WHSP002 Occupational Exposure (Radiation) Standard Operating Procedure

INVESTIGATOR RESOURCES LTD

Contents

1. Purpose and Scope

The purpose of this procedure is to outline the management controls that are required in order to mitigate the risk of occupational exposure to radiation sources.

This procedure applies to all Investigator Resources Limited's ("Investigator") workers, contractors and sub-contractors at any Investigator controlled or operated project site.

Prior to use alignment with relevant jurisdictional requirements may be needed.

The Occupational Exposure (Radiation) Standard Operating Procedure is to be read and followed in conjunction with the Investigator Resources' Occupational Exposure Management Plan.

2. Critical Risks to Consider

- Injury or death.

3. Key Personnel and their Responsibilities

Board and Senior Management:

- Shall ensure that this procedure related to potential occupational exposure to Radiation is promoted and communicated within the company and actioned.

The Project Manager:

- Ensure that all necessary Management plans, procedures, risk assessments, emergency plans and training are in place as required and in line with technical work programs where applicable.
- Provide the necessary resources for the effective implementation and application of this procedure;
- Determine the Occupational Exposure Limits (OELs) relating to radiation exposure and implement a site radiation monitoring plan;

The Site Supervisor:

- Undertake a risk assessment on proposed activities;
- Provide the necessary resources for the effective implementation and application of this procedure;
- Designate a Radiation Safety Officer or suitably qualified professional where applicable;
- Provide or ensure adequate supplies of Personal Protective Equipment (PPE);
- Ensure the provision of adequate First Aid supplies.
- Provide or ensure that radiation detection devices are available for use as appropriate;
- Assist with risk assessments relating to work around radiation sources;
- Ensure incident reports are completed and reported back to the Project Manager in a timely fashion for instances where uncontained radiation sources are identified;
- Prepare and maintain of an emergency management plan pertaining to the onsite radiation hazards;
- Communicate all potential hazards to all personnel and visitors.

All workers, contractors and sub-contractors:

- Fully understand and comply with this procedure;
- Use appropriate PPE at all times;
- Assist in the identification and control of radiation sources as they are encountered;
- Communicate all incidents to the Site Supervisor.

4. Exposure Risks and Controls

During exploration activities and within exploration camp sites there is the potential for personnel to be exposed to varying levels of radiation. Radiation sources may be found in tools, in particular some geophysical imaging tools, or may be naturally occurring within rocks and minerals.

4.1. Naturally Occurring Radiation

Most natural radiation derives from uranium, thorium, potassium or radium (radon gas). All rock types (igneous, metamorphic and sedimentary) and sediments have the potential to be radioactive dependent on their mineralogical composition. Groundwater also has the potential to be radioactive.

The following management controls shall be adopted when there is a potential exposure pathway to naturally occurring radiation:

- Groundwater testing prior to use, and at regular intervals, at the work site to ensure that it does not provide a source of radiation if not obtained from a known regulated and potable source (eg mains water);
- Early identification of radioactive lithological units, rocks, and minerals, using a scintillometer, hand held X-Ray Fluorescence (XRF) device, and/ or radon detector;
- Laboratory confirmation of radiation levels;
- Communication of all hazards;

- Wear required PPE at all times;
- Where radioactive minerals are identified at levels that pose a threat to the health and safety of site personnel, they shall be required to wear personal dosimeters and be monitored in accordance with the site radiation monitoring plan;
- Handle rock or mineral specimens and samples as little as possible;
- Wash hands thoroughly after handling rock or mineral specimens and samples;
- Do not smoke, eat or sleep near rock or mineral specimens;
- Wash both your person and clothing following drilling, digging, making contact with rocks, sediments or groundwater;
- Radioactive samples are to be labelled and transported in accordance with all relevant jurisdictional standards, codes and regulations;
- The laboratory is to be notified prior to shipping of any radioactive samples, and the samples are to be clearly labelled;
- Radioactive drill samples and spoils shall be rehabilitated in accordance with the company's approved E-PEPR and in accordance with juristictional regulations and guidelines.

4.2. Portable Radiation Sources

Exploratory tools used in geophysical (radiometrics) and geochemical (XRF devices) programs, often contain radiation sources or are designed to emit radiation (XRF, Lasers, etc.). Tools containing radiation sources or emitting radiation pose a threat to human health if misuse occurs. Only personnel trained and/or appropriately licenced for the use of such tools shall be permitted to operate or undertake maintenance of the tools.

Requirements for use and maintenance of such tools include:

- Radiation safety training, where applicable;
- Training in the use of the tool;
- Licences for use of the tool, where applicable;
- Correct PPE;
- Any repair of the tool that involves opening the tools housing, requires the tool to be completely isolated. Only authorised personnel may undertake maintenance;
- Jurisdictional authority and permits must be obtained where required prior to transport, and import/export of the tool;
- Tools shall be appropriately labelled with relevant radiation hazard stickers, stored in a secure location, and entered into the Project / Site Risk Assessment Register.
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5. Exposure Response

Where personnel have been exposed to radiation sources, they may require urgent medical treatment.

The following information is required to be provided to medical practitioners where available:

- Estimation of the dose received;
- Time of exposure;
- Source of radiation;
- Proximity to the source at time of exposure;
- Evaluation of the physical environment where the exposure took place;
- Any symptoms, in particular nausea and vomiting. The time of onset of nausea and/or vomiting must be recorded if applicable.

Note: the severity of resulting illness can be predicted from the time of onset of nausea and vomiting. Onset of vomiting less than 4 hours after exposure is consistent with a progression to haematopoietic syndrome. Onset of vomiting within an hour may indicate a lethal exposure dosage.

Other symptoms of exposure may include:

- Burns;
- Headache;
- Diarrhea;
- Elevated body temperature.
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6. Reporting/Records Management

Where personnel are exposed to any level of radiation, or if there is a breach of this procedure, an incident report must be completed and submitted and reviewed by the Site Supervisor.

Incident reports are to be completed immediately and forwarded to the Project Manager and Investigator's Managing Director.

Any sources of radiation that are brought onto site are to be recorded in the Project / Site Risk Assessment Register.

A copy of the following documents must also be kept onsite where applicable:

- Groundwater test results;
- Scintillometer calibration test records;
- Radon detector calibration test records;
- XRF calibration test records;
- Dosimeter readings; (Note that for exploration activities involving the use of the XRF tool, Investigator has an exemption from the requirement to wear dosimeters)
- Should drill sample material be identified at regular levels greater than Investigator's site trigger limits (refer Exploration Radiation Safety Plan) then dosimeters will be obtained for staff and contractors and an appropriately experienced radiation control officer engaged to consult.
- Site Radiation Monitoring Plan;

- Project / Site Risk Assessment Register;
- Radiation safety training certificates;

7. Training and Competency

All personnel shall read and confirm their understanding of the content of this procedure. Additionally, they shall be made aware of the serious nature of radiation exposure, and the means of assessing and controlling exposures.

Only certified and trained individuals shall be given authority to use tools containing radiation sources. Specific instruction should be provided regarding the following:

- Exposure risks (short term, long-term and terminal health conditions);
- Safe handling, storage, transport and disposal of radioactive material;
- PPE requirements and controls;
- Emergency response procedures; and
- First aid treatment for radiation exposure.

8. References

Investigator Resources Ltd Work Health and Safety Management Plan.
Investigator Resources Ltd Occupational and Exposure Management Plan (Radiation)
MG20 Radioactive core storage and handling – standard operating procedure. (Department for Energy and Mining)