36. The system of claim 31, wherein the computer is further configured to prevent a patient infusion procedure if a breakthrough test result exceeds an allowable limit.

37. The system of claim 31, further comprising an activity detector.

38. The system of claim 37, wherein the computer is configured to divert eluate generated via elution to a waste bottle until the activity detector detects a given level of activity.

39. The system of claim 38, wherein the given level of activity is ~~approximately~~ 1.0 millicurie ~~per second~~.

40. The system of claim 31, further comprising a display configured to display the breakthrough test results.

41. The system of claim 40, wherein the computer is configured to control the display to provide an indication of progress of the breakthrough testing.

42. The system of claim 31, further comprising a cabinet structure, wherein the shielding assembly is positioned inside the cabinet structure and the computer is carried by the cabinet structure.

43. The system of claim 31, wherein the dose calibrator is configured to physically receive the sample of eluate generated during breakthrough testing.

44. A method comprising:

generating, with a radioisotope generator contained within a shielding assembly, a radioactive eluate via elution of an eluant;

measuring, with a dose calibrator electronically coupled to a computer carried by the shielding assembly, an activity of the radioactive eluate; and

determining, with the computer, an activity of rubidium-82 within the radioactive eluate.

45. The method of claim 44, further comprising determining, with the computer, an activity of strontium-82 and an activity of strontium-85 in the radioactive eluate.

46. The method of claim 45, further comprising determining, with the computer, a ratio of the activity of strontium-82 divided by the activity of rubidium-82 and a ratio of the activity of strontium-85 divided by the activity of rubidium-82.

47. The method of claim 46, further comprising determining, with the computer, if the ratio of activity of strontium-82 divided by the activity of rubidium-82 and the ratio of the activity of strontium-85 divided by the activity of rubidium-82 are within allowable limits.

48. The method of claim 47, wherein the allowable limits include the ratio of the activity of strontium-82 divided by the activity of rubidium-82 and the ratio of the activity of strontium-85 divided by the activity of rubidium-82 each being less than 0.02 microcurie / millicurie.

49. The method of claim 44, further comprising displaying breakthrough test results determined by the computer.

50. The method of claim 44, further comprising preventing, with the computer, a patient infusion procedure if a breakthrough test result exceeds an allowable limit.

51. The method of claim 44, further comprising measuring, with an activity detector electronically coupled to the computer, an activity of the radioactive eluate.

52. The method of claim 51, further comprising controlling, with the computer, a diverter valve to divert the radioactive eluate to a waste bottle until the activity detector detects a given level of activity.

53. The method of claim 52, wherein the given level of activity is ~~approximately~~ 1.0 millicurie ~~per second~~.

54. The method of claim 44, wherein the shielding assembly is positioned inside a cabinet structure and the computer is carried by the cabinet structure.