

**HEALTH AND SAFETY MANAGEMENT PLAN  
VALENCIA URANIUM PROJECT  
JANUARY 2008**

**VALENCIA URANIUM LIMITED**



**Compiled by  
Digby Wells & Associates**



**Environmental Solutions Provider**

***Prepared By :***  
Digby Wells & Associates  
Environmental Solutions Provider  
Private Bag X10046,  
Randburg, 2125,  
South Africa  
Tel : +27 (11) 789-9495  
Fax : +27 (11) 789-9498  
E-Mail : [info@digbywells.co.za](mailto:info@digbywells.co.za)



## CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
<b>2</b>	<b>BRIEF PROJECT OVERVIEW</b> .....	<b>1</b>
<b>3</b>	<b>HEALTH AND SAFETY MANAGEMENT STRATEGY AND OBJECTIVES</b> .....	<b>2</b>
3.1	MANAGEMENT STRATEGY.....	3
3.2	MANAGEMENT OBJECTIVES .....	4
3.3	RISK ASSESSMENT .....	4
3.4	RELEVANT LEGISLATION .....	5
<b>4</b>	<b>ACCOUNTABILITY AND RESPONSIBILITY FOR THE PLAN</b> .....	<b>6</b>
<b>5</b>	<b>IMPACT MANAGEMENT</b> .....	<b>7</b>
5.1	PRE-CONSTRUCTION AND CONSTRUCTION PHASES.....	7
5.1.1	<i>Potential impacts and management action</i> .....	8
5.2	OPERATION PHASE .....	15
5.2.1	<i>Potential impacts and management action</i> .....	15
5.3	DECOMMISSIONING AND CLOSURE .....	17
<b>6</b>	<b>OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM</b> .....	<b>17</b>
6.1	INTRODUCTION.....	17
6.2	OUTLINE OF THE REQUIREMENTS OF A SAFETY MANAGEMENT SYSTEM THAT COMPLIES WITH THE NEEDS OF OHSAS 18001. ....	18
6.2.1	<i>Company policy, executive leadership and commitment with respect to safety</i> .....	18
6.2.2	<i>Management of Risk and Change</i> .....	18
6.2.3	<i>Targets, objectives and performance management</i> .....	19
6.2.4	<i>Training, awareness and competence</i> .....	19
6.2.5	<i>Communication, consultation and involvement</i> .....	19
6.2.6	<i>Operational control</i> .....	19
6.2.7	<i>Emergency preparedness and response</i> .....	19
6.2.8	<i>Contractor and Business Partner Management</i> .....	19
6.2.9	<i>Incident Reporting and investigation</i> .....	20
6.2.10	<i>Monitoring, audits and reviews</i> .....	20
6.2.11	<i>Document and data control</i> .....	20
6.2.12	<i>Other requirements</i> .....	20
<b>7</b>	<b>REFERENCES</b> .....	<b>21</b>

## LIST OF TABLES

Table 1: Moving machinery.....	8
Table 2: Traffic and transport.....	9
Table 3: Handling and storage of hazardous materials .....	10



---

Table 4: Air quality .....	11
Table 5: Noise.....	11
Table 6: Sanitation.....	12
Table 7: Heat exhaustion.....	12
Table 8: Snake bite .....	13
Table 9: HIV/AIDS and other sexually transmitted diseases (STDs).....	13
Table 10: Security .....	14
Table 11: Open pit.....	16



## 1 INTRODUCTION

Valencia Uranium Limited, a wholly owned subsidiary of Forsys Metals Corp who is listed on both on the Canadian and Namibian Stock Exchanges, is currently conducting a Feasibility Study for the development of the Valencia Uranium Mine in central, west Namibia. The proposed Mine site is located east of the B2 highway between Windhoek and Swakopmund, approximately 80km inland from Swakopmund in straight-line distance.

The Feasibility Study includes an Environmental Impact Assessment (EIA) and associated Environmental Management Plan (EMP). In order to facilitate effective environmental management and minimise the impact of the proposed Mine, this Health and Safety Management Plan has been developed to enhance the recommendations contained in the EIA and EMP.

This Plan is a working document, providing a guideline for managing Health and Safety issues caused by the Project Development. It will be necessary to review and revise the Plan, once the construction activities and respective contractors have been determined. Similarly, a revision will be necessary for the operational phase and thereafter an annual review needs to be conducted. Should there be substantial process changes, interim reviews and revisions may be required.

This Plan is intended to highlight the potential Health and Safety impacts that may arise from the Project. It is not, however, a detailed Occupational Health and Safety Management System (OHSMS) which will be developed once a comprehensive risk assessment has been undertaken. Aspects to be considered during this risk assessment and an outline for the Management System are discussed in Sections 3.3 and 6 respectively.

## 2 BRIEF PROJECT OVERVIEW

Valencia Uranium Limited is located on the privately owned Farm Valencia (No. 122), situated on the eastern side of the Khan River and about 25 km to the north-east of the Rössing Uranium Mine. Valencia is in central-west Namibia, approximately 52 km south-west of the town of Usakos in a straight line. The extent of the area covered by the Exclusive Prospecting License (EPL) 1496 is approximately 700 hectares.

According to Snowden (2007), a total mining reserve of 116.8Mt at a grade of 0.119kg/t  $U_3O_8$  has been estimated for the Valencia deposit. Approximately 122.4Mt of waste material will be removed over the life of the mine. The final pit dimensions are estimated at 360m deep, 1,400m long and 700m wide (Snowden, 2007). As the uranium ore body is shallow and exposed at certain localities, it will be mined using open-pit methods. The run of mine (ROM) is estimated at 1,080,000t per month. The expected life of mine is 11 years.

The ore will be processed on site utilising the following processing unit operations:

- Crushing, radiometric sorting and screening;



- Secondary crushing and rotary mill;
- Leaching;
- Vacuum filtration and washing;
- Continuous ion exchange;
- Solvent extraction and ammonium diuranate recovery;
- Filtration; and
- Calcination.

Activities that will be associated with the mining and processing of ore will include the creation of a tailings and waste rock dumps, the temporary stockpiling of low grade ore, the construction of offices, the construction and operation of haul roads, the construction and operation of an acid plant, the construction of a water reservoir and the proposed development of a road and water pipeline through the Khan River. Power will be supplied by NamPower from the National Grid. As the power line will be the property of NamPower, and not Valencia Uranium Limited, Health and Safety aspects related to the construction and operation of these lines have not been included in this Management Plan.

### **3 HEALTH AND SAFETY MANAGEMENT STRATEGY AND OBJECTIVES**

While the nature of the proposed Mine development and operation will result in a high number of Health and Safety risks to personnel working on the Mine i.e. occupational Health and Safety, there are no communities living permanently in close proximity to the Mine, the community health impacts will therefore be indirect, relating more to social-related health impacts in the towns from where employees will be recruited.

There are exceptions to this generalisation such as the two homesteads that are within 5km of the proposed Mine. One of these will however be relocated to a position where potential impacts will be minimal. The second homestead is further away and screened from the site by higher ground. The potential impacts resulting from mining activities will therefore be minimal and hence the homestead will not be relocated.

The main area where direct Health and Safety impacts will potentially be a high risk to the public is in the transport of materials, product and personnel. Access to the site from Walvis Bay (closest port) will be along the National B2 highway and via an existing route through the Khan River. This access route through the Khan River will be upgraded and approximately 10km of new road will be constructed. As the B2 is a National road, linking Swakopmund with Windhoek, a



relatively high number of public vehicles utilise the road. Any accident or spill on this road will therefore directly affect the general public. The risk to the environment is also potentially highest along the transport routes, particularly through the Khan River, where spills could impact on the pristine ecology or contaminate the alluvial aquifer.

### 3.1 Management Strategy

As with any project of this scale and nature, there are direct and indirect impacts that cannot be entirely avoided or eliminated. With respect to impact mitigation, Valencia Uranium Limited subscribes to the philosophy of impact avoidance (by changes to Project planning and/or design) and impact reduction (to reduce impacts that cannot be avoided to acceptable levels). However, where this is not possible, management measures must be put in place to reduce the residual impacts to acceptable levels.

The strategy for Health and Safety Management will be to address the respective aspects at different levels depending on whether the proposed Mine's impact will be direct or indirect. The different areas of impact and the components of the approach associated with those areas are provided below:

- On site Health and Safety:
  - This will affect all employees.
  - Full occupational Health and Safety Management System to be implemented (considerations are outlined in Section 6).
  - Radiation Protection Programme Management Plan (see Section 11 of the Specialist Report on Radioactivity and Radiation at the Valencia Uranium Limited (Alara Consultants cc, 2008)).
- General public:
  - Focus on transport of materials, personnel and product.
  - Included in OHSMS, with emphasis on the Emergency Response Plan.
  - Radiation Protection Programme Management Plan.
- Affected communities:
  - Indirect health impacts related to social behaviour rather than direct effect of the proposed Mine.
  - Will include towns where employees are resident, potentially Arandis, Usakos and Swakopmund.



- Landowners:
  - Temporarily inhabited homesteads of one landowner and neighbouring farms.
  - Address security concerns.

### **3.2 Management Objectives**

The objectives of the Health and Safety Management Plan (HSMP) are as follows:

- To continuously identify, evaluate and prioritise the risks and impacts of the operations on the Health and Safety of employees and the public;
- Proactively prevent and avoid impacts rather than just minimising and reducing them;
- Identify strategies that provide adequate health-related information and prevention measures through which people can manage their own Health and Safety in an optimum manner;
- Implement security that protects people, assets and business continuity in a manner that respects the rule of law;
- In the interests of transparency, make the HSMP available to the public and employees;
- Monitor and continually improve the HSMP; and
- Report performance honestly and openly.

### **3.3 Risk Assessment**

The key component of any safety management is the risk assessment. This assessment must be conducted for the applicable operation, using persons skilled in risk assessment, together with the engineers who will be designing the Project, and the team that will ultimately be managing the Project.

During the operational phase of the Project, operational risk assessments should be conducted, again using skilled facilitators, but in this case it is desirable to do these risk assessments using a cross-section of employee types and management/operator level.

During the EIA phase it is not possible to develop full risk assessments that will be valid for the life of operation. However it is clear that the Valencia Operation will have a number of significant hazards for which risk should be assessed and control measures put in place.

Key hazards and hazardous activities include the following:



- Transport of equipment;
- Transport of hazardous materials;
- Transport of personnel;
- Moving machinery;
- Handling hazardous chemicals;
- Radiation;
- Working at heights;
- Pit wall stability; and
- Acid plant on site.

### **3.4 Relevant Legislation**

A comprehensive legal report has been compiled and is included as Appendix A to the EIA. The following is, however, the legislation relevant to Health and Safety (Envirolex, 2007):

- Labour Act 11 of 2007;
- Mines, Works and Minerals Ordinance 20 of 1968: Regulations (GN143, GG2927 of 1 October 1968);
- Social Security Act 34 of 1994;
- Road Traffic & Transport Act 22 of 1999: Draft Road Traffic & Transport Regulations, 2000 (GN268 of 2000);
- Regulations in terms of the Port Authority Act;
- Road Traffic and Transport Act 22 of 1999 and the
- Employee's Compensation Act 30 of 1941.

In addition to the above the legislation below has been proposed but as of January 2008 had not been promulgated:

- Mine Health and Safety Regulations (10th draft): Regulations made under Section 138a of the Minerals (Prospecting and Mining) Act 33 of 1992 as amended: Health and Safety of persons employed or otherwise present in or at mines.

Applicable international legislative requirements, best practice and guidelines for the proposed Valencia Uranium Project include, but are not limited to the following (Envirolex, 2007):



- International Finance Corporation (IFC) Policy on Social and Environmental Sustainability;
- World Bank Health and Safety Guidelines;
- Equator Principles;
- World Bank Group Air Quality Standards (1998);
- International Council on Mining and Metals (ICMM): Sustainable Development Framework;
- International Atomic Energy Agency (IAEA), Vienna: 2000: Monitoring and Surveillance of the Residue from the Mining and Milling of Uranium and Thorium;
- IAEA: Fundamental Safety Principles;
- Organisation for Economic Co-operation and Development (OECD) guidelines for Multinational Enterprises;
- OECD Environmental Activities in Uranium Mining and Milling;
- OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response: Guidance for Industry (including Management and Labour), Public Authorities, Communities and other Stakeholders; and
- OECD Harmonised Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances and Mixtures.

#### **4 ACCOUNTABILITY AND RESPONSIBILITY FOR THE PLAN**

All personnel on site will be responsible for Health and Safety. It will also be the responsibility of all personnel to report any shortcoming in the Health and Safety Management Plan in order to minimise potential impacts.

The overall responsibility for the Health and Safety Management Plan will sit with the Engineering Manager during construction and the General Manager during operation. Implementation of the plan will be undertaken by the Health and Safety function within Valencia Uranium Limited. Although Valencia Uranium Limited will ultimately be responsible for Health and Safety, it will also be the responsibility of all engineering, procurement and construction (EPC) contractors to adhere to the plan and the specific requirements will be included in their respective contracts.

Reviews of the HSMP will be conducted by the Health and Safety Manager, or specialist consultants appointed by the Manager, with any revisions approved by the Valencia Uranium Limited Management Committee.



## 5 IMPACT MANAGEMENT

### 5.1 Pre-construction and Construction Phases

Addressing the Health and Security issues will begin prior to construction. A baseline Health Survey needs to be conducted, in cooperation with the relevant Government agencies, in the towns from where the majority of the workforce will be drawn. At this stage it should include Swakopmund, Walvis Bay, Arandis and Usakos. This is necessary as an influx of people to these areas will potentially place strain on the social structure and existing services, such as sanitation and hospital facilities. This may result in an increase in the prevalence of HIV, alcoholism and water borne diseases. This survey should be included as a component of the Strategic Environmental Assessment (SEA) which is currently being initiated by the Namibian Chamber of Mines. As Valencia Uranium Limited is one of the projects potentially contributing to the cumulative impacts on the area, it should where possible cooperate with the SEA and assist with obtaining the required data.

Personnel will require medical screening to establish the health status of the workforce prior to employment on the Valencia Project. This is currently practised, but will need to continue as the number of employees will substantially increase during the construction and operation phases of the Project. A Medical Site Survey by International SOS (ISOS) was commissioned by Valencia Uranium Limited in July 2007 that included aspects such as Transport and Communications, Medical Facilities in the Region, and a Health Review (ISOS, 2007).

An on site medical facility has been established and basic first aid can currently be administered in the event of an accident. The following additional requirements for construction have been recommended by ISOS (2007):

- The establishment of an on-site medical facility, staffed by a paramedic and nurse, and a dedicated ambulance with 4x4 capability;
- The establishment of an occupational health service that will monitor employees' health, particularly with regards to the health effects from dust, noise and radiation exposure. Exit examinations should also be conducted for all employees;
- First Aid training;
- Emergency response planning, including ground and air support services;
- Implementation of alcohol and drug testing policies and procedures; and
- Expatriate staff will require pre-deployment medicals in the country of their origin.



### 5.1.1 Potential impacts and management action

The Health and Safety impacts during construction will be defined more clearly during the risk assessment that will be undertaken once the construction activities and EPC Contractors have been identified and finalised. The Section below, however, provides a guideline for potential Health, Safety and Security impacts that will require consideration and management during the construction phase. Where activities are not specified below, the following general management actions will apply:

- The use of appropriate Personal Protective Equipment (PPE) will be enforced.
- Safety awareness will be included in the induction programme and regularly repeated.
- Adequate training will be provided appropriate to the equipment used and area of work.
- A safety incident reporting system will be implemented.

#### 5.1.1.1 Moving machinery

Physical trauma due to accidents involving moving machinery may occur during construction activities. The management actions required to minimise the impact(s) are detailed in Table 1.

**Table 1: Moving machinery**

Management Action	Affected Focus Area
<ul style="list-style-type: none"> <li>• Ensure adequate training.</li> <li>• Enforce the use of PPE.</li> <li>• Ensure shifts are less than 12 hours to prevent fatigue.</li> <li>• Ensure equipment is well maintained and in satisfactory working order.</li> <li>• Ensure protective covers are in place, where necessary.</li> </ul>	On site personnel

#### 5.1.1.2 Electrical Equipment

Once the electrical risks for construction have been identified and assessed, a comprehensive electrical safety procedure will be compiled and implemented. This will include a lock out and tag out procedure to ensure all live circuits are isolated before work commences.

#### 5.1.1.3 Traffic and transport

Increased traffic volumes as a result of construction activities could result in a rise in the number of traffic accidents and injuries to employees and other road users and as well as to animals. High traffic volumes and high speeds on gravel roads will increase levels of dust with concomitant



health risks and safety risks. Furthermore, accidents may result in spillages of hazardous materials with related Health and Safety risks to people in the area of an accident. Table 2 details the management actions required to minimise these impacts.

**Table 2: Traffic and transport**

Management Action	Affected Focus Area
<ul style="list-style-type: none"> <li>• All drivers employed on the Valencia Project will be certified with appropriate training levels for the required vehicles.</li> <li>• Drivers will undergo a project supervised driving test prior to employment. Drivers will be trained on emergency procedures.</li> <li>• Valencia Uranium Limited will develop and implement their own Traffic Control Code that will address qualifications, speed limits, defined transport routes, vehicle maintenance and management (initiate in pre-construction).</li> <li>• All vehicles will be properly maintained.</li> <li>• Valencia Uranium Limited will maintain a register of all vehicles entering or leaving the site (registration number; date and time of arrival and departure). In event of a complaint from the public concerning behaviour of a Valencia Uranium Limited vehicle, this can be monitored and action taken.</li> <li>• All vehicles will be properly registered and insured for third-party liabilities.</li> <li>• Traffic calming measures will be implemented on roads within the Project area and associated facilities.</li> <li>• Ensure shifts are less than 12 hours to prevent driver fatigue.</li> </ul>	<ul style="list-style-type: none"> <li>• On site personnel.</li> </ul>
<ul style="list-style-type: none"> <li>• Temporary traffic signals will be set up to control access and ensure local user safety and ease of access. This will be done in conjunction with local traffic authorities.</li> <li>• All heavy vehicles will be properly stacked when carrying materials to avoid accidents and spillages.</li> <li>• Any major spillages on public roads will be dealt with immediately (see Section 12, Emergency Response Plan).</li> <li>• Appropriately trained medical staff to be on call in case of emergencies.</li> <li>• Make arrangements with district hospitals to ensure accessibility and treatment in case of emergencies (initiate in pre-construction).</li> <li>• Ensure appropriate medical cover for all contractors and employees in case of a medical evacuation.</li> <li>• Implement the grievance resolution mechanism to enable anyone wanting to report an incident or grievance related Valencia Uranium Limited vehicle</li> </ul>	<ul style="list-style-type: none"> <li>• On site personnel</li> <li>• General Public</li> <li>• Landowners</li> </ul>



<p>activity.</p> <ul style="list-style-type: none"> <li>Valencia Uranium Limited will inform relevant transport authorities in advance of any abnormal loads being transported by road. Safety measures will be jointly implemented with the relevant authority (initiate in pre-construction).</li> <li>Implement dust suppression measures for heavy vehicles such as wetting roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers (Barbour and Van Zyl, 2007).</li> <li>Ensure all vehicles are roadworthy; drivers are qualified and are made aware of the potential safety issues and enforcement of strict speed limits (Barbour and Van Zyl, 2007).</li> <li>Investigate the provision of subsidised transport to enable workers to return to their homes as often as possible (Barbour and Van Zyl, 2007).</li> <li>Assess the religious needs of the construction workers and provide free transport to those workers who want to attend churches located in towns such as Usakos, Karibib and Arandis (Barbour and Van Zyl, 2007).</li> </ul>	
---	--

5.1.1.4 Handling and Storage of hazardous materials

Although the bulk of the hazardous material use will take place during operations, certain hazardous substances will be used during the construction phase. This will include explosives, solvents and hydrocarbons. The hazardous materials inventory will be determined more comprehensively during the risk assessment process. Although the OHSMS will define the systems required for effective control of hazardous materials, the management measures outlined in Table 3 will apply.

**Table 3: Handling and storage of hazardous materials**

Management Action	Affected focus area
<ul style="list-style-type: none"> <li>Material Safety Data Sheets (MSDSs) for all substances to be supplied to the Health and Safety Manager (and Environmental Manager, see Waste Management Plan) before acceptance and use on site.</li> <li>According to the MSDSs, appropriate safety precautions and equipment will be installed or made available. This may include eye wash equipment, neutralising agents, spill absorbent and containment materials, as well as first aid kits.</li> <li>Appropriate PPE is to be worn by all personnel.</li> <li>Appropriate training and awareness programmes will be implemented for all personnel on site.</li> <li>Provide adequate security to ensure restricted access to hazardous material</li> </ul>	<ul style="list-style-type: none"> <li>On site personnel</li> <li>Landowners</li> </ul>



<p>storage areas.</p> <ul style="list-style-type: none"> <li>• All hazardous storage areas to be constructed with a concrete floor and bund walls sufficient to contain 110% of the maximum volume of any container stored in the area.</li> <li>• Maintain inventory of all hazardous materials.</li> <li>• Transport of hazardous material needs to be in accordance with Section 5.1.1.3 above.</li> </ul>	
---	--

5.1.1.5 Air Quality

An increase in suspended particulates generated by construction activities may result in respiratory or heart diseases. Table 4 gives the management actions associated with air quality impacts.

**Table 4: Air quality**

Management Action	Affected Focus Area
<ul style="list-style-type: none"> <li>• Implement the dust control mechanisms recommended in the Environmental Management Plan (EMP).</li> <li>• Ensure that appropriate PPE, such as dusk masks, is utilised.</li> </ul>	On site personnel

5.1.1.6 Radiation

Both occupational and public exposure to radiation is health risks that may be caused by the Project. As this is a field requiring specialist knowledge to monitor and mitigate it is not dealt with in this plan. Alara Consultants cc was appointed to conduct studies on aspects related to radiation for the proposed Valencia Uranium Mining Project. This specialist report has been appended to the EIA as Appendix K.

5.1.1.7 Noise

Workers may be exposed to excessive noise in certain areas of construction. The following management actions (Table 5) will be applied in such areas.

**Table 5: Noise**

Management Actions	Affected focus area
<ul style="list-style-type: none"> <li>• Ensure equipment with low sound power ratings is utilised.</li> <li>• Ensure equipment is well maintained.</li> </ul>	On site personnel



<ul style="list-style-type: none"> <li>• Where possible, make use of sound muffling mechanisms.</li> <li>• Ensure appropriate PPE is supplied and utilised.</li> <li>• Ensure noise awareness training is included during the induction and regularly repeated.</li> </ul>	
--	--

*5.1.1.8 Sanitation*

A workforce of around 800 is expected during the peak construction period. The majority of these will be housed in a construction camp on site. A large number of people living in close quarters will have the risk of increased enteric associated diseases if adequate sanitation is not provided. Table 6 lists the management actions required to minimise sanitation related health risks.

**Table 6: Sanitation**

<b>Management Action</b>	<b>Affected Focus Area</b>
<ul style="list-style-type: none"> <li>• Ensure adequate ablution facilities are provided for the construction camp.</li> <li>• Ensure sufficient potable water is readily available for the workforce.</li> <li>• Install and operate wastewater treatment plant. Locate the treatment plant away from potable water sources and storage area.</li> <li>• Implement personal hygiene awareness programme.</li> </ul>	On site personnel

*5.1.1.9 Heat exhaustion*

Maximum summer temperatures can exceed 40°C. This could result in a risk of heat exhaustion, particularly for workers engaged in heavy, physical type work. Table 7 summarises some of the management actions required to avoid this risk.

**Table 7: Heat exhaustion**

<b>Management Action</b>	<b>Affected focus area</b>
<ul style="list-style-type: none"> <li>• Provide sufficient drinking water, as well as additional water for cooling, if necessary.</li> <li>• Provide shade for work stations if possible.</li> <li>• Allow for sufficient rest periods for workers engaged in physical activity.</li> </ul>	On site personnel



#### 5.1.1.10 Snake bites

As the site is situated in a relatively undisturbed area, with a high number of snakes, there is a risk of snake encounters. Although the majority of snakes are not dangerous, venomous species have been recorded at the proposed site. See Table 8 for management considerations.

**Table 8: Snake bite**

Management Action	Affected focus area
<ul style="list-style-type: none"> <li>• Include snake awareness in the induction programme.</li> <li>• Instruct personnel not to handle snakes, but wait for a competent snake handler to remove snakes encountered in work areas.</li> <li>• Ensure medical personnel on site are trained in snake bite first aid.</li> <li>• Refer to Emergency Response Plan (Section 12) for emergency contact details and procedure.</li> </ul>	On site personnel

#### 5.1.1.11 HIV/AIDS and Sexually Transmitted Diseases (STDs)

Casual sexual interactions between contractors and local residents (as well as with other new immigrants to the Project area) will increase the prevalence of HIV/AIDS and other STDs. Foreign contractors may increase the prevalence rates among local residents. The medium- to long-term negative implications of this for the Project's workforce, local communities, Government Health and Welfare Agencies and the local economy are significant. In addition to HIV/AIDS, other communicable and infectious diseases, such as TB, also need to be considered and monitored. Table 9 details the management actions necessary to minimise this impact.

**Table 9: HIV/AIDS and other sexually transmitted diseases (STDs)**

Management Action	Affected focus area
<ul style="list-style-type: none"> <li>• Develop (or contract a local service provider to develop) a detailed HIV/AIDS Strategic Plan comprised of HIV/AIDS prevention education, behaviour change, voluntary counselling and testing, support and care priorities. This Plan will be developed in collaboration with national and local HIV/AIDS structures to ensure consistency and fit with the National agenda. This Plan will include short-term interventions for construction around increasing knowledge, encouraging behaviour change and promoting safe sex targeted specifically at contractors.</li> <li>• Appoint a workplace HIV/AIDS Committee to support the programmes of the Plan and to ensure ownership by both contractors and employees.</li> <li>• Ensure efficient distribution and management of condoms.</li> <li>• Provide correct information on proper use of condoms (permanent employees and contractors).</li> </ul>	<ul style="list-style-type: none"> <li>• On site personnel</li> <li>• Affected communities.</li> </ul>



<ul style="list-style-type: none"> <li>• Identify a Voluntary Counselling and Testing (VCT) facility to partner with as a convenient, safe and confidential referral centre.</li> <li>• Actively encourage and support voluntary STD, HIV/AIDS and TB counselling and testing for contractors and permanent employees.</li> <li>• Assess the possibility of implementing Antiretroviral (ARV) treatment through the medical aid scheme. Contractors should be covered outside of the Valencia medical aid.</li> <li>• Encourage contractors to be voluntarily tested before leaving the site so that they know their HIV status before returning home.</li> <li>• Partner with service providers and conduct a voluntary, anonymous Second Generation Prevalence Survey (Knowledge, attitude, practice and behaviour, and HIV sentinel survey) targeting employees and contractors.</li> <li>• Employees to be recruited from nearby localities to the Valencia Mine (Walvis Bay, Swakopmund, Arandis, Usakos, Karibib and Omaruru), thereby increasing the ability of construction workers to go home over weekends (Barbour and Van Zyl, 2007)</li> </ul>	
---	--

5.1.1.12 Security

Security risks on site will include internal and external risks. Internal risks, such as illegal access to site, theft, and possible violent crimes will be controlled with the appointment of a professional security company. External security risks from contractors or employees to the landowners will be more difficult to control but will include the management actions highlighted in Table 10. These risks may include stock theft and trespassing with associated disturbance to the land and wildlife.

**Table 10: Security**

Management Action	Affected focus area
<ul style="list-style-type: none"> <li>• Construction camp will be fenced with security fencing, both to prevent illegal access and control movement of people leaving the site.</li> <li>• Private property will be clearly demarcated to indicate “no go” areas.</li> <li>• Trespassing risk awareness will be included in the induction programme.</li> <li>• Disciplinary action will be taken against anybody transgressing the security regulations.</li> <li>• There will be controlled access on all private roads.</li> <li>• Implement grievance mechanisms to facilitate the timely handling of complaints from landowners.</li> <li>• Liaise with local authorities and establish a Forum to monitor and identify</li> </ul>	<ul style="list-style-type: none"> <li>• On site personnel</li> <li>• Landowners</li> </ul>



<p>potential problems that may arise due to the influx of job seekers to the area (Barbour and Van Zyl, 2007).</p> <ul style="list-style-type: none"> <li>• Ensure employees found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. All dismissals must be in accordance with Namibia's labour legislation (Barbour and Van Zyl, 2007).</li> </ul>	
---	--

## 5.2 Operation phase

An independent medical facility in Swakopmund will be utilised to enable the initial medical screening of all employees to establish a baseline health status of the workforce. Annual medical check ups and exit examinations will then be conducted at this facility to assess the employee health status and determine if trends are apparent. The medical examination will include eye and hearing tests, as well as radiation exposure.

The majority of the health risks and management actions outlined for the construction phase will apply to operation; however, Valencia Uranium Limited will be directly responsible for implementing the actions as the EPC Contractors responsibility will no longer be required. Where unit operations of the proposed Mine are contracted out there will be shared responsibility between the respective contractor and Valencia Uranium Limited, with the Mine's safety requirements included as conditions of the contract.

Additional safety requirements not covered under Section 5.1 are outlined below:

### 5.2.1 Potential impacts and management action

#### 5.2.1.1 Handling and Storage of hazardous materials

Although the management actions specified in Section 5.1.1.4 will still apply, specific management actions and precautions may be required for the chemicals used during operation. These will be defined during the risk assessment and subsequent implementation of the OHSMS. In all cases, the MSDSs for the respective chemicals should be consulted and followed.

The chemicals and their approximate volumes that will be required during operation are listed below:

- sulphuric acid – 500 t/day (or sulphur – 200t/day)
- pyrolusite (alternatively SO<sub>2</sub>) – 400 t/day (or sulphur – 100t/day)
- ferric sulphate – 120 kg/day (to be confirmed)
- flocculent – 800 kg/day



- ammonia – 250 kg/day (to be confirmed)
- lime (or if possible crushed and milled marble) – 500 t/day
- resin – 200 kg/day (to be confirmed)
- caustic soda – unknown but probably 100 kg/day
- sodium carbonate – not known as yet
- solvent extraction diluent – 500 l/day (to be confirmed)

5.2.1.2 *Open pit*

The development of the open pit will involve safety risks specific to that unit operation e.g. pit stability. These will be defined and evaluated during the risk assessment with the Mine Manager and included in the OHSMS. From the geohydrology investigations, it appears stability risks associated with the ingress of groundwater are negligible. Aspects that will need to be considered are summarised in Table 11.

**Table 11: Open pit**

Management Action	Affected Focus Area
<ul style="list-style-type: none"> <li>• The pit walls will be monitored on an ongoing basis to assess if there is any movement that may compromise pit wall stability.</li> <li>• All light vehicles entering the pit will be equipped with buggy whips and hazard lights on the roof.</li> <li>• The blasting schedule will be communicated to all employees in advance, the pit will be cleared and warning sirens will be used before blasting.</li> <li>• Competent Mine personnel or explosives contractors will be appointed to handle explosives and blasting operations.</li> <li>• Ensure all vehicles are well maintained and drivers have received adequate training.</li> <li>• Safety risks associated with the open pit development will be included in induction and regular safety awareness training.</li> <li>• The pit will be bunded and/or fenced to prevent wildlife and livestock access.</li> <li>• Regular vibration monitoring will be conducted.</li> </ul>	<ul style="list-style-type: none"> <li>• On site personnel</li> </ul>



### **5.3 Decommissioning and closure**

Activities on site during decommissioning will be similar to construction from the perspective of Health and Safety risks. The management actions outlined in Section 5.1 will therefore apply. Long-term safety risks associated with closure, such as continued radiation and pit stability and access, are dealt with in the Closure Plan (refer to Section 14 and Appendix B in the EIA/EMP Report).

## **6 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM**

### **6.1 Introduction**

As part of the EIA process, Valencia Uranium Limited is required to outline the components of the Safety Management System that will be put in place to minimise or eliminate injuries or work-related damage to the health of its workers and contractors.

Organisational Safety and Health depends on three key elements:

- Infrastructure integrity;
- Safety Management Systems; and
- Human Behaviour.

In this outline, it is assumed that the infrastructure and equipment selection will be based on safety and health considerations, in addition to cost considerations, and that personnel selection will be undertaken with a view to minimising at-risk behaviours of both employees and contractors.

This Section therefore focuses on the Safety Management System components that will be required to run a low-risk operation. In all cases, the Management System required has to be risk-based: that is, for all areas under the control of the operation, and for all activities being undertaken within that area of control, Safety and Health risk must be assessed, and control measures must be put in place for all significant risks.

Although introduction of, and certification to, OHSAS 18001 Safety Management Systems is not compulsory, the great majority of mining organizations use the ISO-based framework to develop their Safety Management Systems. Accordingly, requirements of such a system are listed below; however this is not intended as the Management System, but merely a guideline of what could be considered.



## **6.2 Outline of the requirements of a Safety Management System that complies with the needs of OHSAS 18001.**

Key components of an effective Safety Management System include the following:

### **6.2.1 Company policy, executive leadership and commitment with respect to safety**

The company shall have a policy that defines the vision, the aims and the management principles of the project with respect to safety.

While the vision may make generalised statements such as “providing superior financial returns to our shareholders in a socially and environmentally responsible manner”, the aims and objectives of such a policy must give specific directive to all employees with respect to safety.

Examples of the sort of statements that should be made in the aims section are “Prevent or minimise work-related injuries and health impairment of employees and contractors”.

The Management Principles section of the company policy will state that the company “holds senior executives and line management accountable for safety”. It should also state that the company “will allocate adequate financial and human resources to ensure that the safety issues can be addressed in a way that reflects their high corporate priority.”

This policy should be printed, signed by the company Managing Director or Mine Director (at operation level) and communicated effectively and regularly to all employees and contractors.

The policy is just a document. The essential commitment is that the executives of the holding company, and the line management of the operation, must demonstrate by their words and more importantly their actions, that they are fully committed to ensuring the safety of all who work for them.

### **6.2.2 Management of Risk and Change**

Hazards should be identified, the risks associated with those hazards should be assessed and the risks should be appropriately managed on an ongoing basis. This process should begin at the design stage, when equipment should be selected with due consideration for safety and health factors, and any plant or open pit planning should be subjected to Hazardous Operating Procedures (HAZOP) or Hazard Identification (HAZID) processes to minimise future operational risk. During the operational phase, hazard identification and risk assessment (RA) should form part of routine management procedures, and RAs should be updated on a regular basis.

The RA provides the core information for prioritising the activities that must be managed. All significant risks should have control measures developed, put in place and these control measures should be evaluated for their effectiveness in reducing risk.



Any changes to operations, processes, personnel and activities should be assessed to determine how these affect safety risk, and appropriate measures should be put in place to appropriately manage those changes.

### 6.2.3 Targets, objectives and performance management

Safety targets and objectives should be integrated into the overall business planning process. Safety should be a priority for Management and the first Key Performance Indicator (KPI) in their performance reviews.

### 6.2.4 Training, awareness and competence

All employees and contractors shall be competent to perform their activities safely. This means that they must be trained and that their level of safety competence is assessed and approved before they commence work. A system of refresher training is required to ensure that competencies are not lost.

### 6.2.5 Communication, consultation and involvement

There will be effective communication of matters relating to safety and health at all levels and functions within the operation and the controlling company. This does not mean blanket communication, but ensuring that the information essential to safe work procedures is always communicated to the individuals concerned.

Consultation and involvement is essential to ensure that there is a two-way flow of information – both from management to the workers, and from the workers to management. It also helps to ensure buy-in.

### 6.2.6 Operational control

The operation shall apply appropriate control measures for the effective management of hazards and risks arising from their processes and activities. Control measures should be based on the results of risk assessment.

### 6.2.7 Emergency preparedness and response

The operators shall identify, prepare for and have the capability to respond appropriately to emergency and crisis situations.

### 6.2.8 Contractor and Business Partner Management

All contractors and business partners shall undertake their activities in accordance with the safety standards that apply to employees. This is particularly important during the construction phase.



### 6.2.9 Incident Reporting and investigation

All safety incidents, including “near hits” shall be reported, investigated and analysed. Corrective and preventative actions shall be taken and closed out, and the lessons learnt shared. Results of the incident investigations should be used to update the company’s risk assessment.

### 6.2.10 Monitoring, audits and reviews

Equipment and infrastructure, safety systems, and safety performance in the workplace shall be monitored, audited and reviewed.

Monitoring refers to the continuous measurement of conformity to the established requirements.

Auditing refers to the formal, regular review of the extent to which the safety management systems are in place, and the degree to which these have been physically implemented in the workplace.

Review refers to the formal, regular review of the Safety Management System, to ensure that it remains effective and relevant to the operations it serves.

These monitoring and auditing systems will help define the level to which workers are complying to systems already in place; the review process should assess the extent to which the existing systems are fulfilling requirements, and should highlight those system areas requiring strengthening.

### 6.2.11 Document and data control

All relevant safety information shall be identifiable, readily available and, where appropriate, controlled.

### 6.2.12 Other requirements

Applicable safety requirements should be communicated to, and be fully accessible to, all respective employees and contractors.

As mentioned previously, this Health and Safety Plan should be taken in the context for which it is intended i.e. as a component of an Environmental Impact Assessment and Management Plan. The management areas discussed above should be used to guide Health and Safety Management planning. A more detailed Occupational Health and Safety Management System will however be required to ensure these plans are implemented effectively.



## 7 REFERENCES

Alara Consultants CC. (2008). *Specialist Study on Radioactivity and Radiation at the Valencia Uranium Project.*

Barbour, T. and H. van Zyl. (2008). *Social and Economic Impact Assessment. Valencia Uranium Mine, Namibia.*

International SOS, (2007). *Site Survey Report on Westport Resources Namibia (Pty) Ltd Valencia Site.* Internal Westport Resources Namibia (Pty) Ltd Report.

Envirolex Namibia CC. (2007). *Legal Component of the Environmental Impact Assessment for the Uranium Project at Valencia Farm (no.122), Erongo Region, Namibia.*

Snowden. (2007). *Forsys Metals Corp: Valencia Project, Namibia; Technical Report.*