SRS Heritage Foundation NEWSLETTER

July, 2013

Aiken Together …

HERITAGE CENTER COMING TO AIKEN!

A downtown Aiken location for the SRS Heritage Center is about to become a reality!

A donor has promised a building in downtown Aiken to be adapted for use as the Heritage Center. Although the donor and the specific building cannot be identified at this time, the Foundation is moving rapidly to obtain funding required to adapt the building and equip it with exhibits as soon as it becomes available.

The SRS Heritage Foundation has joined the "Aiken Together" capital campaign with the Center for African-American History, Art and Culture and the Aiken Visitors Center and Train Museum to raise money for capital improvements at the three facilities. Dwayne Wilson, President and CEO of Savannah River Nuclear Solutions LLC., is Chairman of the campaign and is actively leading the fund-raising effort. The "Aiken Together" campaign is designed to raise $2.9 million from individual and business donations pledged over a 5-year period. No public money will be solicited during this campaign. The first two fund-raising meetings were conducted in July featuring a video and brochure prepared specifically for the campaign by SRNS. Further meetings are planned at regular intervals during at least two years.

Capital funds raised by the "Aiken Together" campaign will be divided between the three entities to complete renovation and equipping of their facilities. The SRS Heritage Foundation will receive 31% of the money collected by the campaign for adaptation of the building and creation of exhibits to equip the SRS Heritage Center. The Center for African-American History, Art and Culture will receive 41% of the donations to complete restoration and exhibits for the former Immanuel Institute building. The Aiken Visitors Center and Train Museum will receive 28% for restoration of two Pullman cars and construction of catering facilities and restrooms.

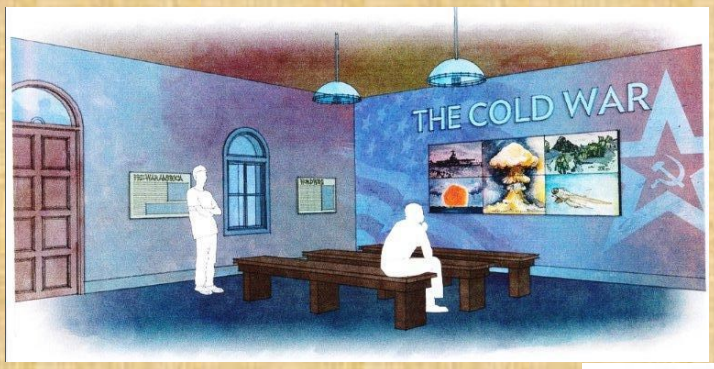
The SRS Heritage Center is projected to receive a total of $900,000 from the 5-year campaign. About half of this money will be used to pay for capital improvements to adapt the promised building for use as the SRS Heritage Center. These improvements are expected to include addition of an elevator and modifications to the heating and ventilating system. Although the pledged donations will accumulate over a 5-year period, the Foundation plans to borrow against the pledges to begin work as soon as the building becomes available. Hopefully, we will be able to commence design of building modifications during the next year.

At the same time, we will begin to use money from the capital campaign for final design of exhibits for the Heritage Center. The Foundation obtained preliminary designs of potential exhibits in 2007 from Lord-Aeck-Sargent of Atlanta. Last year the Foundation commissioned additional preliminary designs and cost estimates from The History Workshop of Charleston. Artist's renditions of several exhibits proposed by the History

Workshop are shown. These two sets of preliminary studies will provide excellent input for the final designs of exhibits for the Center.

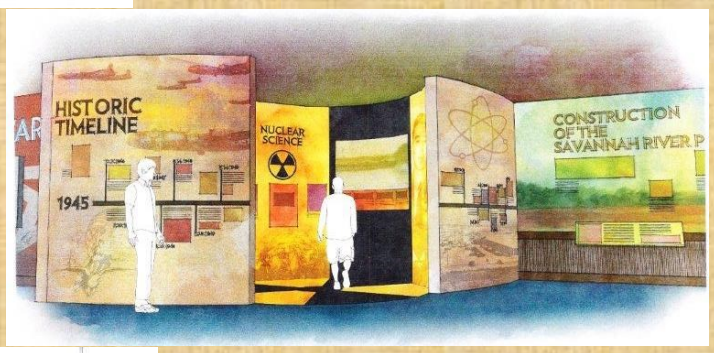
The downtown Aiken location for the SRS Heritage Center does not preclude the option of locating another facility at the Savannah River Site to showcase the heritage of the Site. DOE-SR Manager, Dr. David Moody, has expressed interest in expanding the Research Park adjacent to the Site; as part of the projected expansion, he has proposed space for the Heritage Foundation in a museum and visitor's center.

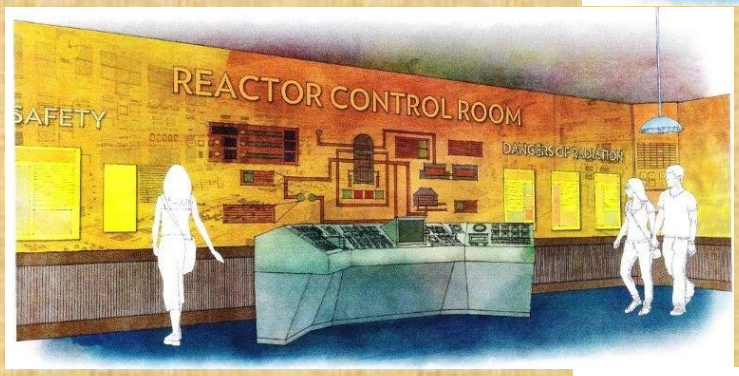
It's been a long time but our dreams are beginning to take shape.
Exciting times are coming!



Proposed Cold War Exhibit

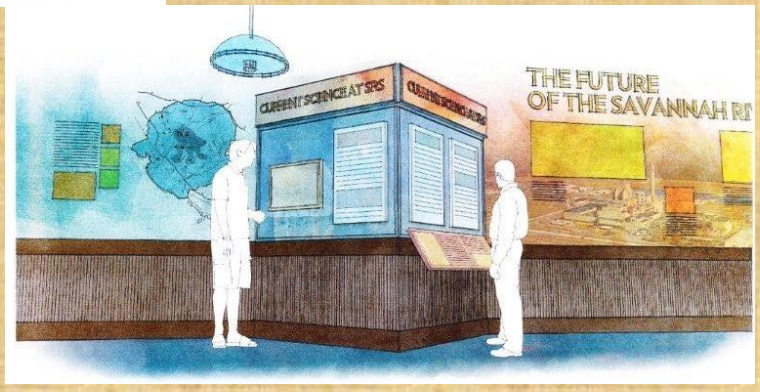
Introduction to Nuclear Science Exhibit





Proposed Reactor Control Room Exhibit Including Actual Control Console from Process Development Pile

Typical Exhibit Kiosk for Special Programs

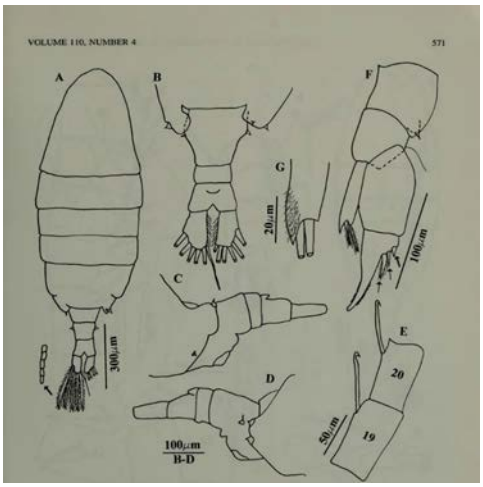


Preserving & Interpreting Savannah River Site

Aglaodiaptomus atomicus
A Copepod First Reported From the Carolina Bays of SRS

The Savannah River Site is widely known for its' huge size and scope; distances are measured in miles, weights are measured in tons, costs are measured in millions, and staff is measured in thousands. Among all these superlatives are some Site discoveries at the other end of the scale. First of these was the Neutrino, a sub-atomic particle discovered in 1956 and described as "the closest thing to nothing that is still something". More recently, two scientists at SREL discovered a previously-undescribed species of copepod in the Carolina Bays of SRS and memorialized the Site in the name of the tiny creature.

Adrienne DeBiase and Barbara Taylor were surveying the crustacean populations of impoundments, ponds, and Carolina Bays on the SRS in order to better understand the community differences among the various water bodies, when they found a copepod new to science. They named it *Aglaodiaptomus atomicus*.



Copepods are micorcrustaceans, and this particular species prefers shallow, acidic wetlands that dry periodically. Copepods and related small crustaceans are ubiquitous in water bodies, and are important to an ecosystem because they are an important food source for fish, larval salamanders, and larval insects, which in turn are food for other aquatic and terrestrial animals.

You can read more about this tiny creature in "*Aglaodiaptomus atomicus,* a new species (Crustacea: Copepoda: Calanioda: Diaptomidae) from freshwater wetland ponds in South Carolina, U.S.A., and a redescsription of *A. saskatchewanensis"* (SREL reprint 2230).

THE EXPERTS SPEAK…PHYSICISTS

"The energy available through the disintegration of radioactive or any other atoms may perhaps be sufficient to keep the corner peanut and popcorn man going in our large towns for a long time but that is all."
Dr. Robert Andrews Milliken (winner of the 1921 Nobel Prize in Physics), 1929

"There is not the slightest indication that (nuclear) energy will ever be obtainable. It would mean that the atom would have to be shattered at will."
Dr. Albert Einstein (physicist), 1932
The first self-sustaining nuclear chain reaction was achieved in 1942

THE EXPERTS SPEAK…NON-PHYSICISTS

"I do not hesitate to forecast that atomic batteries will be commonplace long before 1980. It can be taken for granted that before 1980 ships, aircraft, locomotives and even automobiles will be atomically fuelled."
David Sarnoff, Chairman of the Board of Radio Corporation of America, 1955

"Nuclear powered vacuum cleaners will probably be a reality within 10 years."
Alex Lewyt, President of the Lewyt Corp, manufacturer of vacuum cleaners, 1955

Excerpts from The Experts Speak…the Definitive Compendium of Misinformation. Cerf & Navasky,1998.

Preserving & Interpreting Savannah River Site History

SRS at Sixty

By Art Osborne

The separation of desirable products from irradiated target rods from the SRS reactors involved two primary process concepts: Liquid extraction and gaseous extraction. The liquid method was used to extract and purify Uranium, Plutonium and other desirable Transuranic elements. It was housed in the giant canyons discussed in the last newsletter. In addition to these main processes the canyons also housed A and B lines where solid Uranium and Plutonium were recovered and purified from concentrated liquid solutions. Gas extraction was used to extract and purify Tritium. When Tritium production began in the mid 50s it was in F Area in building 232 F. The Atomic Energy Commission (AEC) directive in 1951 called for a relatively small demand for Tritium but directed that the process be developed and built with an eye toward easy expansion.

In these early years the expected demand for Tritium was very uncertain and would change almost weekly with the continuing development of atomic weapons. National news stories were full of talk about Hydrogen bombs and the frightening progress being made by the USSR, When the technology and know-how for the thermonuclear bomb became sure and set; the demand for Tritium was firmly established. In 1953 another AEC directive called for a new, larger and much improved Tritium production facility. The facility would be built in H-Area. This was a major challenge for the scientists, engineers and personnel at the SRS. It was one that was met and surpassed. Tritium work to this day remains as one of the most important contributions SRS makes to in the national defense.

The extraction and purification process for Tritium was an entirely different process from that used for Uranium and Plutonium. Not only did the process involve working with a gas instead of liquids but it also involved working with an isotope of Hydrogen the smallest and most difficult chemical element to contain.

The Tritium extraction process starts with irradiated lithium-Aluminum assemblies from the reactors. These assemblies then undergo extraction (which includes receipt, drying and decanning); primary separation; stripping; isotope separation and packaging. Tritium was separated from the other Hydrogen isotopes by a process called thermal diffusion. The mixture of Hydrogen isotopes was fed at a controlled rate into a stainless steel 24 foot long tube with a centered, heated wire extending its entire length; a cooling water jacket encased the exterior wall. The lighter protium and deuterium atoms would move to the top of the tubes and the heavier Tritium would collect at the bottom and be drawn off, packaged and sent to storage.

The F-Area facility went into operation in October, 1955. By the fall of 1956 production capacity of the F-Area facility had been doubled. Numerous improvements to throughput had been developed and were incorporated into the then in construction H-Area facility. The operation of 232 F was short lived. The final charge was made on October 6, 1958. The new H-Area facility had made 232-F superfluous.

The need for Tritium was now firmly established and the H-Area facility was completed on an urgent footing. When finished in August, 1957 it was a self contained Tritium production, packaging and servicing facility. The completion of this facility allowed Tritium to be loaded into the actual weapons components versus having to be shipped to another facility for that procedure. SRS began receiving reservoirs from thermonuclear warheads in August, 1958. The decayed Tritium was discharged for these reservoirs and fresh Tritium installed. SRS also made significant contributions to the reclamation and reuse of these reservoirs. This saved considerable expense for maintaining this countries nuclear deterrent.

The work with Hydrogen done at the SRS made the site a recognized world leader in Hydrogen technology and know-how. Work is ongoing today at SRNL and the nearby Research Park to find better and more cost effective ways to meet the country's energy needs with minimum impact on the environment and at minimum cost.

Preserving & Interpreting Savannah River Site History

THANKS TO OUR SRS HERITAGE FOUNDATION SPONSORS 2013

We are please to recognize our sponsors who have made substantial contributions to Foundation programs.

Corporate Sponsor
Savannah River Nuclear Solutions

Corporate Member
Savannah River Remediation, LLC

Business Members
Security Federal Bank

A special thank you to the individual members for their continued support of the Foundation

JOIN THE SRS HERITAGE FOUNDATION TODAY!! WE NEED YOUR SUPPORT!

The week of October 21-25 has been designated National Nuclear Science Week for 2013. The national focus for the week will be on the Aiken/Augusta area.

National Nuclear Science Week will be concentrated in the Central Savannah River Area this year. A variety of special programs will be included in the week from October 21 through October 25. Specific programs scheduled to date include:

October 21…Edward Teller Lecture sponsored by Citizens for Nuclear Technology Awareness at the USCA Convocation Center. The speaker will be Marvin Fertel, President and CEO of the Nuclear Energy Institute.

October 22…Nuclear Workforce Development Day. A full day of talks, breakout sessions and exhibits at the Kroc Center in Augusta.

All week…Education Days with "Journey to the C enter of the Atom" at USCA Ruth Patrick Science Education Center, USC Salkehatchie and Georgia Regents University, Augusta.

Site tours…Plant Vogtle October 23 & 25,
V.C. Sumner October 22 & 23,
Savannah River Site October 24

More information on NNSW activities is available at

nwinitiative.org.

Preserving & Interpreting Savannah River Site History

LIKE US ON FACEBOOK! We will be posting news and tidbits during these exciting times of Foundation progress. The SRS Heritage Facebook page is open for business. Please join us at http://www.facebook.com/srs.heritage. And don't forget the news and archives at the website, http://www.srsheritage.org/ .

DON'T MISS OUT ON ALL THE GREAT NEWS AND EVENTS THAT ARE COMING….JOIN TODAY…(use this form to become a member)

SRS HERITAGE FOUNDATION MEMBERSHIP APPLICATION

I would like to become a member of the SRS Heritage Foundation in the following level. (Please Check One)

Benefactor	*$120.00*	☐
Patron	*$ 60.00*	☐
Sustaining	*$ 35.00*	☐
Student	*$ 15.00*	☐
Small Business	*$ 250.00*	☐
Corporate Member	*$1,000.00*	☐
Corporate Sponsor	*$5,000.00*	☐

I would be willing to help with Publications___, Membership____, Fundraising___, Publicity____, other___

This membership is valid through December 2013

Name:
Address:
City, Zip Code:
Phone:
Email (s):
Fax #:

My check, made out to the SRS Heritage Foundation, Inc. is enclosed. Contributions to the Foundation are tax exempt. Federal ID#20-1629370

Please mail to:
SRS Heritage Foundation, Inc.
P.O. Box 2226
Aiken, SC 29802
Phone: (803) 226-0116 or 648-5634
Email: SRSHeritageFoundation@gmail.com or qualityprt@aol.com

If your information hasn't changed, you can just put your check in the mail!!!

Preserving & Interpreting Savannah River Site History