



From The Control Room

by Maynard Plahuta, BRMA President

This summer has just flown by. It was a great period of much activity. We have accomplished a lot toward gaining what we all have been looking forward to. The major success has been the progress toward being part of the Manhattan Project National Historical Park.

We were pleased that the Memorandum of Agreement (MOA) – as called forth by the legislation passed last December – was drafted and issued for public review much earlier than expected. The MOA primarily relates to the roles and responsibilities of the two agencies---the Department of Energy and the Interior Department (which includes the National Park Service (NPS)). Responses to the draft were due August 28th. The MOA was concise, clear, and well written. BRMA collaborated with The Advocacy Committee to provide comments. Most pertained to operations after the Park is established. Our collaboration provided a common and united approach to the National Park Service.

BRMA supplemented the comments with a letter that in summary stated the three following items: (1) BRMA wishes to work cooperatively with both agencies in developing the operations plan; (2) BRMA has technical and historic background to assist NPS in developing interpretive services and activities; and (3) BRMA particularly wishes to assist NPS in developing material for docents. NPS has indicated during the past year that they look forward to working with BRMA to achieve an interesting and informative experience for Park visitors, particularly for the Hanford portion of the Park. We can be fairly certain the Park will evolve over the next few years. However, it is very likely that there will not be a substantive change for the next tour season. NPS has limited funding for the Park in current fiscal year 2016. The NPS budget request for FY2017 will include funding for the official designation of the Manhattan Project National Historic Park.

The official designation of the Park will occur on November 10, 2015—unless some unexpected things happen to delay the signing. Incidentally, until a few days ago the potential

shutdown of the government was one possible happening. The designation occurs when the MOA noted above is signed by the Secretaries of the two agencies. This official designation is in accordance with the legislation authorizing the establishment of the Park. A number of us in the community, including several BRMA members, have been invited to Washington D.C. to attend the signing. Then the Park becomes official and included in the NPS listing of National Parks.

The signing designation will be followed by an event at B Reactor on November 12. Planning for this event is progressing, but many details are yet to be finalized. A number of NPS staff will be attending as well as other dignitaries. BRMA docents will assist in giving limited tours along with NPS personnel. At this event children and students under age 12 will for the first time be able to visit B Reactor. This is in advance of eliminating all age restrictions for touring B Reactor and the pre-Manhattan facilities for the tour season beginning in April 2016. Then families will be able bring their entire family on a tour. That is especially convenient for people who are visiting in the area and want to tour B Reactor. They won't have the present problem of finding someone to care for their children under age 12. For example, there may not be a grandpa or grandma or uncle and aunt who can care for children while their parents or guardian are on tour.

Children attendance at the Nov 12th event ties in with the NPS 100th anniversary celebration in 2016. As part of NPS's centennial celebration, it is providing fourth graders a family pass to attend any National Park throughout 2016. Thus, several classes of fourth graders in the community will be attending the event. At that time they will receive their 2016 pass and have it stamped by NPS staff. I don't know how NPS plans on providing passes to other fourth graders throughout the country. I'm sure it has that all planned out along with a lot of other promotions and events. We likely will learn about that on Nov. 12th. We'll get the word out so all can pass the information on to family and

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The B Reactor Museum Assn. meets on the 2nd Monday of each month
7 p.m. in the Richland Public Library, 955 Northgate Drive, Richland
Our next meeting is Monday, October 12

BRMA Charitable Contributors

Dupus Boomer—by Dick Donnell

This is a Public Acknowledgement of the generous cash contributions to BRMA. The following list covers the period, July through September, 2015.

William Porath

Vital Statistics

NEW MEMBERS

None this Quarter

IN MEMORIAM

Bob Bowersock

Watson C. Warriner, Sr.



Ed. Note: **HALLOWEEN 1946**

Meat was still being rationed as the troops were being discharged.

Membership Report By Burt Pierard, Membership Chair

Our final 2015 membership count was 79 members (same as 2014) and one Organization—Los Alamos Historical Society. We also had 35 Complimentary members. As of October 1, the **Early 2016 Renewal**

Period is now OPEN (any dues we receive are credited to CY2016). To send in your Renewal, the form is below to Clip or Print.



2016 Renewal and New Member Application

Name: _____ Date: _____

Address: _____ City: _____ State: ____ Zip: _____

Phone: (h): (____) _____ (w): (____) _____ MSIN address: _____
(current Hanford employees)

E-mail: _____

- Individual (\$20) or Senior (age 65+) or Student (\$10) and New or Renewal
 Organization (\$25 up to 100 members; please add \$10 for each additional 100 members)

For Organization Membership, Official Representative: _____

Additional tax deductible contribution: \$ _____ Total Enclosed: \$ _____
(Tax ID # 94-3142387) (Please make check out to BRMA)

Thank you; please mail this application with payment to:

B Reactor Museum Association
PO Box 1531
Richland, WA 99352

WE GET QUESTIONS

By Maynard Plahuta

BRMA occasionally gets questions relating to B operations and related information. Recently we got a list of questions that are similar to those our docents receive when giving tours at B. Bob Horgos graciously took on the job of providing a written response. These may be helpful to some BRMA members and other readers who may enjoy and benefit from

What form of uranium were the slugs fabricated from?

For the B reactor the uranium was in the form of solid uranium metal. The uranium was termed natural uranium because it was in the form in which it is found in nature. Natural uranium contains two basic isotopes: Uranium 235(0.7%) and Uranium 238(99.3%) .

I have heard that the slugs were only slightly radioactive so they could be handled fairly easily when inserted into the pile. True?

The B reactor slugs, made from natural uranium that is predominately Uranium 238, only gives off alpha radiation. The alpha radiation has no penetrating power. Normal clothing material, rubber gloves, or even a sheet of tablet paper can stop the alpha particle.

Once in the pile, what triggers the nuclear reaction? (Layman's language please)

The Uranium 235 portion (0.7% by weight) emits neutrons spontaneously as part of its radioactive decay process. Normally these emitted neutrons would fly off into space at high velocity. But the B Reactor configuration (and graphite) slows down the neutrons and retains them within the reactor. Eventually a neutron will collide with a Uranium 235 atom (nucleus) and is absorbed and the atom becomes unstable and splits somewhat randomly into two new elements, releasing 2 or 3 neutrons, depending on the new elements. This process is nuclear fission. The (free) neutrons travel around inside the reactor looking for another Uranium 235 atom. When one of those neutrons strikes a Uranium 235 atom, it splits and releases 2 or 3 neutrons. The total number of neutrons within the reactor is constantly multiplying and very shortly there are billions of neutrons flying around within the reactor in what is known as a "Chain Reaction". If the neutrons collide with a Uranium 238 atom (nucleus), that atom can absorb the neutron to create Uranium 239 which radioactively decays into Neptunium 239 which quickly radioactively decays into Plutonium 239. The B Reactor generates sufficient neutrons to conduct both the operating cycle as well as the Plutonium generation process.

When the nuclear reaction is taking place, doesn't the heat or ambient radiation levels make it impossible for operators to be out on the floor in front of the pile?

The B Reactor has radiation shielding completely surrounding the pile portion of the Reactor to provide protection for the work force.

The B Reactor was designed to maintain suitable cooling water to control the Reactor from overheating.

I understand there is no heating or air conditioning in the B Reactor. If the thick concrete keeps it cool in the hot summer, doesn't it really get cold in the cold days of winter? Does it get hot inside during the summer?

During its (B Reactor's) operating time there was steam heat and a constant air flow of 55,000 cubic feet per minute through the building to control any potential air-borne radiation. The air flow patterns were designed to provide cooling and maximum protection for personnel.

When the irradiated slugs are taken to the separation plant I understand That they are turned into a liquid and it is the

liquid that is siphoned through the cells to extract the plutonium. In what form is the plutonium at the end of the process? Still a liquid? I have read that it is turned into a nitrate but I am not sure what happens in the separation plant or afterwards in another facility. When, how, and where is the nitrate turned into a solid that could be sent to Los Alamos?

When plutonium was first generated in 1943, Hanford did not have the capability to produce plutonium metal. The first shipment of plutonium to Los Alamos was in the form of a plutonium slurry that Los Alamos converted to plutonium metal.

I have read that Col. Mathias personally carried the first small samples of plutonium to Los Angeles by train where he turned it over to a currier from Los Alamos. How is this possible? Wasn't it highly radioactive?

Plutonium is not a highly radioactive material. It is predominantly an alpha emitter. (See Question 2) (Matthias hand-carried the sample in a cardboard packing box.)

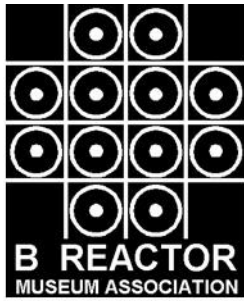
From The Control Room (continued)

friends. All BRMA members who have attended at least one meeting over the past two years will be receiving an invitation to the event. A limited number of active past members and community leaders will be invited. NPS plans on having ten to twelve people. Because of crowd capacity limits and logistics there necessarily had to be a limit on the number of invitees. Currently, a rather large number of attendees are expected, including a substantial number of students. I'm really looking forward to attending the event. It will be delightful to join other BRMA members to witness the arrival of the "Big NPS Arrowhead" to our community in recognition of the Manhattan Project National Historical Park.

!What A Commemorative Event!

In closing I again have a sad word to extend. First, we were sorry to learn of the passing of a long-time active and hard-working member, Bob Bowersock. He was for many years BRMA's Governmental Relations Chair. He served us well and provided sound advice and counsel. We wish his wife Phyllis and family our deepest sympathy. He certainly will be missed.

Secondly, our long-time member, friend, and supporter Watson Warriner left us at the ripe and glorious age of 97. He accomplished much with his knowledge and expertise on separations work for DuPont at Hanford. His early and long-time interest in trains led to his writing "Journey to Destiny-Train to the Manhattan Project". It is truly an interesting story. His financial contribution, together with one from Clay Perkins, to repaint the DOE-excessed trains displayed at B Reactor now can proceed--hopefully soon. When the Park is officially designated, DOE will be able to accept Watson's and Clay's donation to paint the train.



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OP-ED

THE DuPONT STORY

By Burt Pierard

In telling the “Hanford Engineering Works” portion of the Manhattan District National Historic Park story, BRMA is concerned about the almost total absence of mention of any contribution by DuPont. In my opinion, the “DuPont Story” (in collaboration with the Met Lab physicists on Reactor Design) IS the “HEW Story.” In just 2 of their 3 contractual years (and about 6 months of planning and preliminary work), they produced the gigantic Plutonium Production Plant and turned it over to the government on a turnkey basis. This was all accomplished for a profit of \$1.00 (later reduced to \$0.67 due to the 2/3

contract completion time) and a complete disavowal of any patent rights to the new devices and systems developed. And these guys are barely mentioned? Come on, now.

The BRMA “DuPont Story” Committee, headed by BRMA Member Ben Johnson, has produced a somewhat “bare bones” summary of the story for forwarding to the “Nation’s Story Teller,” the National Park Service, along with BRMA’s willingness to work with them to “flesh it out” and develop ways to tell the story.