations and Emergency Response. It addresses foreseeable activities associated with the site work activities to be conducted at construction of Transit Center in Zarang City, Nimroz province establishes personnel protection standards and mandatory safety practices and procedures. Additionally, it assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise while operations are being conducted at known or suspected hazardous waste sites.

Safety personnel involved with inspection of site work activities during the proposed development shall comply with the requirements of this SP. All safety personnel engaged in onsite activities will read this document carefully and complete the Safety Briefing Form (Attachment A), a copy of which will be provided to the Project files. Contractors and subcontractors conducting construction-related activities are solely responsible for their own workers Health and Safety and providing a safe working environment and local requirements. Contractor will have a designated Site Health and Safety Coordinator who will be responsible for ensuring that the designated procedures are implemented in the field. Personnel who have any questions or concerns regarding implementation of this plan are encouraged to request clarification from the Safety Manager. Field personnel must follow the designated health and safety procedures, be alert to the hazards associated with working close to vehicles and equipment, and use common sense and exercise reasonable caution at all times.

The level of protection and the procedures specified in this SP represent the minimum health and safety requirements to be observed by site personnel engaged in the referenced inspection of construction related activities. Unknown conditions may exist, and known conditions may change. Should an employee find himself or herself in a potentially hazardous situation, the employee will immediately discontinue the hazardous procedures(s) and either personally effect appropriate preventative or corrective measures, or immediately notify the Site Supervisor or Project Manager of the nature of the hazard. In the event of an immediately dangerous or life-threatening situation, the employee always has "stop work" authority. Any necessary revision to the Health and Safety procedures will be recorded in the Field Procedure Change Authorization Form (Attachment B), and will require authorization from Health and Safety Officer and Project Manager.

### 1.1.2 Site Description

The subject project is located in Zarang City Border, in Iran neighborhood In Nimroz.

Work will be performed in accordance with the rules and regulations of the local governing bodies.

### 1.1.3 Scope of Work

The site work activities which will require the oversight by a safety Engineer include the following scope and will include but not limited to the completion of:

- Excavation and off-site disposal of soil generated during construction as part of the proposed building foundation;
- Applying one layer of at least 10cm PCC M10 for the foundation
- Reinforcement work of the footings, Columns and Slab needed shoring safety during all its procedure of work conduction.
- Metal Shuttering of the footings.
- Casting RCC M21 for the footings.
- Casting RCC M21 for the Columns.
- Brick work for partition wall, stair case and Perimeter wall
- Filling with compaction of floor of the building, with max. Layers of not more than 15cm.
- Casting PCC M10 over last layer of compacted soil, and reshaping under wall foundations.
- Shuttering work of the columns.
- Casting concrete M21 for the columns.
- Cement: sand plastering 1:3 for both sides of interior and exterior walls.
- Scaffoldings are required to be installed for Brick masonry work and plastering.
- Installation of PVC doors and windows.
- Mechanical works, including installation of water cooler and exhaust fan canals.
- Electrical works, including wiring, earth well construction.
- Plumbing works.
- Tile works for the walls of kitchen, wash & bathrooms, and dining room.
- Ceramic works of the floors.
- Installation of equipment and taps for the bathrooms, Wash. And Kitchen.
- Skirting tile works.
- Installation of acoustical ceiling.
- Installation of electrical hardware, switches, sockets, lamps, ceiling fans, joint boxes, distribution panels etc.
- Construction ramps and stairs and filling works with compaction.
- PCC M15 for the sidewalks.
- Marble stone works for the stairs.

- Mosaic works for the ramps.
- Site cleaning and demobilization.

Details of the scopes of work to be completed in each of the work areas for this project are provided within the remedial Investigation Report and Remedial Action Work Plan.

The proposed site development consists of the construction of a one-story reception hall building. The building will contain two blocks connected with block intersection.

During construction, all soils excavated or disturbed at the site will be either transported off site for disposal at an approved facility or reused on the subject property.

## 2. Project Team responsibilities

### 2.1 Project Manager

Provides review of all site activities and directs site activities via the Site Safety Officer reports to Client. Has authority to direct response operations.

#### **Responsibilities:**

- Prepares and organizes the background review of site conditions, the site SP, and the field team.
- Obtains permission for site access and coordinates activities with appropriate officials.
- Ensures that the Safety is executed and on schedule.
- Briefs the field team on their specific assignments.
- Coordinates with the Site Safety Officer (SSO) to ensure that health and safety requirements are met.
- Prepares the final report and support files on the response activities.
- Serves as the liaison with public officials.

### 2.2 Health and Safety Coordinator (HSC)

#### **Responsibilities:**

- Assists SSO with development of the SP, updating SP as dictated by changing conditions, jobsite inspection results, etc.
- Assists SSO in conducting Jobsite Safety Inspections and assists with

the correction of shortcomings found.

- Coordinates the activities of the Contract Medical Advisor staff in their SP responsibilities.
- Ensures training requirements are satisfied in a timely manner.
- Ensures medical evaluations of personnel are current.
- Maintains all records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).
- Prepare any Root Cause Investigation Reports/Preventative Action Plans for any incidents and or Close Calls.

### 2.3 Site Safety Officer (SSO)

Advises the Project Manager and HSC on all aspects of health and safety on site. Stops work if any operation threatens worker or public health or safety.

#### Responsibilities:

- Manages field operations.
- Executes the SP and schedule.
- Enforces safety procedures.
- Coordinates with the SSO in determining protection level.
- Enforces site control.
- Documents field activities and sample collection.
- Serves as a liaison with public officials.
  
- Ensures that all necessary Health and Safety equipment is available on site and is functional.
- Periodically inspects protective clothing and equipment.
- Ensures that protective clothing and equipment are properly stored and maintained.
- Controls entry and exit at the Access Control points.
- Coordinates health and safety program activities with the HSC.
- Confirms each team member's suitability for work based on a physician's recommendation.
- Monitors the work parties for signs of stress, such as cold exposure, heat stress, and fatigue.
- Implements all elements of this SP.
- Conducts periodic inspections to determine if this SP is being followed.
- Enforces the "buddy" system.

- Knows emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Notifies, when necessary, local public emergency officials.
- Coordinates emergency medical care.
- Sets up decontamination lines and the decontamination solutions appropriate for the type of chemical contamination on the site.
- Controls the decontamination of all equipment, personnel, and samples from the contaminated areas.
- Assures proper disposal of contaminated clothing and materials.
- Ensures that all required equipment is available.
- Advises medical personnel of potential exposures and consequences.
- Notifies emergency response personnel by telephone or radio in the event of an emergency.
- Assist in the preparation of all Root Cause Investigation Reports/ Preventative Action Plans for any incidents and or Close Calls.

### 2-3-1 Hazard Analysis

This section presents all assessment of the general, chemical, physical and biological hazards that may be encountered during the tasks specified under this SP.

### 2.3.2 General Hazard Assessment

The following potential hazards have been identified:

- Inhalation of volatile contaminants;
- Skin and eye contact with contaminants;
- Ingestion of contaminants;
- Inhalation of dusts impacted with semi-volatile, metals and PCB contaminants;
- Physical hazards associated with the use of heavy equipment;
- Excavation hazards;
- Tripping hazards;
- Noise exposure;
- Heat stress (depending on weather conditions);
- Cold exposure (depending on weather conditions);



- Flammable hazards;
- Electrical hazards; and,
- Use of personal protective equipment.

Specific chemical, physical and biological hazards are discussed below.

Mitigation and controls will include as needed work procedures, work/rest regiment, dust control measures, personal protective equipment, and respiratory protection as appropriate.

### 2.3.3 Chemical Exposure Hazards

The following chemical hazard evaluation for the proposed site development activities is based on the previous environmental investigation of the site. The evaluation has been conducted to identify chemicals/ materials that potentially may be present at the site, and to ensure that work activities, personnel protection, and emergency response are consistent with the specific contaminants that potentially could be encountered.

### 2.3.4 Chemical Hazards Exposure Routes

Potential hazards and their exposure routes include:

- Inhalation of organic vapors due to the presence of volatile organic compounds from diesel-powered equipment.
- Inadvertent ingestion of potentially toxic substances via hand to mouth contact or deliberate ingestion of materials inadvertently contaminated with potentially toxic materials. Included in this list are polycyclic aromatic hydrocarbons (PAHs), pesticides and metals.
- Dermal exposure and possible percutaneous (skin) absorption of certain lipophilic (readily absorbed through the skin) PAHs and pesticides.
- Skin and eye contact with contaminants at the site and decontamination activities.

Exposure limits and health effects of selected chemicals are in Table 2. The probability of exposure for each task is outlined in Table 3.

### 2.3.5 Control of Exposure to Chemical Hazards

dust control will be utilized, respirators (if required) and personal protective equipment will be worn, area air monitoring will be conducted during times of disturbance of the impacted fill material and strict personnel decontamination procedures will be followed.

## 2-4 Physical Hazard

### 2.4.1 Temperature Extremes

#### Hot Temperatures

Heat stress is a significant potential hazard, the potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke. If onsite workers exhibit the signs of heat exhaustion or heat stroke, they should seek immediate medical attention.

#### Cold Temperatures

Workers may be exposed to the hazard of working in a cold environment. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, poor judgment, and unauthorized procedural changes. In order to prevent frostbite, hypothermia, trench foot and immersion foot, the workers are responsible for dressing warmly in layers with thick socks, gloves, and appropriate head and face gear. Upon the onset of discomfort due to the cold, onsite workers should take regular five to ten minute breaks to warm up inside nearby buildings and to drink warm fluids. If discomfort continues and the onsite workers start to exhibit the signs of frostbite, hypothermia, trench foot or immersion foot, they should seek immediate medical attention.

### 2.4.2 Noise and Air Resources

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps and generators. Hearing protection is required and shall be used in designated areas of the site as indicated by the posted signs.

Construction activities will occur during hours that minimize noise disturbance to the community.

### 2.4.3 Hand and power tools

In order to complete the various tasks for the project, personnel will utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Proper personal protective equipment shall be worn while utilizing hand and power tools. Ground Fault Circuit Interrupters (GFCIs) are required for all portable electric tools.

#### **2.4.4 Slips, Trips and Falls**

Working in and around the site will pose slip, trip and fall hazards due to equipment, piping, slippery surfaces that may be oil covered, or from surfaces that are wet from rain or ice. Potential adverse health effects include falling to the ground and becoming injured or twisting an ankle. Good housekeeping at the site must be maintained at all times.

#### **2.4.5 Material Handling**

Manual lifting of heavy objects may be required. Failure to follow proper lifting techniques can result in back injuries and strains. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

Whenever possible, heavy objects must be lifted and moved by mechanical devices rather than by manual effort. The mechanical devices will be appropriate for the lifting or moving task and will be operated only by trained and authorized personnel. Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects, such as a Master Rigger or equivalent. Lifting devices, including equipment, slings, ropes, chains, and straps, will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.

The wheels of any trucks being loaded or unloaded, and/or parked on an incline, will be chocked to prevent movement. If applicable, outriggers will be extended on a flat, firm surface during operation. The lift and swing path of a crane/equipment will be watched and maintained clear of obstructions. Personnel will not pass under a raised load, nor will a suspended load be left unattended. Personnel will not be carried on lifting equipment, unless it is specifically designed to carry passengers.

All reciprocating, rotating, or other moving parts will be guarded at all times. Accessible fire extinguishers will be made available in all mechanical lifting devices. All material must be stored in tiers, racked, blocked, or otherwise secure to prevent sliding, falling, or collapse. All loads/material will be verified to be secure before transportation.

#### **2.4.6 Working near Equipment**

Personnel working in the immediate vicinity of heavy equipment (*e.g.*, excavators, loaders, crane etc.) may encounter physical hazards resulting from contact with equipment. Field personnel should be aware of the presence of these hazards at all times and take appropriate action to avoid them. Due to the limited ability to communicate when wearing respiratory protection, the risk is increased. Workers must be careful to communicate with heavy equipment operators regarding their location, and should maintain a safe distance from operating equipment at all times. Prior to working

around equipment, the site personnel will review appropriate hand signals with the operator.

Equipment will be equipped with back up alarms.

#### **2.4.7 Electrical Safety**

Although not anticipated, personnel may utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Ground Fault Circuit Interrupters (GFCIs) are required for all portable electric tools.

#### **Utilities**

Prior to the start of any intrusive work, the location of above-ground and underground utilities and other structures will be completed by the contractor/subcontractor responsible for completing construction activities.

### **2.5 Biological Hazards**

During the course of the project, there is a potential for workers to come into contact with biological hazards such as animals and insects.

#### **2.5.1 Animals**

During site operations, animals such as dogs, cats, pigeons, mice, and rats may be encountered. Workers shall use discretion and avoid all contact with animals. Bites and scratches from dogs and cats can be painful and if the animal is rabid, the potential for contracting rabies exists. Contact with rat and mice droppings may lead to contracting Hantavirus. Inhalation of dried pigeon droppings may lead to psittacosis. Cryptococcus and histoplasmosis are also diseases associated with exposure to dried bird droppings but these are less likely to occur in this occupational setting.

#### **2.5.2 Insects**

Insects, including bees, wasps, hornets, mosquitoes, spiders, and ticks may be present at the site. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life-threatening condition.

#### **2.5.3 Wound Care**

A source of occupational exposure may occur when an employee gives First Aid and or CPR to an individual who had infectious blood. The occupational exposure occurs when there is the possibility for an employee's eyes, mucous membranes, non-intact skin (i.e., cut and abraded skin) to come into contact with potentially infectious materials from another employee. If an accident were to occur where First Aid would need to be administered, the person administering the First Aid will presume that any

wounds and materials used are contaminated with BBP and should wear the appropriate PPE to prevent contact with these materials. Additionally, should the use of First Aid materials and or clothing that was potentially contaminated with BBP be encountered these materials should be properly containerized and transported to the nearest hospital for proper disposal.

## 2-6. Personal Protective Equipment (PPE)

### 2.6.1 Level of Protection

PPE must protect workers from the specific hazards they are likely to encounter on site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and, (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards. Based on anticipated site conditions and the proposed work activities to be performed. The upgrading/downgrading of these levels of protection will be based on continuous air monitoring results as described in Section 5.0. The decision to modify standard PPE will be made by the SSO after conferring with the Project Manager. The levels of protection are described below.

- **Level D Protection**
  - a. Safety glasses w/ side shields or chemical splash goggles
  - b. Safety boots/shoes (toe-protected)
  - c. Hard hat
  - d. Long sleeve work shirt and work pants
  - e. Nitrile gloves
  - f. Hearing protection (as needed)
  - g. Reflective traffic vest

## 2.7 Work Zones and Decontaminations

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the SSO with proper training and medical documentation.

**Exclusion Zone (EZ)** - All activities which may involve exposure to site contaminants, hazardous materials and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be clearly delineated by cones, tapes or other means. The Site Safety Officer may establish more

than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the Site Safety Officer allowing adequate space for the activity to be completed, field members and emergency equipment.

## **2.8 Contamination Control**

### **2.8.1 Minimize of Contact with Contaminants**

During completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials.

### **2.8.2 Heavy Equipment Decontamination**

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the SSO or his designee.

## **2.9 Medical Surveillance**

All contractor and subcontractor personnel performing site field work where potential exposure to contaminants exists are required to have passed a complete medical surveillance physical examination.

### **2.10 Medical Surveillance program requirement**

A physician's medical clearance for work will be confirmed by the SSO before an employee can work in the EZ. The examination will be completed annually at a minimum. Additional medical testing may be required by the HSC if, a.) an over-exposure or accident occurs, b.) an employee exhibits symptoms of exposure, or c.) other site conditions warrant further medical surveillance.

## **2.11 Emergency Response Plan**

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, and preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures.

## **2.12 Health and Safety Coordinator (HSC)**

The HSC oversees and approves the Emergency Response/Contingency Plan and performs audits to determine that the plan is in effect and that all pre-emergency

requirements are met. The HSC will be notified of all incidents, injuries, near misses, OSHA recordable incidents, fires, spills, releases or equipment damage. The HSC acts as a liaison to applicable regulatory agencies.

### **2.12.1 Site Safety Officer (SSO)**

The SSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The SSO is responsible for ensuring the HSC are notified of all incidents, all injuries, near misses, fires, spills, releases or equipment damage. The SSO is required to immediately notify the HSC of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSC can notify OSHA within the required time frame.

### **2.12.2 Emergency Coordinator**

The Emergency Coordinator is normally the SSO.

The Emergency Coordinator shall make contact with Local Emergency Response personnel prior to beginning work on site. In these contacts,

the Emergency Coordinator will inform interested parties about the nature and duration of work expected on the site and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. The Emergency Coordinator shall locate emergency phone numbers and identify hospital routes prior to *beginning* work on the sites. The Emergency Coordinator shall make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator shall implement the Emergency Response/Contingency Plan whenever conditions resulting from the Site Investigation warrant such action.

### **2.12.3 Site Personnel**

Project site personnel are responsible for knowing the Emergency Response/Contingency Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors will be trained in the Emergency Response/Contingency Plan.

### **2.12.4 Communications**

Once an emergency situation has been stabilized or as soon as practically possible, the SSO will contact the Project Manager to identify any emergency situation.



### **2.12.5 Emergency Medical Treatment**

The procedures and rules in this SP are designed to prevent employee injury. However, should an injury occur, no matter how slight, it will be reported to the SSO on site immediately. First-aid equipment will be available on site at the following locations:

First Aid Kit: Vehicles

Emergency Eye Wash: Vehicles

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Unless they are in immediate danger, severely injured persons will not be moved until paramedics can attend to them.

Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

Only in non-emergency situations will an injured person be transported to the hospital by means other than an ambulance. Nearest hospital.

### **2.12.6 Emergency Site evacuation routes and procedures**

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site investigation activities, including but not limited to fire, explosion or significant release of toxic gas into the atmosphere, the Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

### **2.12.7 Fire Prevention and Protection**

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Project Manager of the investigation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

#### ***2.12.7.1 Fire Prevention***

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.



- Shutting off engines to refuel.
- Grounding and bonding metal containers during transport of flammable liquids.
- Use of UL approved flammable storage cans.

Fire extinguishers rated at least 10 pounds ABC located on all

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- Shutting off engines to refuel.
- Grounding and bonding metal containers during transport of flammable liquids.
- Use of UL approved flammable storage cans.
- heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the SSO.

### **2.12.10 Incident Reporting**

Once first aid and/or emergency response needs have been met, the following parties are to be contacted:

- Project Manager,
- Health and Safety Manager
- The employer of any injured worker.

### **2.12.11 Adverse Weather Conditions**

#### ***2.12.11.1 Adverse Weather Conditions***

In the event of adverse weather conditions, the SSO will determine if work will continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).
- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The SSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

### **2.12.11 Restoration and Salvage**

#### ***2.12.11.1 Restoration and salvages***

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.