



# Emergency Procedures for Radioisotope Labs



Emergency procedures are posted in areas where RAM is used. Radiation workers and other personnel who frequent areas where RAM is used should know where these are posted, and familiarize themselves with the procedures. The following general procedures apply to emergencies involving RAM.

## A. General Instruction

1. Medical attention to an injured individual will take precedence over all other concerns. If a life or death situation occurs, a rescuer may choose to receive a maximum exposure of 25 rems. Such an exposure should only be considered to save a life.
2. Do not risk radiation exposure to save equipment or an experiment. Exceptions will only be determined by a person who is qualified to estimate the potential hazard, and then exposure will be risked only after special consideration.
3. Promptly take reasonable precautions to limit the spread of the radioactive contamination. Limit access to the area(s) and limit the movement of all individuals involved in the incident.
4. Contact the MCW Office of Radiation Safety (ORS) or the FMLH Radiation Safety Program Office (RSPO) as soon as practical.
5. Radiation Safety can be contacted at 414-955-4347. Page the office of radiation safety at 414-314-1037 in case of emergency. When a spill has occurred, estimate the amount of radioactivity spilled. Implement a major or minor spill procedure based on the following table.

## B. Spill Classification, Major or Minor

Radionuclides	Minor Spill		Major Spill
	Not Reportable	Reportable	Reportable
<sup>3</sup> H, <sup>14</sup> C, <sup>18</sup> F, <sup>33</sup> P, <sup>35</sup> S, <sup>47</sup> Ca, <sup>47</sup> Sc, <sup>51</sup> Cr, <sup>55</sup> Fe, <sup>57</sup> Co, <sup>67</sup> Ga, <sup>71</sup> Ge, <sup>72</sup> Ga, <sup>85</sup> Kr, <sup>99</sup> Mo, <sup>99m</sup> Tc, <sup>103</sup> Pd, <sup>113m</sup> In, <sup>115</sup> Cd, <sup>133</sup> Xe, <sup>141</sup> Ce, <sup>177</sup> Lu, <sup>197</sup> Hg, <sup>201</sup> Tl, <sup>202</sup> Tl	< 1 mCi	< 100 mCi	≥100 mCi
<sup>22</sup> Na, <sup>32</sup> P, <sup>36</sup> Cl, <sup>42</sup> K, <sup>45</sup> Ca, <sup>46</sup> Sc, <sup>54</sup> Mn, <sup>58</sup> Co, <sup>59</sup> Fe, <sup>63</sup> Ni, <sup>65</sup> Zn, <sup>74</sup> As, <sup>75</sup> Se, <sup>85</sup> Sr, <sup>86</sup> Rb, <sup>90</sup> Y, <sup>95</sup> Nb, <sup>99</sup> Tc, <sup>103</sup> Ru, <sup>105</sup> Ag, <sup>109</sup> Cd, <sup>111</sup> In, <sup>113</sup> Sn, <sup>123</sup> I, <sup>129m</sup> Te, <sup>129</sup> I, <sup>132</sup> Te, <sup>140</sup> Ba, <sup>140</sup> La, <sup>147</sup> Pm, <sup>153</sup> Gd, <sup>192</sup> Ir, <sup>169</sup> Yb, <sup>198</sup> Au, <sup>203</sup> Hg	< 0.1 mCi	< 10 mCi	≥10 mCi
<sup>60</sup> Co, <sup>125</sup> I, <sup>131</sup> I, <sup>134</sup> Cs, <sup>137</sup> Cs, <sup>144</sup> Ce	< 0.01 mCi	< 1 mCi	≥1 mCi
<sup>90</sup> Sr, <sup>210</sup> Po	< 0.001 mCi	< 0.1 mCi	≥0.1 mCi

## C. Minor Spill Procedures

1. Notify personnel in the area(s) that a spill has occurred.
2. Cover the spill with a suitable absorber.
3. Follow decontamination procedures section XIV. E.
4. Contact the MCW Office of Radiation Safety as soon as practical during normal working hours.
5. If the spill is not reportable, retain survey information for later review. If the spill is reportable, submit a written report to the Radiation Safety Officer within 7 Days describing the incident including actions to be taken to prevent a recurrence.

## D. Major Spill Procedures

1. Notify personnel in the proximity of the spill to vacate the room or area(s).
2. Cover the spill with a suitable absorber, but do not attempt to clean it up. Confine the movement of all potentially contaminated personnel to prevent the spread.
3. If possible, the spill should be shielded, but only if it can be done without further contamination or significantly increasing your radiation exposure.
4. Contact the MCW Office of Radiation Safety or Security immediately.
5. Secure the area(s) as practical to restrict entry.

6. If personnel contamination is found or suspected, identify the contaminated area(s) with a survey meter. Follow personal decontamination procedures section XIV F.
7. Decontamination may only be performed under the direction of the ORS. Follow decontamination procedures section XIV. E.
8. Submit a written report to the Radiation Safety Officer within 7 Days describing the incident including actions to be taken to prevent the recurrence.

## E. Decontamination Procedures

1. Perform appropriate surveys. Draw a floor plan indicating area(s) where surveys were performed and document the results of the surveys.
2. Wear protective clothing and use remote handling equipment as necessary or appropriate. Absorb liquids with absorbent paper or other suitable absorbent.
3. Place contaminated materials into receptacles or bags designated for radioactive waste. Decontaminate until the removable contamination is below 200 dpm per 100 cm<sup>2</sup> in unrestricted areas or 2000 dpm per 100 cm<sup>2</sup> in restricted areas. During and at the end of clean up, monitor hands, shoes, clothing and any equipment used to clean up the spill.
4. If the contamination is not removable, suitable shielding materials may be used to cover the contamination until the radiation level is reduced to less than 3 times background in a unrestricted area or 6 times background in a restricted area.

## F. Personnel Decontamination Procedures

1. Remove contaminated clothing and store for further evaluation by the ORS.
2. If the spill is on the skin, flush thoroughly with lukewarm water and resurvey.
3. If the contamination is still present, wet hands and apply detergent. Work up good lather and keep lather wet. Use mild soap and lukewarm water.
4. Work lather into contaminated area(s) by rubbing gently for at least 3 minutes, applying water frequently and rinse thoroughly with lukewarm water.
5. Repeat above procedures 2 through 4 several times, gently scrubbing residual contaminated area(s), as necessary.

## G. Known or Suspected Overexposure to Radiation

1. Eliminate the cause of the suspected overexposure and/or prevent personnel from entering area(s) where suspected high radiation levels exist.
2. Contact the MCW Office of Radiation Safety or Security immediately.
3. Transport overexposed personnel to the Emergency Department Trauma Center where appropriate medical assistance can be obtained.
4. Collect and forward dosimeters to the ORS for emergency processing so that dose information can be obtained as soon as practical.
5. Submit a written report to the Radiation Safety Officer within 7 days describing the incident including subsequent actions to prevent recurrence.

## H. Radioactive Dusts, Fumes and Gases

1. Have personnel in the area(s) evacuate the room or area(s) as quickly as practical.
2. Seal off area(s), if practical. Secure the room or area(s) to restrict entry into the contaminated area(s). Limit the movement of all involved employees to confine the potential spread of contamination.
3. Contact the MCW Office of Radiation Safety or Security immediately.
4. With a low range, thin window GM survey meter, check hands and clothing of involved individuals for contamination.
5. Decontamination is to be performed under the direction of the Office of Radiation Safety.
6. Perform an air survey. Work shall not be permitted in the affected room until approved by the Radiation Safety Officer.
7. Submit a written report to the Radiation Safety Officer within 7 days describing the incident including subsequent actions to prevent recurrence.