



ASSESSMENT OF ENVIRONMENTAL IMPACT



RISK SCENARIO - RISK ASSESSMENT MATRIX (RAM)

SAFETY CONDITIONS											
RISK FACTOR	UNSAFE CONDITION OR ACTION	SOURCE	POSSIBLE ACCIDENT	POSSIBLE INJURIES	CONTROL MEASURES	CONSEQUENCES	EXPOSITION	PROBABILITY	DEGREE OF DANGER	% EXPOSED	DEGREE OF REPERCUSSION
M e c h a n i c a l	Presence of vehicular flow internal and external to work areas.	Condition directly related to the type of process.	Hit by, run over by, collision against, trapped between, third party injuries (vehicular flow)	Traumas, musculoskeletal injuries, wounds, fractures, death.	Signaling and isolation of the work area with reflective elements. Installation of preventive and regulatory signals.	6	6	4	126	4	304
	Presence of machinery and equipment in the work area.	Condition directly related to the type of process (land leveling, drilling activity)	Hit by, run over by, collision against, trapped between	Traumas, musculoskeletal injuries, wounds, fractures, death.	Keeping away from the excavator turning area, signaling of the work area, reverse gear alarm in the dump trucks and other equipment where may apply, use of reflective vests, pre-operational inspection of vehicles and machinery.	8	9	8	176	4	704
	Objects on the floor	Lack of order	Falls on the same level	Traumas, musculoskeletal injuries, wounds, fractures.	Order and cleanliness in the work area	6	4	4	96	4	384
	Unloading of pipes	Pipes to be installed	Hit by, trapped between	Traumas, musculoskeletal injuries, wounds, fractures, death.	The unloading of pipes at the installation points will be coordinated, and if needed with the use of mechanical aids, it is forbidden to use ramps and roll the pipes from the platter of the dump truck to the floor, the download must be lifted on rigging tubes that are in good shape and resistant.	9	7	6	214	4	856
	Storage of pipes	Pipes to be stored	Trapped between, hit by, third party injuries	Traumas, musculoskeletal injuries, wounds, fractures, death.	The pipeline will be minted and stored separately at least 1 m from the heads of neighboring properties. Access to third parties will be restricted. The pipes will be stockpiled and supported with wood studs in the cases where they will be kept for a long time to prevent the movement of the pipe into the surrounding area.	8	6	8	384	3	1152
	Loading of dump trucks with pipes.	Pipes falling from dump trucks, resulting from not securing pipes at loading or when overloading.	Hit by falling objects, third party injuries	Traumas, musculoskeletal injuries, wounds, death.	Use of helmet, secure pipes to the dump area of the truck or to the platform of the vehicle or dump truck, in case of overhanging, place a DANGER LONG LOAD signal, the dump truck should not exceed a speed of 30 km per hour on the road	4	6	6	144	4	576
	Suspended loads.	Lifting and moving of pipes.	Hit by falling objects	Traumas, musculoskeletal injuries, wounds, death.	Use of helmet, not standing beneath the suspended load, pre-operational inspection of machinery, slings and gear used to lift pipes.	8	6	6	288	3	864
	Presence of machinery such as excavators and dump trucks in the work area.	Condition directly related to the type of process (loading and unloading of debris, pipes and construction materials and equipment installation)	Hit by, run over by, trapped between	Traumas, musculoskeletal injuries, wounds, fractures, death.	Keep away from the mobilization area of the excavator, signaling of work area, reverse alarm on the dump truck and other incumbent equipment, use of reflective vests, pre-operational inspection of vehicles and machinery.	4	5	7	140	4	560



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M e c h a n i c a l	Entry and exit of vehicles	Equipment transportation	Collided against, run over by, trapped between, third party injuries.	Traumas, musculoskeletal injuries, wounds, fractures, death.	Responsibility and prudence of the drivers of machinery and equipment used in the activity, daily check of the dump trucks' state of the brakes, lights, reverse alarm and rearview mirrors.	6	8	6	288	3	864
	Loading of materials and equipment.	Falling objects or elements or tools.	Hit by falling objects.	Traumas, musculoskeletal injuries, wounds, death.	Use of protective helmet, carry out training activities.	6	4	6	144	3	432
	Management and mobilization of machinery and equipment.	Condition related to the type of stage of the project.	Hit by, trapped between, run over by.	Traumas, musculoskeletal injuries, wounds, death, third party accidents.	Technical-mechanical inspection of vehicles and machinery that execute the activity. For the mobilization of machinery will be complied with what is established in the Safety Proceedings.	6	6	6	216	4	864
	Unsafe stacking.	Stockpiling of pipes, materials and diverse elements.	Entrapment	Traumas, wounds, musculoskeletal injuries, death.	Stockpiles secured with structures. Install signage and control third party access to the stacking area.	8	6	6	288	3	864
	Handling of materials	Handling of materials and abrasive elements.	Contact with	Abrasions, dermatitis	Use of leather work gloves when handling abrasive elements like steel bars.	6	8	6	288	2	576
	Handling of steel bars	Handling of irons	Hit by and contact with abrasive elements	Abrasions, wounds, traumas, fractures.	Use of leather gloves, and steel-toed boots.	4	8	6	192	2	384
P h y s i c a l	Particulate matter	Loading of excavated material to level the area, which generates particles in the atmosphere as result from the wind.	Projection of particles in the eyes.	Foreign bodies in eyes, eye injuries.	Protection by using safety goggles when by weather conditions (summer or strong winds) there is presence of particulate matter in the work area.	4	6	4	96	4	384



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L o c a t i v e	Presence of personnel foreign to the project in the work area.	Works in areas of low susceptibility of presence of personnel foreign to the project.	Run over by machinery and dump trucks	Traumas, wounds, musculoskeletal injuries, death.	Prevent access of people foreign to the project activities, keep signaling.	6	4	4	96	2	192
	Objects on the floor.	Lack of order	Falls on the same level	Traumas, musculoskeletal injuries, wounds, fractures.	Removal of material not used in the work area, and if necessary, at this place of stockpiling, a place to store material and work elements will be specified in this storage area.	4	6	6	144	4	576
P u b l i c	Presence of vehicular traffic.	Lack of signaling warning the pedestrian of the entry or exit of vehicles.	Run over by vehicles	Traumas, musculoskeletal injuries, wounds, fractures, death.	Install preventive and informative signaling.	6	4	4	96	4	384



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B i o l o g i c a l	Exposure to fungi, viruses, bacteria	Lack of care when there is contact with items or substances that may affect workers.	Dermatitis, fungal skin alterations, and viral diseases.		Check on safety inspections, epidemiological surveillance program for possible viral diseases.	6	4	4	96	4	384
E r g o n o m i c	Dynamic loads: efforts to lift, carry or drop loads.	Handling of steel metal reinforcements, formworks, etc.	Lumbar hernia, lumbar discopathy, lumbar tears.		Use of mechanical aids for load handling, training in load management. No person is allowed to handle loads heavier than 30 kg of weight. The installation of signals that weigh more than 25 kg should be done in coordination with other people.	6	8	8	384	2	768
C h e m i c a l	Exposure to gases like Co, Nox, Co2 and Sox.	Vehicular, machinery and drilling equipment traffic.	Diseases in the respiratory system (airways and lungs), occupational pneumoconiosis, effect on carboxyhemoglobin formation.		Use of respiratory protection according to the gas found which exceeds the TLV (threshold limit value), training of machinery operators in environmental and safety issues, training will be done bimonthly.	6	8	4	192	4	768
	Exposure to particulate matter.	Removal of material and leveling produce particulate matter in the atmosphere.	Diseases in the respiratory system (airways and lungs), occupational pneumoconiosis, fibrosis.		Use of respiratory protection.	4	4	4	64	4	256