LMB 1
San Pedro Creek outlet. Water sample.

LMB 2
Sand dune between parking lot and Hwy 1. Sand Sample.

LMB 3
North beach at water's edge. Water or wet sand sample.

LMB 4
North beach at dunes. Sand sample.

w/ = detector IS covered by plastic bag. Alpha radiation is blocked.
w/o = detector IS NOT covered by plastic bag.
detector used is InspectorPlus or equivilent [link].

Establishing the Background Count
Normal background radiation levels vary at different locations, even in different areas of the same room. To accurately interpret the readings you get on the palmRAD 907, it is a good idea to establish the normal background radiation level for each area you plan to monitor. You can do this with a timed count.

Use the following steps to get a ten minute average.

1 With the palmRAD 907 operating, set the Mode switch to Total/ Timer.
2 Set the Timer switch on the end panel to Set. Unless you have previously changed it, the display reads 00:01, which means one minute.
3 Press the + button nine times. The display should read 00:10, for ten minutes.
4 Set the Timer switch to On. The palmRAD 907 beeps three times and starts counting.

If you want to see how much of the ten minutes remains, set the Timer switch to Set. The display counts down from ten minutes to zero. For example, if the display says 00:03, seven minutes have passed and three minutes remain. Reset the switch to On to return to the radiation level display.

5 At the end of the ten minutes, the palmRAD 907 beeps three times, and repeats the beeping several times. Note the total reading.
6 To find the average counts per minute, divide the total by ten (the number of minutes).

Note

Two common unwanted radio isotopes in our environment due to nuclear power plant failure to contain fission by-products:

Cesium-137

Radioactive cesium-137 is produced when uranium and plutonium absorb neutrons and undergo fission. Examples of the uses of this process are nuclear reactors and nuclear weapons. The splitting of uranium and plutonium in fission creates numerous fission products. Cesium-137 is one of the more well-known fission products.

It has a half-life of about 30.17 years, and decays by beta emission to a metastable nuclear isomer of barium-137: barium-137m (137mBa, Ba-137m). (About 95 percent of the nuclear decay leads to this isomer. The other 5.0 percent directly populates the ground state, which is stable.) Ba-137m has a half-life of about 153 seconds, and it is responsible for all of the emissions of gamma rays. One gram of cesium-137 has an activity of 3.215 terabecquerel (TBq).

Caesium-134

It has a half-life of 2.07 years. It is produced both directly (at a very small yield because 134Xe is stable) as a fission product and via neutron capture from nonradioactive Cs-133 (neutron capture cross section 29 barns), which is a common fission product. Caesium 134 is not produced via beta decay of other fission product nuclides of mass 134 since beta decay stops at stable 134Xe. It is also not produced by nuclear weapons because 133Cs is created by beta decay of original fission products only long after the nuclear explosion is over.