7796 S Innovation Way, Bunker Hill, IN 46914

INTRODUCTION

A new medical radioisotope production and research complex has been established by AZIsotopes (AZI) in Northern Indiana. It will include several cyclotrons having a spectrum of energies, supporting laboratories, chemical processing facilities, technical shops, and offices. Operations will provide substantial production capacity to help meet society's growing need for theranostic radiopharmaceuticals used in nuclear medicine. Opportunities for research and new radioisotope development for medical uses has been provided in cooperation with the science community representing universities and medical institutes across the nation.

SITE & FACILITY

The initial phase of development consists of two concrete and steel buildings on 20 acres at 7796 S. Innovation Way, Bunker Hill, IN. Expansion plans are underway for the addition of a third building (refer to Fig. 1).

WORLD-WIDE HEADQUARTERS

FIG. 1. AZI'S FACILITY CURRENTLY CONSISTS OF THE TWO BUILDINGS SHOWN ABOVE. BUILDING A AT THE RIGHT, IS DESIGNED TO HOUSE SEVERAL LOW ENERGY CYCLOTRONS, CHEMICAL PROCESSING OPERATIONS, SUPPORTING LABORATORIES, TECHNICAL SHOPS, AND OFFICES. BUILDING B AT THE LEFT, HOUSES THE 70-MEV CYCLOTRON, HOT CELLS, FOR PRE-PROCESSING OF IRRADIATED MATERIAL, AND TECHNICAL SHOPS. THE CYCLOTRON AND RADIATION CELLS IN BUILDING B ARE SHIELDED BY THREE-METER-THICK CONCRETE WALLS AND CEILINGS TO PROTECT WORKERS AND MEMBERS OF THE PUBLIC.

OPERATIONS & PRODUCTION

Greg W. Brooksby President and CEO

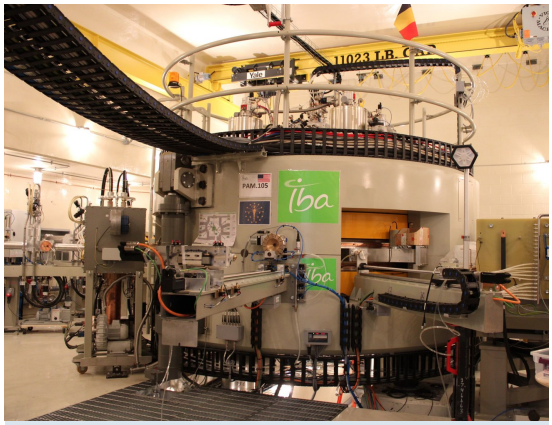

FIG. 2. AZI'S HIGH PROTON CURRENT, 70-MEV CYCLOTRON WAS MANUFACTURED BY ION BEAM APPLICATIONS IN BELGIUM AND IS SHOWN ABOVE.

FIG. 3. INSIDE VIEW OF ONE OF THE SIX TARGET IRRADIATION CELLS.

AZI has installed and is currently operating a 70-MeV high proton current cyclotron manufactured by Ion Beam Applications. It is dedicated to high volume production of under supplied isotopes and research for new and emerging therapies and diagnostics. Proton beam exit energies can be varied from 30-MeV to 70-MeV, thereby enabling the facility to economically and efficiently, produce a wide variety of radioisotopes or conduct various types of experiments for development of new radioisotopes.

Production schedules continue to grow since AZI's completion and testing of all equipment, including the NRC's completion of its review and issuance of a Facility License for operations and material handling.

The two 12-ft. diameter upper and lower magnets are visible in Fig. 2 above. Strippers within the cyclotron can provide two proton beams exiting the cyclotron and directed to irradiation cells in opposite directions—enabling simultaneous production on two separate targets.

Medical radioisotopes and radiopharmaceuticals will be developed and produced to meet growing market demands. AZI will cooperate with interested universities and research institutions to conduct activities designed to advance technology for production and processing of theranostic radioisotopes for nuclear medicine applications.

In Fig. 3, the high-energy proton beam enters within a vacuum tube from the left, passing through the quadrupole focusing magnets, and can be made to impact upon selected materials in the target assembly at the center of the room. Nuclear reactions produced in such impacts result in creation of new radioisotopes having decay characteristics that can be used by hospital physicians in conducting high-resolution diagnostic imaging of patients' organs. Following irradiation, the target is transported by the remotely-operated pneumatic system (shown in the foreground) to hot cells for chemical processing and shipment to customers.

FURTHER INFORMATION CONTACT

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