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Risk Identification and Assessment in GoviEx Niger S.A Exploration work sites Madaouela (September 2021)

1. Risk Identification (RI):

It's impossible to keep workplaces safe without identifying hazards. Risk assessments will be carried out based on the hazards identified. Identifying hazards take in to account the presence of people of tasks. The machines we still using in our area are in one hand high risk.

2. Risk Evaluation (RE):

In this study risks are evaluated based on the level of probability and the level of impact. Which risks rank high or low in terms of likelihood and consequence depends on many factors, the size of work site, the type of work, the mean in place, peoples in different task.

We will note the likelihood of studying the different risks as follows'.

- 1. Unlikely:** less than 10 percent chance that it will happen;
- 2. Seldom:** happen about 10 to 35 percent of the time;
- 3. Occasional:** will happen between 35 and 65 percent of the time;
- 4. Likely:** 65 to 90 percent probability of occurring;
- 5. Definite:** will occur 90 to 100 percent of the time.

It is also by taking into account the magnitude of the consequences that we will approach a prevention plan. It exists:

- A. Insignificant:** The consequences are insignificant and may cause a near negligible amount of damage. This hazard poses no real threat;
- B. Marginal:** The consequences are marginal and may cause only minor damage. This hazard is unlikely to have a huge impact;
- C. Moderate:** The consequences are moderate and may cause a sizeable amount of damage. This hazard cannot be overlooked;
- D. Critical:** The consequences are critical and may cause a great deal of damage;
- E. Catastrophic:** The consequences are catastrophic and may cause an unbearable amount of damage.

3. Objectif:

Reduce risks at source, achieve the zero accident and zero illness objective linked to our activities.

4. Risk assessment matrix :

Green is low risk; Yellow is medium risk; Orange is high risk; Red is extreme risk

Likelihood	Unlikely (1)	1A		1C		
	Seldom (2)			2C	2D	
	Occasional (3)			3C	3D	
	Likely (4)		4B	4C		
	Definite (5)			5C	5D	
		Insignificant (A)	Marginal (B)	Moderate (C)	Critical (D)	Catastrophic (E)
Consequence						

Likelihood (1-5)

Consequence (A-E)

5. Risk assessment form :

Work area	Risks											
	Radiation and Silica dust		Other dust		Noise		Scorpions		Back pain		Fall	
Core Grinder	No water use to abate the dust because the sample must be dry. Inhalation of radioactive and Silica dust. See Fig 1		When the wind blow, there is dust according to the weather of the region.		To measure noise phone app was used. Average 100 decibel (dB) in front of the machine. Long time exposure is high risk		After the work time, the next day early morning, it is possible to find scorpion in tools area.		Action of core boxes handling. The standing and going down position.		Possibility of fall because of tools in place. You have to watch your step.	
	Likelihood : Likely : 4	Consequence : B : Marginal	Likelihood : Unlikely: 1	Consequence : A:Insignificant	Likelihood : Definite: 5	Consequence : D:Critical	Likelihood : Unlikely: 1	Consequence : A:Insignificant	Likelihood : Seldom : 2	Consequence : D : Critical	Likelihood : Occasional:3	Consequence : D : Critical
	Risk Rating ; 4B is Medium risk		Risk Rating ; 1A is Low risk		Risk Rating ; 5D is extreme risk		Risk Rating ; 1A is Low risk		Risk Rating ; 2D is Medium risk		Risk Rating ; 3D high risk	
	<u>Action:</u> Required PPE (face mask) The work must be done by three persons per day. Because of gamma radiation and the dust inhalation. This action reduce a bit the risk.		<u>Action:</u> Required PPE (face mask)		<u>Action:</u> Required PPE (hear protection)		<u>Action:</u> Required PPE (Gloves, Safety shoes)		<u>Action:</u> Must be done by three persons per day. Save vertebral column		<u>Action:</u> Required PPE (Helmet)	
Core cutting	The water sprayer in the machine cut down the dust. But there is radiation risk. See Fig 2 In other hand it is environment pollution. See Fig 5		A bit wet dust		To measure noise phone app was used. Average 100 decibel (dB) in front of the machine.		There is the presence of scorpions between the core to cut and the box. Fig 3		Picking the core boxes, The standing and going down position.		Walking around the core boxes. The hazard of cutting hand is one of the catastrophic consequence. But the likelihood is unlikely. So, it is high.	
	Likelihood : Likely : 4	Consequence : B : Marginal	Likelihood : Unlikely: 1	Consequence : A:Insignificant	Likelihood : Define: 5	Consequence : D: Critical	Likelihood : Occasional:3	Consequence : D: Critical	Likelihood : Seldom: 2	Consequence : C:Moderate	Likelihood : Occasional:3	Consequence : D : Critical
	Risk Rating ; 4B is Medium risk		Risk Rating ; 1A is Low risk		Risk Rating ; 5D is extreme risk		Risk Rating ; 3D is high risk		Risk Rating ; 2C is Medium risk		Risk Rating ; 3D is high risk	
	<u>Action:</u> <ul style="list-style-type: none"> Required PPE (face mask) Create a barrier for the projected mud. 		<u>Action:</u> Required PPE (face mask)		<u>Action:</u> Required PPE (hear protection) Fig 7 Hear protection.		<u>Action:</u> Required PPE (Gloves, Safety shoes).		<u>Action:</u> Training for the required position for moving rock boxes.		<u>Action:</u> Do not place the boxes everywhere. Make order.	
Drilling site	There is not enough dust but gamma radiation risk.		There is no enough dust caused by the wok. In one hand dust can be caused by the wind of the region. The Weather is desert.		There are too much noise during the drilling time because of big machines. It can exceeded the 90 decibel.		In place where workers take rest there are most of time scorpions.		Picking the ore boxes, The standing and going down position.		The storage materials on the work site is very important. Because of this the site is in one hand sure. Otherwise it will bother	

	Likelihood : Occasional:3	Consequence : C: Moderate	Likelihood : Unlikely: 1	Consequence : A: Insignificant	Likelihood : Definite: 5	Consequence : D: Critical	Likelihood : Likely: 4	Consequence : C: Moderate	Likelihood : Seldom: 2	Consequence : C: Moderate	Likelihood : Occasional:3	Consequence : D : Critical
	Risk Rating : 3C is Medium risk		Risk Rating : 1A is Low risk		Risk Rating : 5D is extreme risk		Risk Rating : 4C is high risk		Risk Rating : 2C is Medium risk		Risk Rating : 3D is high risk	
	<u>Action:</u> Required PPE (face mask) Move from the mineralized sample because of gamma radiation.		<u>Action:</u> Required PPE (face mask)		<u>Action:</u> Wear the required PPE (hear protection). See Fig 7		<u>Action:</u> When scorpion pit you: Do not scarify the place of the pit. Skip vinegar on the place of pit In all cases reassure the patient. Evacuate on the nearest health center.		<u>Action:</u> Training for the required position for moving rock boxes. Safety reminder on the same topic.		<u>Action:</u> Call the emergency number. Intervention for the first aide. Make the first aide according to your training before the emergency staff come.	
Samples packaging area	There is a little bit breathable dust if you don't protect yourself. When they put samples in the package. See the process in Fig 6		According to the weather of the region, the wind is sometimes blowing. It make particular dust.		There is no high noise in this area.		Possible presence of scorpion in case the sample package is not move from it place from the work time to the next day or days.		There is no heavy things. But there is long time standing.		If there is no enough place because of too many packages of sample, there is possibility to fall if you don't watch your step.	
	Likelihood: Occasional:3	Consequence: B : Marginal	Likelihood : Unlikely: 1	Consequence : A: Insignificant	Likelihood : Unlikely: 1	Consequence : A: Insignificant	Likelihood : Occasional:3	Consequence : D : Critical	Likelihood : Unlikely: 1	Consequence : A: Insignificant	Likelihood : Seldom:2	Consequence : D: Critical
	Risk Rating : 3B is Medium risk		Risk Rating : 1A is Low risk		Risk Rating : 1A is Low risk		Risk Rating : 3D is high risk		Risk Rating : 1A is Low risk		Risk Rating : 2D is Medium risk	
	<u>Action:</u> Required PPE (face mask)		<u>Action:</u> Required PPE (face mask)		<u>Action:</u> The noise decibel need to be follow up.		<u>Action:</u> When scorpion pit you: Do not scarify the place of the pit. Skip vinegar on the place of pit In all cases reassure the patient. Evacuate on the nearest health center.		<u>Action:</u> Changing work position per task.		<u>Action:</u> Moving each sample which the packaging is finish. No need too many peoples presence in the place.	
Cores gamma radiation data collection after drilling. (SPP γ data)	The dust came from the grinder according to the wind direction. Because it is near.		The dust came from the brushing of the core to take off dirty.		The noise come from the grinder and the core cutting.		There is the presence of scorpions between the core and the box. See Fig 4		No heavy handling.			
	Likelihood : Unlikely: 1	Consequence : A: Insignificant	Likelihood : Occasional:3	Consequence : A: Insignificant	Likelihood : Definite: 5	Consequence : C: Moderate	Likelihood : Occasional:3	Consequence : D : Critical	Likelihood : Unlikely: 1	Consequence : A: Insignificant	Likelihood : Unlikely: 1	Consequence : C: Moderate
	Risk Rating : 1A is Low risk		3A is low risk		5C is extreme risk		Risk Rating : 3D is high risk		1A is low risk		1C is low risk	
	<u>Action:</u> Required PPE (face mask)		<u>Action:</u> Wear the required PPE (face mask)		<u>Action:</u> Wear the required PPE (hear protection).		<u>Action:</u> Watch what you are doing. Watch before collecting it. Wear your PPE		<u>Action:</u> Be careful during handling. Remember the right position.		<u>Action:</u> Be careful with the samples boxes in place. Watch your step.	

The noise decibel need to be follow up.



Fig. 1 Uranium ore grinder



Fig 2 Water sprayer cut down the dust



Fig 3 Presence of Scorpions between the boxes and the rock.



Fig 4 Scorpions in rest.



Fig 5 Soil pollution during core cutting.

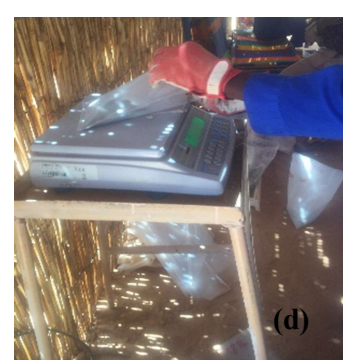


Fig 6 Sample packaging



Fig 7 Hear protection

6. Emergency Plan (EP)

Know the tasks

The people present at each tasks

Presence always on the site of at least one vehicle

First aid fund

We will have to be vigilant, because a risk can evolve over time and pass from one area to another. But if the improvement continues, one can hope to go down from high risk to low risk.