June 2011

Dr. C.T. Hess
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Department of Physics
University of Maine
Orono, ME 04469-5709

Shep Erhart
Maine Coast Sea Vegetables, Inc.
3 Georges Pond Rd.
Franklin, ME 04634

Dear Shep,

We have used our Canberra Germanium Detectors to check for the presence of isotopes produced by the Fukashima accident in Japan. These detectors were used to collect gamma spectrum in the energy range 20-2000 keV. The spectra are collected using the software program Maestro. The detectors were calibrated for energy using liquid standards of Cs-137, Ba-133, and Co-60. These standards cover the range of energy where we would expect to see isotopes such as I-131, Cs-137, and Cs-134 which were produced by the Fukashima accident in Japan.

It is important to note that these detectors can detect radiation levels far below any limits set by the EPA or FDA for radiation in air, water and food products. For example; the EPA sets the limit in air for occupational exposure to I-131 to be 2.1x10-13 Ci/m3 or .0078 Bq/m3 we are able to measure down to around 100 MICRO-Bq/m3 which is about 1000 times less than the EPA estimate.

Each sample was measured in the bag they arrived in so I would have as large a sample size as possible and was counted between 12-24 hrs. This method allows us to do a quick visual inspection of the spectra to see if any isotopes of interest are present. If isotopes are present we can then put the samples in a standard geometry (the same geometry as our calibration standards) and recount them.

For all of your dried samples measured (all the newest samples dulse, digitata and kelp) we obtained **no evidence** for the presence of isotopes from the Fukashima accident (I-131, Cs-137, Cs-134). This means that at the time of measurement there were no detectable amounts of these isotopes. All of the dried samples were at least a month old so it is likely that any I-131 that was present had decayed away since I-131 has an 8 day half-life. Your samples are well

below any limits set by the FDA. Seaweeds measured by Simon Frasier University in March 2011 in Vancouver, BC by and in April 2011 in Pugent Sound showed some trace amounts of iodine but again at levels far below any guidelines.

The isotope that contributes most significantly to the spectrum in your samples is K-40, a naturally occurring (primordial) isotope of potassium and in some cases small amounts of Be-7 (a short ~53 day half-life) a naturally occurring isotope produced by the interaction of cosmic rays with nitrogen and oxygen in the atmosphere.

We are also in the process of analyzing the spectra of 40 fresh seaweed samples although visual inspection of the spectra indicates that no detectible amounts of isotopes associated with fallout are present in the samples. Now that we are coming to an end of our deluge of fresh samples I will be going back and putting all your older samples into our standard geometries for counting but I don't anticipate any changes to my results.

I hope this helps and we will continue to keep you updated.

Sincerely,

C.T. Hess, Professor of Physics

Anna Jeanne Schliep, Graduate Assistant

Department of Physics and Astronomy