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WEGO PERFORATORS, INC.  
RADIATION SAFETY MANUAL  
AND  
OPERATING INSTRUCTIONS

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WEGO PERFORATORS, INC.  
RADIATION SAFETY MANUAL  
AND  
OPERATING INSTRUCTIONS

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A. RADIATION PROGRAM MANAGEMENT AND RESPONSIBILITY

1. The Radiation Protection Officer is to be designated overall manager for the radiation program.
2. The Radiation Protection Officer is Jack P. Rahm.

B. PERSONNEL MONITORING PROCEDURES

1. All personnel directly related to activity involving radioactive materials will wear a film badge to monitor Gamma, Neutron & Beta, or a suitable acceptable dosimeter.
2. It is clearly understood that a maximum acceptable dose levels are not to exceed 1.25 Rem per calendar quarter or no more than 5.0 Rem per calendar year.
3. It is also clearly understood that in the event these doses are greater than those listed above that proper notification will be posted with the licensing authority.

C. POSTING RESTRICTED AREA, VEHICLES AND LABELLING CONTAINERS

1. Posting restricted areas-storage areas where radiation levels are expected to achieve 2 mr/hr will be labelled with signs stating "Caution-Radiation Area" or "Caution Radioactive Materials". These signs will bear the radiation symbol and be magenta and safety yellow in color. The signs will be conspicuous and obvious from all directions. In the event that the levels exceed 5 mr/hr then a sign stating "Caution High Radiation Area", magenta and safety yellow in color will be conspicuously posted.

2. A proper notice to Employees will be posted where it is obvious to employees.
3. Vehicle Placarding. All vehicles transporting or containing radioactive materials will bear a placard on four sides that bears the proper labelling according to D.O.T. specifications the word "RADIOACTIVE". This placard will be placed on the vehicle only when the vehicle is transporting or storing radioactive materials.

The placard is black lettering on safety yellow background. This placard will not be displayed if the vehicle is not carrying or storing radioactive materials.

4. All containers carrying or storing or used for transporting radioactive materials will bear a tag with the identification of the radioactive materials, the quantity of the radioactive materials and the date that the radioactive materials was that particular quantity. The tag will also state "Caution-Radioactive Materials".

#### D. RECORDS MANAGEMENT

1. Utilization Log-This log will contain the master file on each type or shipment of radioactive material received and the distribution of each such shipment. This master file will be maintained at the facility.
2. Receipt and transfer records will be maintained in files to show at all times where material is to be located or if it is disposed of.
3. Personnel exposure records-twin pack film badges will be maintained in a separate file along with proper monthly reports on each person using radioactive materials.

4. Leak test records on all sealed sources will be maintained on each sealed source. These records will indicate leak testing at six month intervals.
5. Vehicle and Storage Pit surveys will be conducted at monthly intervals and these surveys will be maintained in a file.
6. Surveys will be conducted by monitoring well bores at the surface prior to use of any radioactive material and remonitoring the well bore upon completion of the work. These numbers will be recorded. A survey meter or tool which is acceptable will be used for the monitoring process. Records of this survey performed on each job will be maintained in a file.
7. Survey meters will be calibrated at least once each six months and a record kept of the current calibration certificate.

E. PROCEDURES FOR TRANSPORTING RADIOACTIVE MATERIALS

1. Radioactive materials may be transported by company vehicle or private vehicle provided the vehicle is marked properly and the material transported is properly packaged and marked. An identification will be on each container transported and the vehicle will be placarded with the proper D.O.T. markings.
2. The vehicle transporting radioactive materials will be clearly placarded according to D.O.T. specifications.
3. These signs will be removed when vehicle does not transport radioactive materials.

F. PROCEDURES FOR USE OF RADIOACTIVE SOURCES

1. Company personnel directly in charge of logging operations utilizing radioactive sources are responsible for the health protection of all personnel associated with the sources and the general public who may be associated at all times.
2. Using the remote handling tools, the source is removed from the locked truck storage container and attached to the logging tool. When logging operations are finished, the source is to be removed from the tool and placed in the truck storage container and locked. The remote handling tool is to be used at all times. The time-distance factors must be used effectively when working with radioactive sources to keep exposure to a minimum. When utilizing the remote handling tools, a safe distance is provided, but care and practice are needed to decrease the handling exposure time.

G. LEAK TEST PROCEDURES

1. Wipe tests on all sources must be performed at intervals not exceeding six months.
2. Source will be wipe tested with ICN Pharmaceuticals, INC., Model LT-1 Leak Test Kit.
3. Leak test kits will be mailed to ICN Pharmaceuticals, INC., at Irvine, California for counting.
4. Reports will be sent back to licensee with leak test certificate.

#### H. EMERGENCY PROCEDURES

Emergencies vary greatly in their respective hazards. These are sometimes in the form of spills, fires, explosions or vehicle wrecks which consequently result in the spread of radioactive material contamination.

##### 1. Vehicle Wreck

In the event of an accident while transporting radioactive materials, efforts should be made to minimize the exposure of any persons. This would include roping off the area, notification of the investigating officer, and Radiation Protection Officer at the home office should be notified immediately, making sure that the area is not left unattended. This will enable the Radiation Protection Officer to notify the proper governmental agency.

##### 2. Procedure for Lost Source Downhole

- a. When a source is lost notify the well owner or his representative that a source is stuck in the well.
- b. Inform the well owner or operator of the size of fishing tools needed to start fishing operations.
- c. You have only time and distance factors available to reduce the radiation field and personnel exposure while the source is being fished out. Where practical everyone except the driller and enough personnel to cover the hole should remain in the area. All handling of the drilling rig equipment should be handled by the customer and actual handling of the source should be done by the Radiation Protection Officer or one of his qualified designees.



## 3. Fires

- a. notify all personnel in the area immediately
- b. attempt to put out all fires if a radiation hazard is not immediately present
- c. notify the fire department
- d. notify the Radiation Protection Officer
- e. the Radiation Protection Officer will set up restrictions governing the fire fighting and other emergency activities
- f. following the emergency, monitor the area and ascertain the emergency devices necessary for safe decontamination, if necessary

## 4. Leaking Source

- a. if a source is leaking which the logging tool would indicate, shut the operations down
- b. notify contractor and immediately call Radiation Protection Officer for instructions
- c. set up control procedures for keeping personnel out of the immediate area until instructions are received from the Radiation Protection Officer