THE GRAY*STAR SOLUTION

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The title of this presentation is *not* in direct reference to the potential loss of methyl bromide which presents a serious problem for the United States agricultural community. The **GRAY*STAR™** irradiator is a solution to much broader problems facing our nation today. However, the availability of the **GRAY*STAR™** irradiator can be of great benefit to agricultural producers for certain post harvest applications. The **GRAY*STAR™** irradiator can typically be used for agricultural purposes in the following ways:

Disinfestation of Insects (Quarantine)
Extension of Shelf-life (Vegetables & Fruit)
Prevention of Sprouting (Potatoes, Onions & Garlic).

Other practical uses include: Reduction of Food and Cosmetic Borne Pathogens (Bacteria and Parasites), Sterilization (Medical Supplies, Personal Products, Food & Containers).

The GRAY*STAR™ irradiator is a totally new, completely different type of irradiator. It will irradiate agricultural products loaded on standard forty by fortyeight inch pallets. Almost seven years in development, it was designed to meet the needs of the producer rather than the imagination of nuclear engineers. The **GRAY*STAR™** irradiator, because it is inherently safe and easy to operate with minimal maintenance required, will bring the irradiation process to the user's packing house or any other production site where the products are being processed for shipment.

The **GRAY*STAR™** irradiator is an all steel prefabricated piece of equipment, rather than a conventional "Irradiation Facility", which must be constructed on the user's site. **GRAY*STAR™** units will be fabricated at facilities such as the Babcock and Wilcox's plant in Mt. Vernon, Indiana. Following fabrication, the **GRAY*STAR™** units will be shipped to a governmental facility such as the Hanford Site in Richland, Washington or the Savannah River Site in Aiken, South Carolina for the loading of the cesium radiation sources. Once loaded into the lower portion of the **GRAY*STAR™** irradiator, called the **"Graysafe™"**, it is security welded making the cesium inaccessible. To be reloaded this **Graysafe™** cask must be returned to the source loading site where it can be reopened. The cesium sources will then be reprocessed, the non-radioactive material removed and additional replenishment cesium added. **There will be no radioactive material to dispose of or bury.**

The **Graysafe™** which contains the radiation sources, measures eight and one half feet by ten and one half feet and is twelve feet high weighing 165 tons. The remainder of the irradiator, the upper above ground portion is shipped separately and weights a mere 32 tons. Although the **Graysafe™** is very heavy, it can be transported to most sites by ship, rail or special truck; much the same way other overweight items are presently moved.

Before the irradiator arrives at the designated site some preparation is required. A simple hole must be prepared at the site to contain the **Graysafe™**. Conventional footings and retaining walls are required. The necessary drawings and specifications will be supplied. When the **Graysafe™** arrives at the prepared site it is taken from the vehicle and lowered by crane into the hole. The cover is removed and the upper portion of the irradiator is brought in and attached to the **Graysafe™**.

At no time during installation is any exposure to irradiation possible. The hydraulic cylinders, power pack and computer console are then attached to the assembled unit. The entire installation requires only one day. After one hour of on-site training, the unit can be used for full production, because all systems are precalibrated prior to shipment.

The **GRAY*STAR™** irradiator uses a completely new way of measuring and controlling the amount of radiation the product receives. Measurement and control are linked together with an automatic electronic dosimetry system named the **"Autogray™"**. A record of all processing information is accumulated and stored in the unit's computer. **Both the maximum and minimum doses of radiation received by the product are fully validated for each and every pallet.**

The unit's computer can be accessed remotely since every **GRAY*STAR™** irradiator is equipped with a satellite data-link phone system. Consequently regulatory agencies, such as the United States Department of Agriculture, can immediately review the unit's processing records with a special code number and a simple phone call from anywhere in the world. **This system, designated "Graycom™", has never been available before and will greatly reduce the need and cost of on-site inspection.**

The operation of a **GRAY*STAR™** irradiator is remarkably simple.....no more difficult to operate than a microwave oven. Its machinery is robust, but it is an extremely sophisticated piece of equipment. The cesium sources are arranged and contained in four panels set flush to the inside surfaces of a steel box. The sources do not emerge out of the lower shield until the box surrounds the upper column, *absolutely* preventing any irradiation from escaping from the unit, regardless of the position of the sources. A special internal device, called the **"Graystop™"**, prevents any radiation from streaming. No irradiation can escape, whether the sources are in the "Down" position, the "Up" position, or any position inbetween. Safety does not rely on an electronic interlock system. **The GRAY*STAR™ irradiator is inherently safe.**

The **GRAY*STAR™** irradiator was specifically designed for the user, as well as meeting all regulatory requirements at their very highest standard. The **GRAY*STAR™** irradiator will be available soon. A video describing the **GRAY*STAR™** irradiator is available now on request.

For your free copy call 1 (800) 655 2527 or fax your request to 1 (413) 592 8202.