

Information as to MALRAD Scenarios.

1. MALRAD will consist of 7 individual scenarios numbered 1 through 7. These will be distributed as individual zip files, each zip file containing all necessary information and materials as to the relevant scenario.
2. Approximately 2 weeks before the MALRAD activity starts, a practice scenario will be distributed exactly as will occur during the activity. This will allow all participants to ensure that they can open files etc.
3. Each scenario zip file will contain a .pdf file named after the scenario (ie. Scenario_X.pdf). **This file provides a description of the scenario and the material provided and should be read before analysing any material.**
4. The scenarios are intended to be "realistic"/"plausible" and have in large part been based upon actual events where possible. In some cases, isotopes/contexts have been swapped between actual events but should still be realistic.
5. The instruments featured in MALRAD are intended to be the kind that may feature in an "average" lab or such as may be brought to bear by an "average" country. Specialised laboratory instrumentation has not been included, such as low energy germanium detectors etc.
6. The aim of the activity is for the participants to provide as much information as possible – if participants feel they can suggest what the source is (as opposed to just the isotope) then they should feel free to do so.
7. The participants should be aware that the scenarios may feature activity levels many orders of magnitude higher than would normally be seen by most participants. Therefore, what may be insignificant emissions from an isotope at the levels we normally see in the lab may not be so insignificant at activities many orders of magnitude greater. Plus, it should be remembered that such activities can yield spectral features not usually encountered in the lab.
8. Some of the spectral file types may carry information as to calibration data or other similar information. Participants are encouraged to ignore this data and devise their own calibrations from such material as is provided (see below for Canberra files in particular). This will avoid any problems or artifacts that may have arisen in conversion between file types.
9. Please note that the majority of commercial analysis packages are focused towards HPGe measurements and may yield strange results when applied to the analysis of spectra from other detector types.
10. There seems to be a certain problem with Canberra .cnf files. If Genie 2000 does not find calibration information stored within the file, conducting the usual sequence of analysis can cause problems and Genie will report something like "cannot proceed without peak search results" or similar. The solution to this is to conduct an energy calibration, use it in the spectrum and save the .cnf file. Then Genie will find the information it is looking for.
11. The dose measurements where provided are not intended as absolute values of dose but should be treated in the same manner one would treat dose rates measured in the field on typical hand instruments.

12. Nuclear data used in the exercise has been taken from the online Table of Isotopes hosted by Lund University in Sweden as of June 2009. This may be found at <http://nucleardata.nuclear.lu.se/nucleardata/toi/welcome.stm> Participants are encouraged to check their libraries where appropriate. Participants should also consider that the libraries of a number of commercial suppliers do not contain comprehensive lists of all isotopes or comprehensive lists of energies for all isotopes.
13. Most of the scenarios only necessitate (or allow for) the identification of isotopes. Where it is theoretically possible to generate quantitative information, the situations have been engineered such that coincidence summation should not be a problem. Participants should feel free, even in the absence of efficiency data, to report whatever they want/can.
14. In general, background has not been simulated in the spectra. Where it has, that is clearly stated.
15. For virtually all the scenarios participants can assume that an MCA lower discrimination level of 30 keV has been applied.
16. In most scenarios, daughters have also been simulated where appropriate and this should be taken into consideration during analysis.
17. The effect of neutrons or beta emissions on materials has not been simulated in any scenario. Nor do any of the scenarios feature neutron or beta detectors.
18. Please remember that scattering can be an issue in spectra recorded for sources with heavy shielding and certain detectors.
19. Thorough information on the detectors has not been supplied during the exercise stage as it was felt that such information may not be available in early response situations nor would it be likely that the type of analyses necessitating such information would be practicable during early responses.
20. Please note that the scenarios are not country "specific". Do not eliminate an isotope as a candidate based on the supposition that "*country X doesn't have these sources*" or whatever.
21. Although some of the situations in MALRAD appear difficult, the situations presented are those which the participants in MALRAD could reasonably be expected to handle. In cases where participants feel a scenario is outside their area of expertise, they should indicate which scenarios they choose NOT to report for.
22. Participants can report their results using a simple Word or text file. Just write the number of the scenario and what the source is as well as any other information one may wish to report.
23. The files are named according to the following convention:

Scenario_X_YYYYY.*.* where X indicates the scenario number and YYYYY is either "point" or "source" indicating whether the spectrum is of the actual source or a check point source as described in the material accompanying each scenario.
24. The spectra are provided in a range of formats. These include:

Standard ORTEC/ADCAM .chn files

Standard ORTEC .spc files

Standard IEC ASCII .iec files

Standard IEEE ASCII .asc files

SAMPO 90 readable .sam files

Old SYSTEM 100 format .mca files (should be readable by Genie 2000 as well)

Text file (.txt), one column, first row: channels live time realtime start
energy keV/channel, second and third rows are time information

Text file (.txt), two column (indicated by designation "b" in the file name), same as
above but with channel as own column

Standard CANBERRA .cnf files

Accuspec .dat file

IAEA .spe file

Excel .csv file (channel, count no time information included).