SRS Heritage Foundation

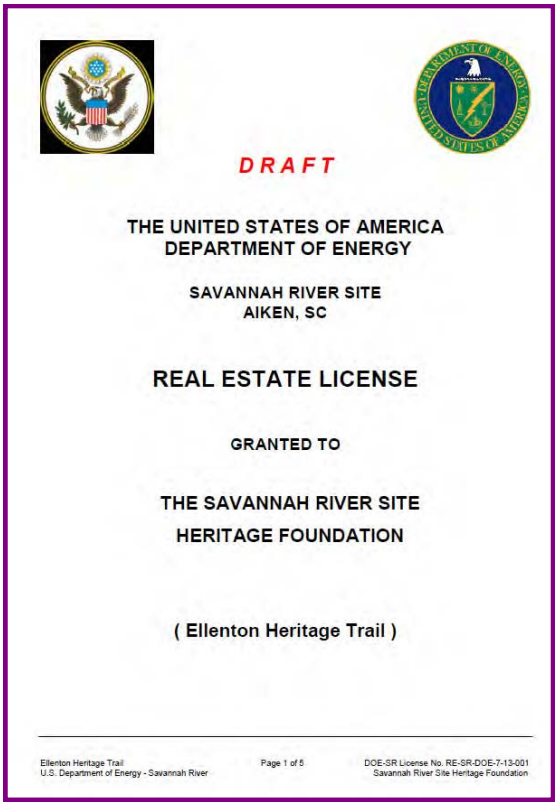
NEWSLETTER

November, 2012

Draft License for Ellenton Trail Received

A major step toward making the Ellenton Heritage Trail a reality was achieved recently with the delivery of a draft Real Estate License. The License between the US Department of Energy and the SRS Heritage Foundation proposes to license the Foundation to use about 6.4 acres of the former community of Ellenton on the Savannah River Site. The Foundation has been planning for years to open the Ellenton site to escorted walking tours and historic interpretation.

The draft License proposes to grant use of the Ellenton site to the Foundation for five years upon payment of a $1.00 fee. The proposed Trail will cover about 1½ miles in the downtown area of the displaced community. The Foundation has been collaborating with members of the SR Archaeological Research Program to develop interpretive materials for homes and businesses located along the Trail. Several details in the draft License remain to be resolved and the Business Plan for the Trail shows that additional financial support will be required before tours can be scheduled routinely. The Foundation expects to resolve these concerns so that tours can begin early next year.



DRAFT

THE UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY

SAVANNAH RIVER SITE
AIKEN, SC

REAL ESTATE LICENSE

GRANTED TO

THE SAVANNAH RIVER SITE
HERITAGE FOUNDATION

(Ellenton Heritage Trail)

Ellenton Heritage Trail
U.S. Department of Energy - Savannah River

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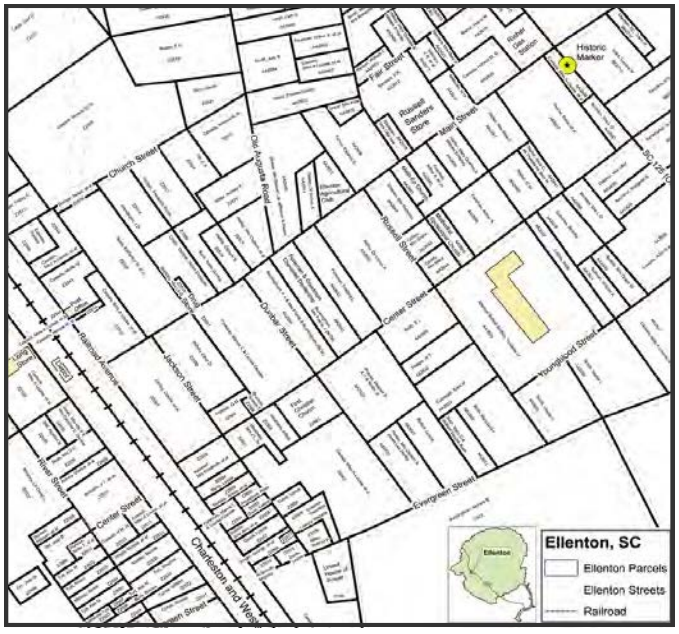
DOE-SR License No. RE-SR-DOE-7-13-001
Savannah River Site Heritage Foundation



SRS at Sixty

By Art Osborne

DuPont decided early in their discussions and planning for the operation of SRP that there would be a strong Technical presence. The Technical area was designated within the 700 administrative area. The management and operation of the laboratory was by DuPont's Wilmington Technical Division. They assigned a SRP Laboratory manager and staff. Construction of the main laboratory (Building 773-A) began in November 1951 and was completed February 1953.

The laboratory was constructed with a front wing for administrative functions and services, along with change facilities and labs for non-radioactive work. The main portion of the lab had two rows of laboratory spaces separated by a utility corridor. This portion was designated for radioactive work and outfitted for chemistry, metallurgy and other types of experimental work. The rear portion of the building was another wing that provided for instrumentation and maintenance. A second rear building wing was constructed with heavy shielding for work with highly radioactive material. These "high level caves" as they were called allowed technicians, using remote manipulators, to work with these materials. The caves began operation in 1953. They soon became a central and vital part of overall site and reactor operation.

Over the years the laboratory has been expanded many times. New high and intermediate level caves were soon needed to support the chemical separations work. One of the unusual features of the lab was the Glass Shop. This was for the manufacture of fragile pipettes, glasses, beakers and delicate glass assemblies not commercially available.

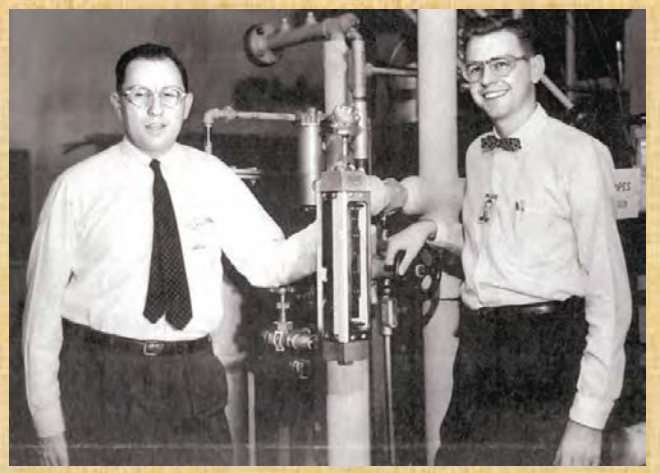
SRL Glassblowers 1955

Remote locations were also established to support the technical development of the many new processes that were required to get this mammoth site up and running.

Early on it was recognized that many planned operational processes would require development, study and confirmation through a pilot or semi-works operation. Much of this work would have to be done prior to start up. The CMX/TNX facilities were constructed to accomplish this. In April 1951 work started on the CMX test site. The location was near the Savannah River Landing and boat dock. Both CMX and TNX were located in what is known today as T-Area. This area is near the western boundary of the site and adjacent to the Savannah River. The location was chosen so work could go on without interfering with the main construction active in other areas and also because it was near abundant electrical power.

The CMX facility was completed in November 1951. One of the first tasks for CMX personnel was to determine the minimum treatment needed for river water that would be run through the reactor heat exchangers. The river water would be pumped from the river and passed through these heat exchangers to cool the heavy water that was used to moderate and cool the reactor core. The water could then be released back to the river or into holding locations like Par Pond.

The study of the water produced dramatic results. It turned out that there would no treatment needed as the sand and silt in the river water acted like an abrasive and scoured the surfaces where minerals could have accumulated. This work allowed for significant cost reduction by canceling the need for treatment facilities in the reactor areas.



Otto Morris and Al Peters circa 1960

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Preserving & Interpreting Savannah River Site History

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TNX was built at the same time as and adjacent to CMX. The first equipment was placed into Bldg. 678G in October of 1951. The purpose of TNX was to provide scale operation for separations and waste management. This included the equipment used in the PUREX process. Initially work focused on scaling up the mixer-settlers to plant scale operation. Equipment such as evaporators, gang valves, centrifuges, decanters, agitators and more were also tested to provide operational parameters and optimum set up information. Proposed new processes were also tested and proved out before introduction into the SRP operation.

TNX operations declined as the processes used in the site matured. This changed in about 1980. TNX was reawakened to support the work necessary to start the clean up of 30 years of defense production nuclear waste accumulated in the site's massive waste storage tanks. This work included the start up the first glass melter and developing the processes and equipment that are used today in the DWPF Area. In about 2001 the CMX/TNX area was closed as computers and electronic simulation had effectively obviated the need for semi-works experimentation. Today the buildings and equipment have been removed or razed and the land reclaimed.

CMX, TNX 1989

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, and already has 70 followers! 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/ .

Bea Crawford Departs

Bea Crawford, one of the founders of the SRS Heritage Foundation, has left Aiken and moved to Gaithersburg, Maryland to be nearer her family. Bea and her husband, the late Dr. Todd Crawford, began working to preserve artifacts at the Savannah River Site in 2003. Todd was one of the first officers of the Foundation when it was formed and served on the Board of Directors until his death in 2007. Bea was elected to the Board to replace Todd and served as Chair of the Education Committee; in this role she led the distribution of the video "Displaced" and resource material to middle school teachers in Aiken, Barnwell, Allendale, Columbia and Richland Counties. We will miss her cheerful service on the Board and the Committee but, above all, we will miss her friendship

Waste Tank Closure

SRS celebrated closure of two more high-level waste tanks October 1st. The closure of tanks 18 and 19 continued the process of tank closures that began in 1997 with the closure of tanks 17 and 20. Closure of the four F-Area tanks reduces the potential risk of high-level waste getting into the environment. Eliminating the Cold War legacy nuclear waste at SRS represents the largest environmental risk reduction in the state of South Carolina.

Left to Right: U.S. Senator Lindsey Graham, SCDHEC Director Catherine Templeton and DOE Under Secretary for Nuclear Security Thomas D'Agostino

Atomic City Festival

The SRS Heritage Foundation participated in the Atomic City Festival in New Ellenton October 13th. The Foundation provided an exhibit with a map of the downtown area of the former community of Ellenton and historic photographs of buildings located in that area. The exhibit was enjoyed by Festival-goers and stirred interest in the historic roots of the City of New Ellenton.

Nuclear Science Week Set

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. Watch for further announcements.

Horticultural Corner—Alert reader, Jack Roberts, noted that the flower mistakenly identified as a Morning Glory in the August, 2012 Newsletter was a Butterfly Pea. It's nice when someone notices… even errors

John Granaghan 1929-2012

John T. Granaghan, formerly the Manager of the Savannah River Plant recently passed away at the age of 83. John was a native of Jacksonville, Florida and a graduate of Auburn University. He was hired by DuPont at the Sabine River Works in Texas but his career was interrupted by service in the US Army Corps of Engineers during the Korean conflict. He rejoined DuPont and was promoted steadily as he was assigned to commercial plants in Texas, West Virginia, Louisiana and North Carolina. He came to Savannah River in 1979 and served as Plant Manager until 1988. John was widely respected for his leadership style which left no doubt as to where he stood on the issues of the day.

William P. Bebbington 1915-2012

Dr W.P. Bebbington, a pioneer of the early years of atomic energy, passed away September 7th in Columbia, SC. Bill was born in Painted Post, New York and received his PhD in Chemical Engineering from Cornell in 1940. Bill was involved in the production of heavy water for the Manhattan Project during World War II and was assigned to DuPont commercial enterprises after the war. He transferred to the DuPont Atomic Energy Division in 1950 as work on the Savannah River Plant was beginning and became the first Superintendent of the Heavy Water Technology Section. His last 12 years at SRP were spent as General Superintendent of the Works Technical Department. He later wrote "The History of DuPont at the Savannah River Plant" in 1990. He was a Fellow of the American Institute of Chemical Engineers and an avid amateur botanist who supported the Hitchcock Woods Foundation.

Barry Replaces Webb on Board

Clif Webb has been transferred to Dallas, Texas to assume the position of Vice President of Corporate Affairs for Fluor Corporation. The move necessitated his resignation from the Heritage Foundation Board of Directors. Clif has been replaced by Carol Stetson Barry, SRNS Director of Workforce Services. Carol is the daughter of Nathaniel Stetson who led the DOE Savannah River Operations Office from 1965 to 1980. Welcome Aboard, Carol.

Santa's Elf Suggests:

A copy of the "Displaced" video, recounting the stories of people dislodged from their homes and livelihoods by the coming of the Savannah River Plant. Available at the SRS Heritage Foundation in the Aiken Chamber of Commerce building on Richland Avenue or at the CNTA office on Whiskey Rd. $20.00

A copy of the book, "History of DuPont at the Savannah River Plant" by W.P. Bebbington. A few copies of the 1990 book, long out of print, are still available at the SRS Heritage Foundation office at the Aiken Chamber of Commerce building…$20.00

A membership in the SRS Heritage Foundation. See page 8 for details.

Preserving & Interpreting Savannah River Site History

Du Pont at ORNL

By W. L. Poe, Jr.

Early in the Second World War the Du Pont Company was asked to design, construct, and operate the Hanford Works to manufacture plutonium for a nuclear weapon. Du Pont, using its technical resources, designed, constructed, and operated this one-of-a-kind facility, bringing the plutonium production reactors to power in 1942. The plutonium produced in the Hanford Reactors and purified and finished in the remainder of the Hanford Works was used in the nuclear weapon detonated over Nagasaki, Japan. The Du Pont commitment to design and operate the Hanford works contained three clauses: 1) Du Pont would not receive any payment for their work, 2) Du Pont would be held free from any hazards involved, and 3) the contract would be terminated when the national emergency (World War II) was completed.

In December 1948 the United States realized it did not have sufficient nuclear materials and asked Du Pont to make a survey of applicable chemical processes with an eye to using them to increase the production of plutonium for the United States. Again Du Pont agreed to the government's request. In October 1950, the study group, consisting of Du Pont Hanford alumni reported on the consequences of development of a new facility to produce plutonium. A letter contract was signed for this action.

In October 1950, Harry Truman, the President of the United States, at that time, asked Du Pont to take on a project to manufacture plutonium (Du Pont stipulated that the first two of the three Hanford clauses apply to the new contract). The first action under this contract was to select a site and the Savannah River Plant (SRP) was chosen. Immediately after the site selection was complete, Du Pont began to relocate its technical personnel to the SRP. The first SRP employees began work on December 1, 1950 at the current site of the Augusta Airport because office space was available. By May employees were being sited in the Central Shop area of SRP.

Early in the history of the SRP, Du Pont recognized the lack of information for the design of the Separations Area facilities to process plutonium and knew that Oak Ridge National Laboratory (ORNL) was conducting research on similar processes. Du Pont assigned 20 to 30 scientists and engineers to ORNL on temporary assignment, to participate in the development of the chemical processes that would be used in the design of the SRP Separations facilities. These SRP employees were assigned to the program demonstrating various aspects of the PUREX (an acronym for Plutonium and Uranium Extraction) process. PUREX was the separation process that would be used in the SRP separation facilities, commonly known as the Canyons. The Du Pont engineers and scientist worked with the Carbide (Union Carbide and Carbon Company operated Oak Ridge at that time) engineers and scientists in the ORNL Pilot Plant for about a year.

I was one of those Du Pont engineers and I began reporting to Lou Peery, on 6/18/1951. I worked in the Pilot Plant, Building 3019 (currently called Radiological Chemical Development Facility) until August or September 1952.

We dissolved irradiated fuel elements (slugs), clarified the dissolver solution, adjusted the clarified solution and processed it through a solvent extraction process that used pulsed columns (to remove unwanted fission products), recovering and concentrating the spent uranium and plutonium solutions. The waste solutions generated were evaporated and disposed of in much the same manner as would later be used in F-Canyon. The uranium and plutonium "finishing processes" developed by Carbide and Du Pont scientists produced solid uranium and plutonium.

I recall one day Dr. Don Orth brought what I remember as a plutonium button through the valve corridor to show us Du Pointers what the product would look like. Don was dressed in coveralls, wearing rubber gloves, and caring a button swathed in several layers of plastic. We were all quite impressed. I asked Don about this event recently and he did not remember the show-and-tell which is so memorable to me.

DuPont engineers and scientist were involved in all aspects of the Pilot Plant operation. I don't remember how the information was forwarded to the Du Pont Engineering Department for use at SRP in the Canyons' design. I assume that Lou Peery and Bob Martens, the bosses of the Du Pont

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THANKS TO OUR SRS HERITAGE FOUNDATION SPONSORS 2012

We are particularly pleased that several organizations have such faith in our future that they have made substantial financial contributions to our programs.

Among these supporters are:

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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!

.....Continued from Page 6 Dupont ORNL

contingent at ORNL, had that responsibility.

One of the processes I was involved in was the treatment of the dissolver off-gasses. These off-gasses contained radioactive noble gasses which, if released to the atmosphere, could be analyzed to ascertain how much plutonium the U.S. was processing. We developed a process to remove these noble gasses from the remaining off-gasses. We also developed an off-gas filter that was adapted for SRP and was used until the production of plutonium ceased at the end of the Cold War in the 1980s.

After a year of work on the ORNL pilot program, the Du Pont staff was transferred. Some (including me) went to the Dana Heavy Water Plant, in Dana, Indiana, to work its start-up. The Dana Heavy Water Plant would produce the first heavy water for the SRP heavy-water-moderated reactors. Du Pont scientists at Oak Ridge who did not move to the Dana Plant transferred directly to SRP to help construction and startup of the 200-Area B-Line or to work in the Savannah River Laboratory. After a couple of months at the Dana Plant, most of us were transferred, in October, 1952, to start up the SRP Heavy Water Plant in the 400-Area. Later we were transferred to the separation facilities (his 200-Areas) for construction and start-up of the 200-Area processes. (I came to SRP on October 1, 1952).

The short time we spent at ORNL participating in the demonstration of the PUREX process paid off in the 200-Area operations. Design of separation facilities at SRP adopted many of the processes demonstrated at ORNL. Many of the operational problems encountered at ORNL were not encountered at SRP.

Many of those engineers and scientists who worked at ORNL continued to work at SRP and most retired from either SRP or SRS and still reside in the CSRA.

Preserving & Interpreting Savannah River Site History

HAPPY HOLIDAYS AND HAPPY NEW YEAR!

Preserving & Interpreting Savannah River Site History

A Great Gift Idea!

Give the gift of membership to the SRS Heritage Foundation to people on your Christmas list who have everything or who are just hard to buy for. You will be helping to preserve SRS history. It would also make a great stocking stuffer—we will put a membership pin in a case to be wrapped and slipped under the tree or into a stocking.

Gift membership form for:

_____

Name: _____
Address: _____

City, Zip Code: _____

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Benefactor	**$ 120.00**	**_____**
Patron	**$ 60.00**	**_____**
Sustaining	**$ 35.00**	**_____**

My check, made out to the SRS Heritage Foundation, Inc. is enclosed. Contributions to the Foundation are tax exempt.

Please mail to:

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Membership good until December 31st, 2013

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

Preserving & Interpreting Savannah River Site History

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*	☐
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I would be willing to help with Publications___, Membership____, Fundraising___, Publicity____, other__

This membership is valid through December 2013

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