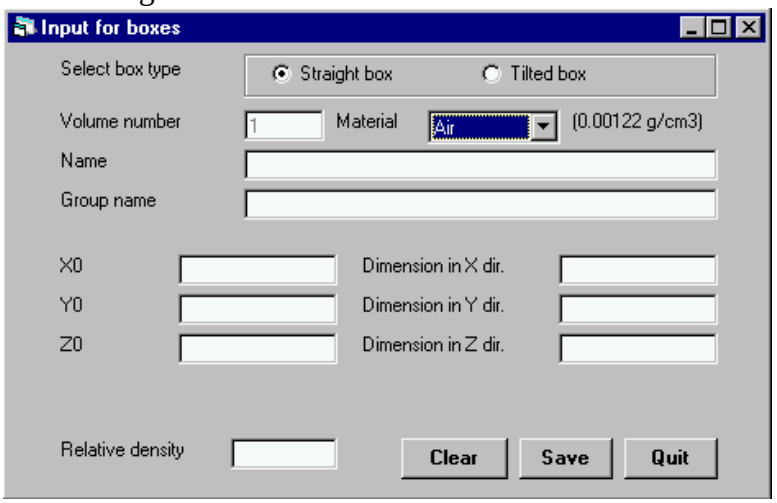
4.2. Input menu

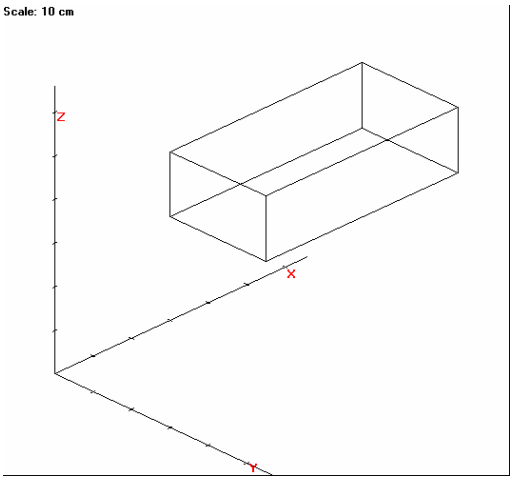
The input menu is aimed at entering the geometrical, material, source data and/or measured dose rate data in the Take.
This is achieved with the following commands.

Input

Box

The selection of the Box results in a form where the material, the co-ordinates of a vertex point and the dimension of the box in the x-,y- and z-direction can be introduced.
The material is chosen from the list of materials available in the material drop down box. A rotation of the box is allowed when the selection *Tilted box* is chosen with the option button. The rotation is defined with a horizontal and vertical rotation angle.



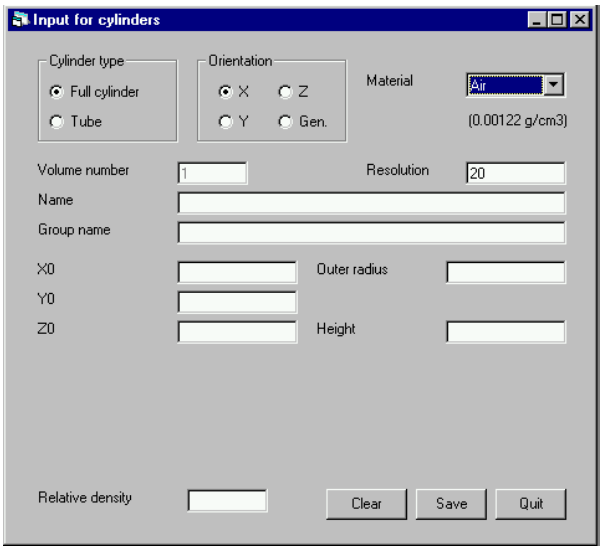


Graphical output of a box in the standard view point display.

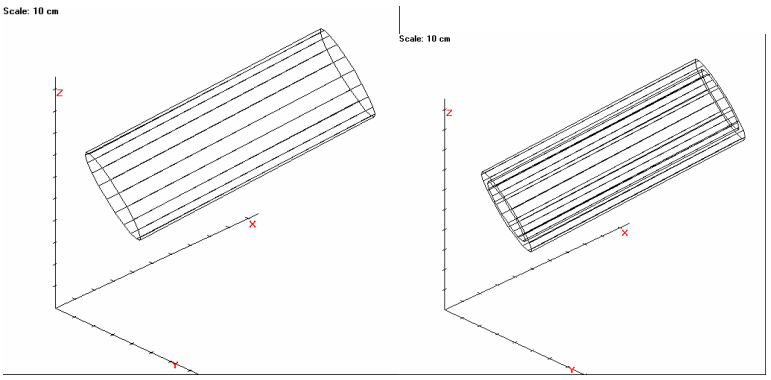
Input

Cylinder

This form enables the selection of a cylinder or a tube with an axis according to the x-,y- or z-direction (orientation options). The x0, y0, z0 point of the cylinder corresponds with the centre of the bottom surface, the height is the distance between bottom and top surface. The selection of *tube* in the cylinder type options activates the field inner radius. The tube thickness is then defined by an inner and outer radius. The material associated with the volume is chosen from the material drop-down box. The parameter resolution is used for graphical purposes only. A higher resolution results in a more detailed representation of the cylinder.



The selection of *Gen.* in the orientation options results in a form suited to receive the information for a freely oriented cylinder. The direction of the cylinder axis can be defined with the use of direction coefficients or with the use of a directional point i.e. the direction coefficients are then calculated from the vector (x1-x0,y1-y0,z1-z0).

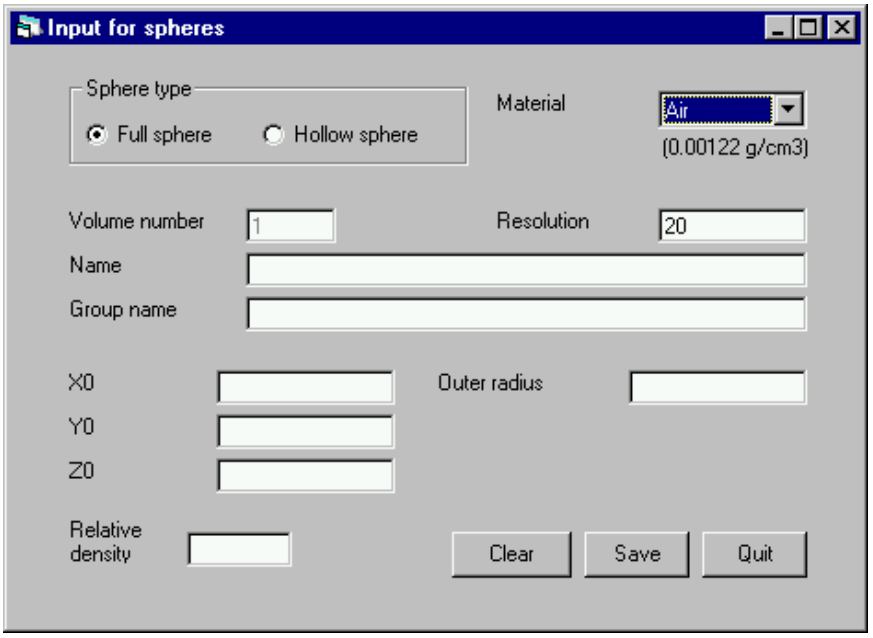


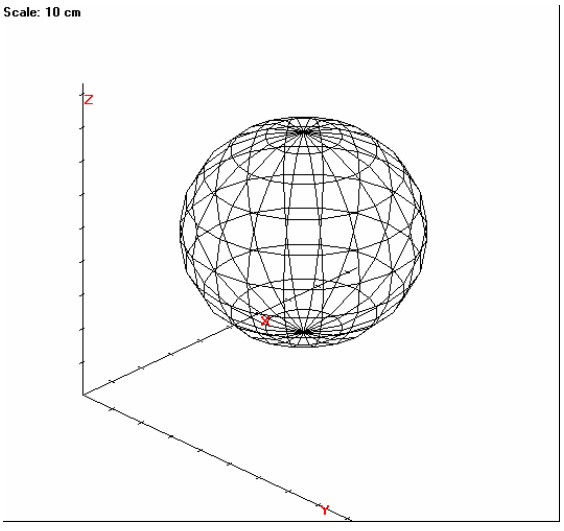
Representation of a cylinder and a tube in the standard view point display.

Input

Sphere

The selection of the input sphere results in the following form. A selection can be made to model a solid or a hollow sphere. A field is created to enter the inner radius when the hollow sphere is selected in the sphere type options. The material associated with the volume is defined with the material drop-down box.
The resolution input is only used for graphical purposes. A higher value for the resolution results in a more detailed representation of the sphere.





Display of a sphere in the standard view point display.

Input

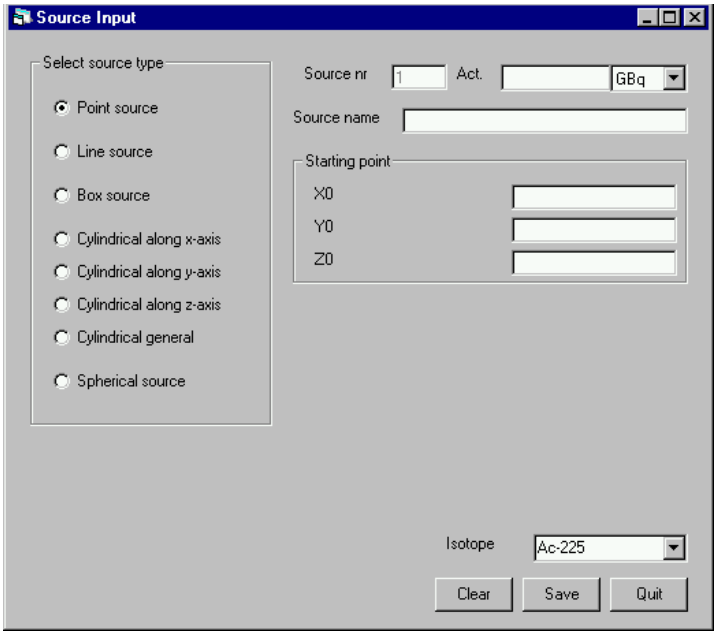
Structure

This command enables you to enter predefined structures from a structures database. The structure is positioned by translating the (0,0,0) co-ordinate of the structure (no rotation of the structure is allowed) the object has to be in the desired orientation to be entered in the Take.

Input

Sources

The source can be defined in the input sources form. The form enables the user to define the geometry of the source, the source activity and the source description. The isotope or the isotope mix is chosen from the isotope drop-down box.
A resolution input field is made available when a volume source is chosen. This enables the definition of the number of source points that will be used to calculate the dose contribution of the source. The source points are randomly chosen within the volume of the source. The number of source points for volume sources can be changed in a saved Take.



Note:
If the source strengths are unknown and will be determined from the measured dose rates it is best to set the source strengths as 1 Bq for all the sources.

4.3. Edit menu

This menu enables the editing of different data objects used in VISIPLAN. These objects are:

- *Volumes*
- *Trajectories*
- *Grids*
- *Source Sensitivity Analysis file*
- *Scenario's*
- *Measured dose rate sets*
- *Source mixtures*
- *Material mixtures*
- *Volume sequence*
- *Work Area's*

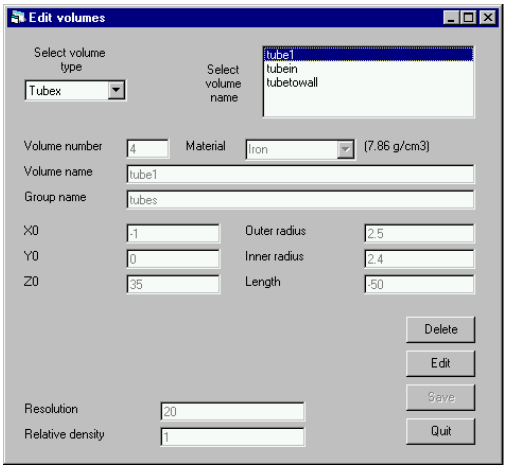
A special edit command available is "update source strengths".

Edit

Volumes

Single volumes

Enables you to change the parameters of the volumes you have defined. The volumes are organised by volume type, then by volume name. This allows an easy retrieval of the volumes for editing.



Edit

Volumes

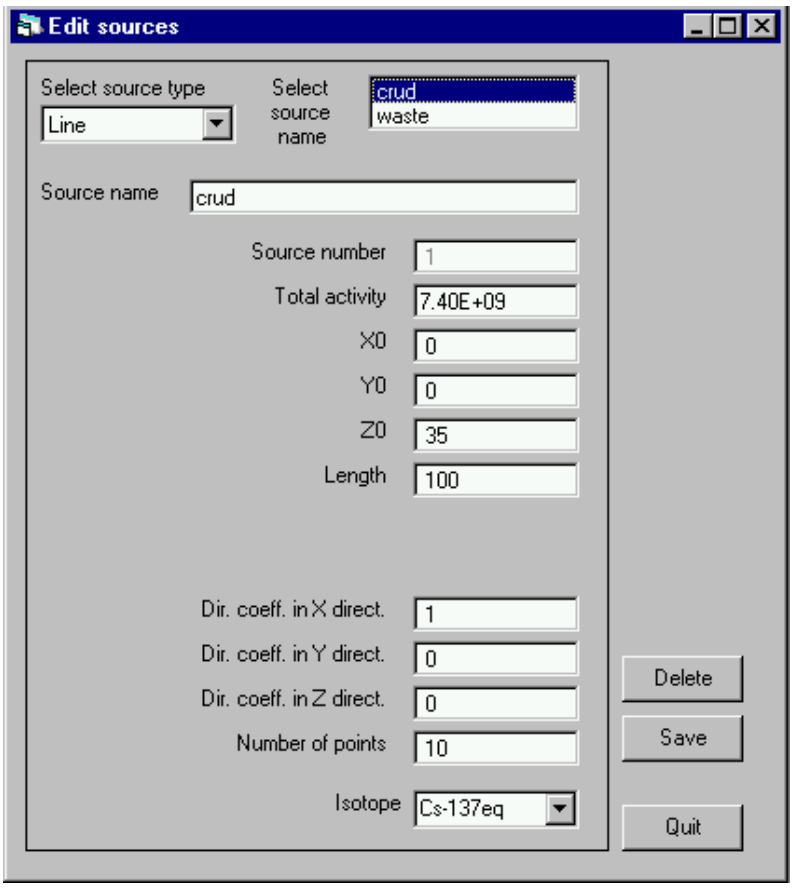
Structures

Allows you to move a structure to another location in the geometry. The volumes that are part of a structure can be modified independently by ***Edit Volume Single Volume.***

Edit

Sources

The properties of the sources can be edited and viewed by selection of edit-sources. A source can be removed from the database with the delete command.

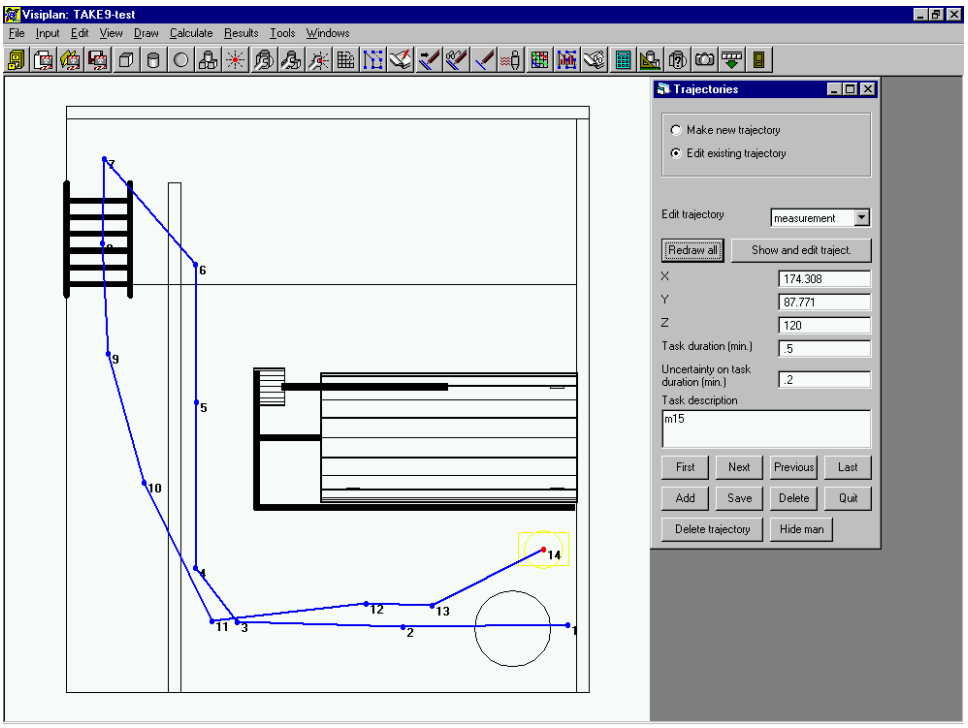


The geometry of the sources is defined in the same way as the volumes.
The number or random point used in the calculations with volume sources is the only parameter that can be changed in a saved Take. This enables you to gradually increase the accuracy of the calculations.

Edit

Trajectories

Enables the definition and editing of trajectories. The form for this command is given below.



An option button interface allows to choice between the creation of a new trajectory and the editing of an existing one.
A *new trajectory* file can be created once the name of the trajectory is given and the button *make new file* is pressed.
The trajectory points can be defined by entering there co-ordinate in the x-, y-, z-fields or by digitising a position on the main graphical area in plan view mode. The z-co-ordinate has to be entered manually and is mostly chosen at the height of the operational dosimeter used by the worker (140 cm above the floor).
The task duration on the defined position is entered in the task duration field and is expressed in minutes. The uncertainty on the task time is also entered in minutes.
The task description field is a text field of 50 characters where the description of the task performed at the defined location is given. The description must be unique for the different tasks.

The editing of an existing trajectory is possible when the *Edit existing trajectory* option is selected. The name of the trajectory can be chosen from a drop down box. The trajectory is activated in the Take when the button *Show and edit traject* is pressed.

The buttons in the lower half of the Trajectory form are used for the navigation on the Trajectories and the updating of selected tasks.

: moves to the first position of the trajectory

: moves to the last position of the trajectory

: moves to the next position of the trajectory

:moves to the previous position of the trajectory

: adds a newly defined position to the trajectory, after the selected one

: Saves an updated value to the trajectory

: Deletes the selected point from the trajectory

: Quits the form edit trajectory

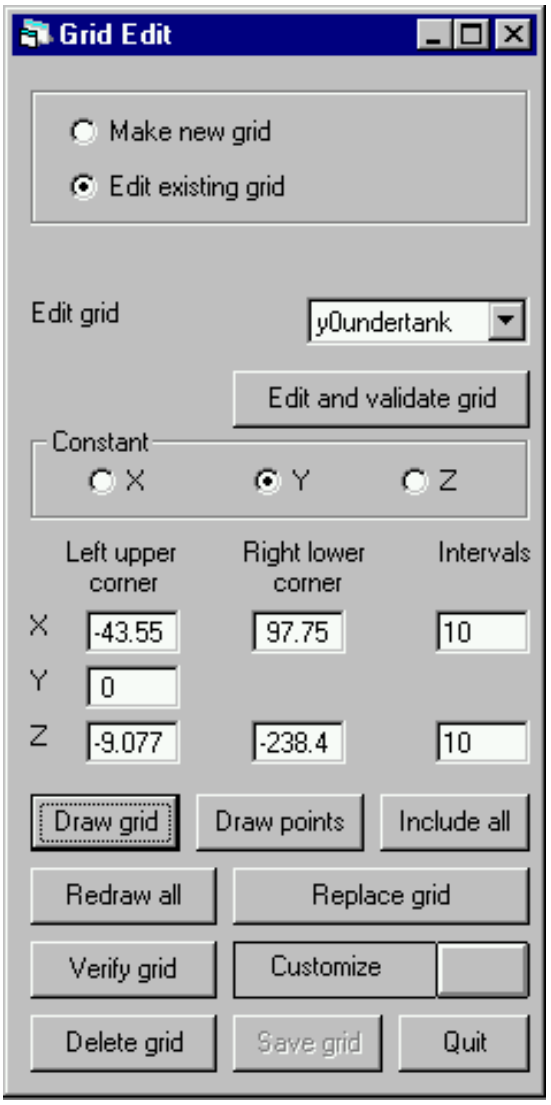
Delete trajectory: Deletes all information about the selected trajectory. A warning is given to the user that the results that were calculated before with this trajectory will not be valid anymore.

Act. man: Enables the display of a dummy figure with the dimensions of a standard person at the cursor position or at the task position.

Edit

Grids

Grids can be defined and edited in the edit-grids command. The grids are orthogonal to the x-, y- or the z-axis.
Selecting x, y or z in the Constant selection box defines the orientation of the grid. The upper and lower corner co-ordinates can be entered in the x, y fields or can be digitised on the graphics area. When the grid Edit form was the last active one you can select one corner of the grid on the drawing by pressing the left mouse button. While holding the left mouse button down you can move to the position of the other corner. By releasing the left button you confirm the second corner position. The constant co-ordinate must be entered in the form together with the number of intervals on the grid in the two directions.
The dummy can also be made visible by pressing the right mouse button. This tool is helpful to relate the size of the environment to that of the worker.



The buttons in the lower part of the form perform following tasks:

Draw grid:

Draws the grid with the defined properties

Save grid:

saves the defined grid to file

Redraw all:

Redraws the geometry and the selected grid

Verify grid:

Determines the grid points that are localised inside material volumes

Delete grid:

Deletes the selected grid

Replace grid:

Replaces in the selected grid the old with the new grid parameters. The grid cannot be replaced if results exist for the grid. The grid can then be saved as a new grid.

Draw points:

Draws all the grid-points that will be calculated

Include all:

Includes all points for the calculation with the grid.

Customise:

Enables the user to select points by clicking their position with the left mouse button. Each click toggles between include and exclude. The excluded points are not calculated.

The buttons in the lower part of the form perform following tasks:

Draw grid:

Draws the grid with the defined properties

Save grid:

saves the defined grid to file

Redraw all:

Redraws the geometry and the selected grid

Verify grid:

Determines the grid points that are localised inside material volumes

Delete grid:

Deletes the selected grid

Replace grid:

Replaces in the selected grid the old with the new grid parameters. The grid cannot be replaced if results exist for the grid. The grid can then be saved as a new grid.

Draw points:

Draws all the grid-points that will be calculated

Include all:

Includes all points for the calculation with the grid.

Customise:

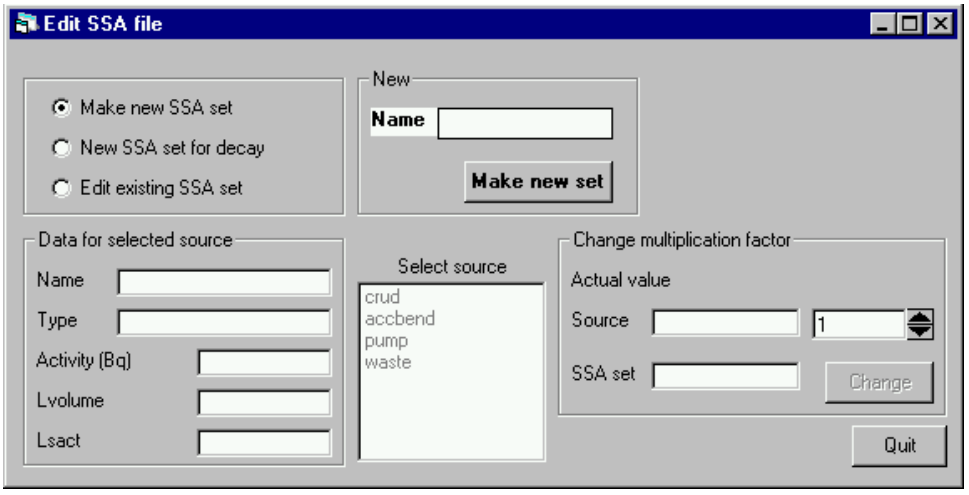
Enables the user to select points by clicking their position with the left mouse button. Each click toggles between include and exclude. The excluded points are not calculated.

Edit

Source Sensitivity Analysis file

This form enables the user to change the source strengths of every source by applying a multiplication factor. This file is used to examine the effect of certain source changes on the results calculated on a grid or a trajectory in a Take. They are used in the ***Result grid*** and ***Result trajectory*** commands.

The form used to define and edit SSA-files is given below.



The option buttons allow you to perform the following actions:

Make new SSA set
A new SSA set can be created using this selection. The set is created with every multiplication factor set to 1.
This new set can then be edited with the following command

New SSA set for decay
Creates multiplication factors based on the decay of the isotopes enter in the sources. No contribution of daughter products is calculated. This tool is mainly aimed at the decay of isotopes such as Co-60 and Cs-137.
This option is not available for sources defined only by a spectrum. Selecting this option results in the following form.

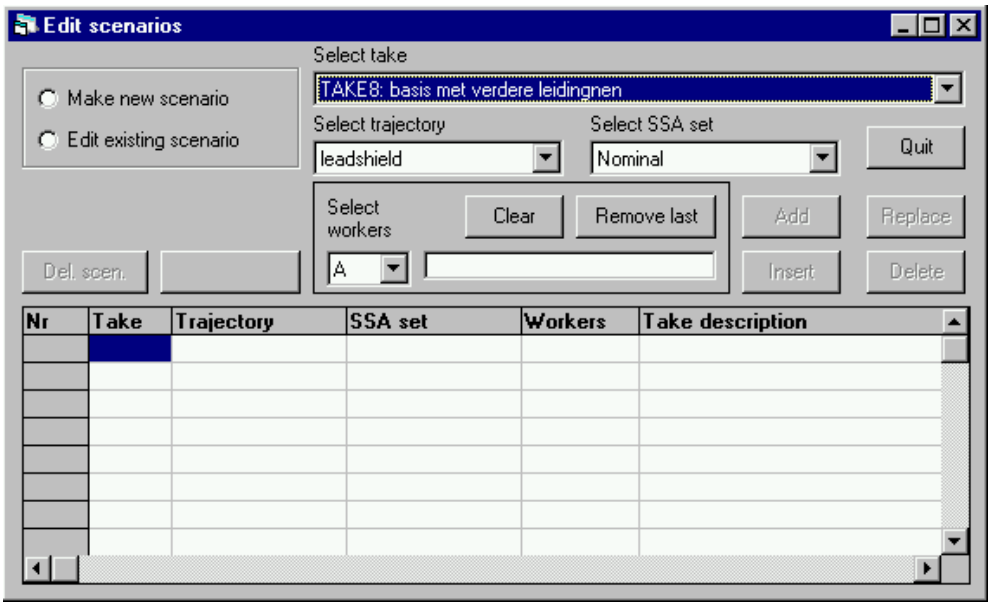
Edit existing SSA set

The set is selected by choosing a name from the drop-down list. The Edit-set command allows you to change the multiplication factor of every source. The multiplication factor can be changed by first selecting the source followed by typing in the new value or by using the spin button in the multiplication factor box. The multiplication factor only becomes valid when it is confirmed by pressing the *change* button.

Edit

scenarios

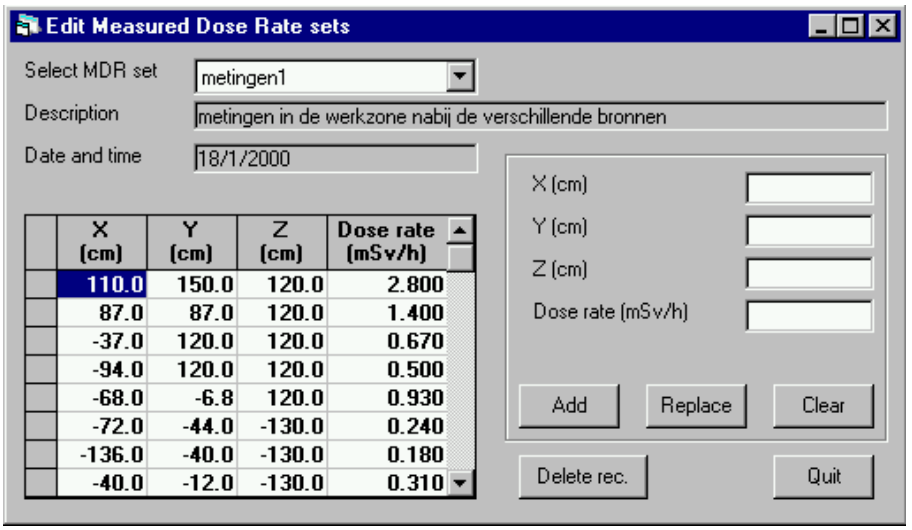
This form makes it possible to assemble different trajectories from different Takes into a scenario. SSA-sets can used to bias the trajectory results.
A worker or a group of workers must be assigned to a certain trajectory in the select workers window. The worker is chosen from the *Select workers* drop-down box.



Edit

Measured Dose Rate sets

This form makes it possible to add, replace or delete data in a measured dose rate set. The buttons available on the screen are self-explaining.



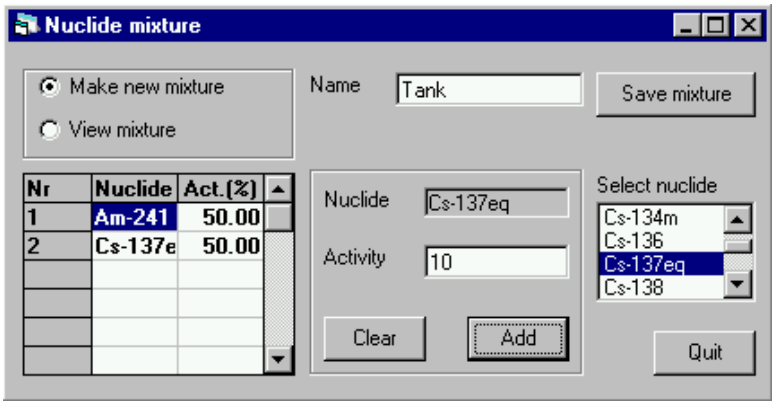
X (cm)	Y (cm)	Z (cm)	Dose rate (mSv/h)
110.0	150.0	120.0	2.800
87.0	87.0	120.0	1.400
-37.0	120.0	120.0	0.670
-94.0	120.0	120.0	0.500
-68.0	-6.8	120.0	0.930
-72.0	-44.0	-130.0	0.240
-136.0	-40.0	-130.0	0.180
-40.0	-12.0	-130.0	0.310

Edit

Source mixtures

Isotope mixtures

This form allows the definition of a source containing several isotopes. Each isotope together with its activity is entered in the form. The activities are recalculated to a percentage value. The isotope mixture is stored in the database with the name you have chosen by pressing the *save mixture* button. The mixture name will be available in the *input source* and the *edit source* commands in the isotope selection box.

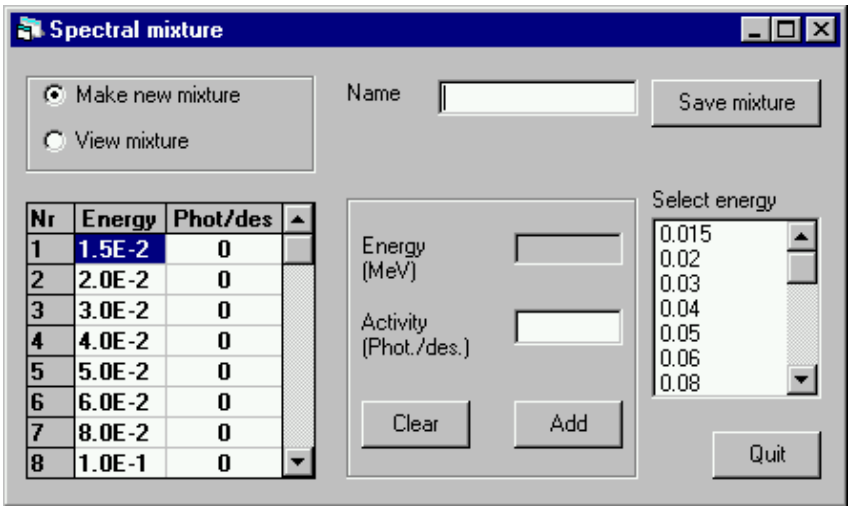


Edit

Source mixtures

Energy Spectrum

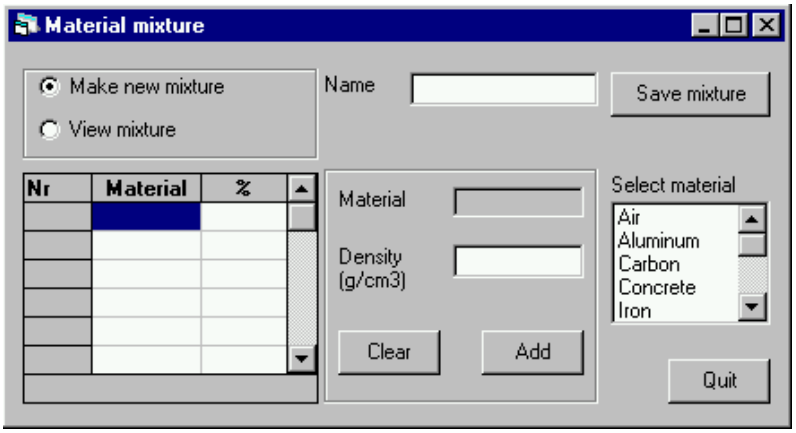
The spectrum of a source can be defined in this form. The spectrum must be defined at standard indices. The standard indices are given in section 3.2.2.. The spectrum is stored in the database when *save mixture* is pressed.



Edit

Material mixtures

This form makes it possible to define a new material as a mixture of the materials in the material database. The materials must be chosen from the select material list and their density in the mixture must be given in the density input box. The material mixture is stored in the database when the *save mixture* button is pressed

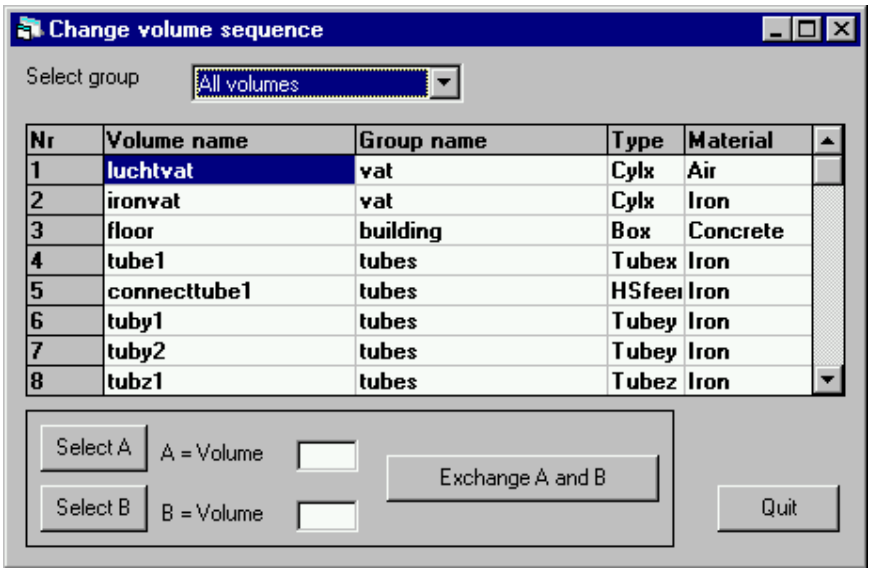


Edit

Change volume sequence

This form is used when sequences of nested volumes have to be changed. Nested volumes are volumes where a part or the whole of one volume lies in the other.
With these nested volumes you can define another material area inside a bigger volume.

However care must be taken in the definition of the volume sequence. The volumes inside a larger volume have to be defined first in the volumes list otherwise they are not accounted for. The volume sequences is changed with the following form:



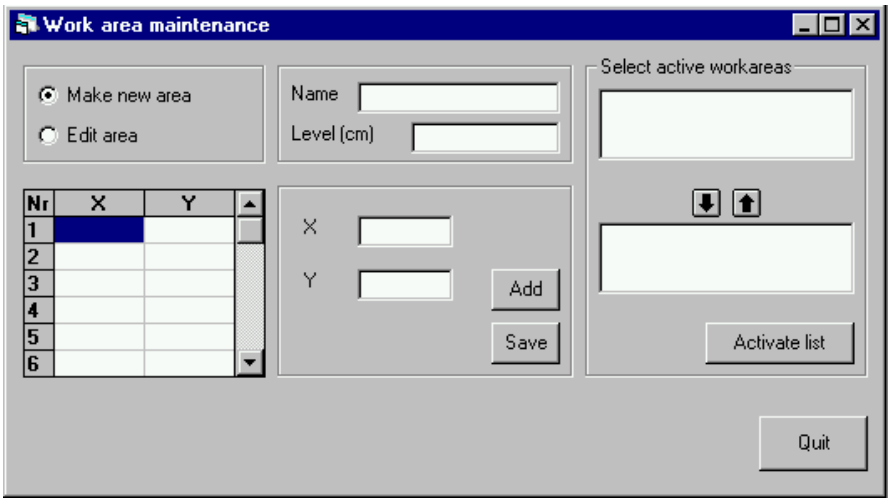
Use *select A* and *select B* to chose the volumes to be exchanged then press *exchange A and B.*

Edit

Work area

A work area is a graphical aid, it is used to mark the region where the workers have to perform their tasks. The work area's are mostly used in complex models to mark the region of interest.

A work area is a broken line object that lies in a z-plane following a set of (x,y) co-ordinates. The z-value is called the level. The x, y co-ordinates describing the object can be entered in the following form:



You need to activate the work area's, by putting them in the *select active work area's*, in order to be available in the draw menu.

Edit

Update Source strengths

This command makes it possible to change the source strengths in the take definition to new values based on a SSA set. This command is used mostly when you have determined your source strengths from an MDR set and you want to perform further simulations based on the derived sources. The update source strengths command cannot be undone.
The source strengths based on a MDR set are saved as a SSA set with the same name as the MDR set. The source strength, given when the source was defined, times the value of the SSA set is equal to the calculated source strength.
Updating the source strengths sets the values of this set to 1 and the source strength in the take definition is now the calculated one. All existing SSA sets for the take (except the nominal one) are adapted in such a way that the source strength times the SSA value remains unchanged.