



## From The Control Room

by Hank Kosmata

We are finally seeing some real progress with respect to at least one of the models planned for B Reactor. The Meier Enterprises work has achieved its primary step of taking coordinates from the actual construction drawings and producing a graphical model of the reactor block with its associated piping, shielding and control and safety rods. The next step will be to animate the model to show the steps of construction of the key components and then to demonstrate how the process worked, the fueling, the coolant flow, the rise in power as the control rods are moved, the shutdown with control and safety rods and then the refueling and removal of the irradiated fuel. I believe this will be an intriguing and educational asset to be available at the reactor for future tours and we are all eager to see the final results.

Lockheed-Martin has submitted proposals for a physical scale model of the reactor. We have agreed to financially co-sponsor this model with the Atomic Heritage Foundation and are ready to proceed with this work, which we will help coordinate as it progresses. This model will show in some detail the key elements of the reactor with a cutaway section to allow the visitor to look inside a corner of the model to get a better understanding of how the reactor was built and operated. We believe the combination of the graphic Meier model and the physical Lockheed model will give an outstanding opportunity for the visitor who has the time and the interest to finally truly comprehend what is behind that big front face. Lockheed also has submitted proposals for panels that will be a part of the audio-visual exhibits which the Atomic Heritage Foundation is developing. The Foundation anticipates final agreement on these issues in the following week or two.

As you will see in more detail elsewhere in this issue, we had another sell-out (one minute) for the

available slots for the June tour of the reactor. People are more than eager to see it, but the problem is that it is almost a lottery to make the cut and then the restrictions placed on the total tour through the Hanford project always tend to cut short the time available in the reactor so the visitors get a taste but not much of a meal. Hopefully we'll be able to correct that in the future.

**Editor's Note:** The following article by author David Wolman was printed in the February 2007 issue of *Portland Monthly* magazine. It has considerable information on B Reactor and on B Reactor Museum Association's efforts to preserve this historically and technically significant facility that helped launch the atomic age. BRMA president Hank Kosmata provided insight and information to Wolman for the article. The unabridged article is available by entering the following URL in an Internet browser. Be advised that the article is a 4.8 megabyte .pdf file that will take some time to download on slower Internet connections.

[http://www.david-wolman.com/media/portlandmonthly\\_0207\\_70\\_hanford.pdf](http://www.david-wolman.com/media/portlandmonthly_0207_70_hanford.pdf)

### “Gone Fission”

*The Hanford nuclear reactor that ushered in the atomic age sits at the heart of the largest radioactive dump in the Western Hemisphere. Could this be our next national park?*

**On February 3, 1945**, an Army colonel named Franklin T. Matthias marched into Union Station in Old Town Portland lugging a wooden box containing 100 grams of weapons-grade plutonium. Matthias, accompanied by an Army intelligence officer, boarded a train bound for Los Angeles, where he relayed the perilous package to another agent, who

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# Special Member Recognition

## by Del Ballard



F. W. "Bill" Michael of Fort Collins Colorado has been a special and very generous member of our museum association for years. It is with gratitude that we recognize his interest and support, both financially and with his personal information from the past.

As a young man attending Colorado A&M, Mr. Michael was hired by the DuPont company in 1941 to be trained in the field of engineering. His special training lead him to Hanford and specifically to a job where he helped direct the construction of the 105-B Reactor. His assignments included the field direction for the assembly of the steel and masonite laminated blocks that formed the biological shielding. Bill writes that during construction the reactor was only referred as the "Process Block", and the term "reactor" was never used.

In a recently published biography he recalls an incident that involved some personal contact with General Groves. In a situation involving the acceptability of a certain material handling configuration, Bill became upset, threw his hard hat down and said "for two cents, I'd quit."

Groves overheard this and told Bill that would be easy enough to do but that the job was more important than he or anyone. Instead of being reprimanded, Bill was encouraged to persist and Groves stated that, "We'll just have to do our best." When construction was complete, Bill transferred to Operations. He left Hanford in late 1944 to join the Navy where he served until the end of WW II.

After the war Bill returned to Colorado and entered into the world of private business. His long and very productive and rewarding career has been most impressive. A General Motors dealership, real estate development, farm implement sales, equipment leasing are all parts of his business endeavors. Bill has been repeatedly commended by community, regional, and state leaders for his contributions to the Fort Collins community, Boy Scouts of America, the Poudre Valley Hospital, and for the promotion of other regional developments.

We at BRMA extend our thanks to "Bill" Michael for his many contributions to society and his continuing generous support toward efforts to preserve the historic B Reactor.

*"If you haven't paid your BRMA dues yet, when you see the name Melvin M (like monster) Finkbeiner, you should think - "Oh goodness, how could I have let paying my BRMA dues slip so long?. I'd better send a check right away and keep myself in good standing!!!"* This message courtesy of your Membership Secretary

And thanks to all of you who have paid and passed the test! mmf

## 2007 Renewal and New Member Application

I want to help preserve the history of the B Reactor. Below is my application with payment for annual membership or renewal in the B Reactor Museum Association.

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  
 Group (\$25 up to 100 members; please add \$10 for each additional 100 members)

For Group Membership, Official Representative: \_\_\_\_\_

Additional tax deductible contribution: \$ \_\_\_\_\_  
(Tax ID # 94-3142387)

Total Enclosed: \$ \_\_\_\_\_  
(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**

## “Gone Fission” (cont’d)

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brought it to Los Alamos, NM. Five and a half months later, on July 16, 1945, the world's first atomic bomb exploded at the Trinity Site.

The plutonium that passed through downtown Portland on its way to history was manufactured at the Hanford Nuclear Site 231 miles up the Columbia River, in a blocky concrete building known simply as B Reactor. Plutonium-239, an atomic-bomb-making ingredient, is created by bombarding uranium with neutrons inside a nuclear reactor like Hanford's B. It's a fissile material, which means that its atoms can be split in a self-sustaining chain reaction that releases a colossal amount of energy.

Three weeks after the successful test at Trinity, another batch of plutonium-239 from B Reactor was packed into Fat Man, the atomic bomb that detonated over Nagasaki. (The Hiroshima bomb, Little Boy, was armed with enriched uranium produced in Oak Ridge, Tenn.) Over the next four decades, another eight plutonium-production reactors were built at Hanford, which became the primary source of fissile materials for the United States' Cold War nuclear arsenal. But B Reactor, which was constructed in a mere 13 months

during the Manhattan Project, was the world's first plutonium-production reactor.

Hank Kosmata was a 23-year-old chemical engineer when he first arrived at Hanford to work as a design engineer in January 1954. Now 76 and retired, Kosmata serves as president of the B Reactor Museum Association, a contingent of Hanford alumni and history buffs lobbying to turn B Reactor into a federally supported museum, complete with an interpretive center, improved public access and some form of permanent funding. At present, association members are awaiting a National Parks Service study of the "feasibility of a Manhattan Project National Park," which would include B Reactor (it was taken out of service in 1968) along with other notable sites across the country. If the Parks Service approves the project, it then must find the money to run it, a long shot considering the cash-strapped reality of the agency's budget.

Although B Reactor may lack Grand Canyon-caliber appeal, Kosmata makes a compelling case for preservation. “B Reactor really changed the world,” he says. “It produced plutonium for the first atomic weapons and made it possible to end the war in a hurry. And of course, it led to a whole change in the world as far as nuclear weapons.”

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## B Reactor Tours

by **Maynard Plahuta, Tour Coordinator**

As usual, the recent June 13-14 public tours were a big hit again this year. Of course the big draw of the Hanford site-wide tour is B Reactor. The public tour schedule was filled up within one minute this time, compared to two minutes last fall. Thus, approximately another 275 people have enjoyed the privilege of touring B Reactor.

At this point definitive plans and schedules for the traditional fall public tours have not been announced. However, these tours have been tentatively listed for September and possibly one in early October and another in mid-late October.

In addition to the public tours, B Reactor hosted approximately 370 additional people so far this calendar year. A partial list of participants includes research students, science teachers, federal legislators, History Channel staff, industrial/

corporate members, and various conference attendees.



B Reactor Tour Guide Bob Whiteside describes Reactor history and operation with part of a group of 80 PNNL summer staff from throughout the United States who toured the Hanford Site on June 27.

## “Gone Fission” (cont’d)

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A few generations into the atomic age, it's hard to grasp just how remarkable the feat of building the first plutonium-production plant-in little more than a year-really was. It's also difficult to recall just how nervous U.S. intelligence officials were back then that the Nazis would beat them to it. Before the Manhattan Project, scientists were just entering the unexplored territory of physics known as nuclear fission, but only at the experimental level. With little more than lab results and calculations for comparison, scientists and engineers had to scale up these path-breaking ideas to the level of high-volume industrial production, and do so in haste.

Now the fruits of their labors are being shuttered. Five of Hanford's reactors have already been closed and sealed, and four others-including B Reactor-are slated to undergo the same fate, known as cocooning, in the next few years. Cocooning involves removing most of the reactor complex and putting an ultradurable roof over the top. That buys about 75 years for the residual radioactive contamination in a reactor to cool a little, by which time future scientists, one hopes, will have figured out a safe way to deal with still-hot reactor cores. B Reactor Museum Association members would like to rescue B from being cocooned. (It's safe for visitors, explains Kosmata, because the reactor core sits behind a massive shield.)

Tourism that showcases places one might, at least initially, be inclined to avoid does have a precedent. In Germany, the nuclear power plant Schneller Briiter Kalkar was bought by a Dutch entrepreneur in 1995 and transformed into Kernwasser Wunderland ("Nuclear

Water Wonderland"), a bizarre theme park that includes restaurants, sports facilities, gardens, roller coasters, carousels, hotels and a smiling atom-shaped mascot whose name roughly translates as "Nukey." Similarly, a Hong Kong development firm wants to convert a dreary abandoned power plant in London into an upscale entertainment, residential and retail complex. (And you thought the McMnamin brothers were at the forefront of repurposing mothballed real estate.)

Make no mistake: You won't find condos, bumper cars or sushi restaurants at Hanford anytime soon, given its status as the largest radioactive dump in the Western Hemisphere. Still, viewed through the lens of scientific and military history, and given the global debate over nuclear power generation and arms proliferation, the idea of Hanford as a tourist destination-and B Reactor as the main attraction-has its allure. "Few people outside this community know much about nuclear reactors or the history of these reactors in particular," says Kosmata. "I actually got a call from a guy recently from New York who wants to come here and see it."

Visitors can currently walk through B Reactor, as well as view the rest of Hanford through the windows of a charter bus. The U.S. Department of Energy, which oversees the site, used to host weekly public tours in the summer. But public access was halted after September 11, 2001, primarily because of the four metric tons of weapons-grade plutonium still stored on-site. When tours started up again in 2004, they were available to U.S. citizens only, and a lucky few at that. A couple times each year, DOE Hanford, through its Web site, conducts a first-come, first-served online registration ([www5.hanford.gov/public tours/](http://www5.hanford.gov/public tours/)). For the three-day initial offering of afternoon bus tours last October, it took all of two minutes before every seat was filled.

**Finally the bus brakes in** front of the Lego-fortress-like B Reactor. An employee with Washington Closure Hanford, one of the primary DOE subcontractors on-site, climbs aboard. She is wearing jeans, a black U.S. Marines sweatshirt, hiking boots and a weighty cluster of ID badges suspended from her neck. "You won't get contaminated on this tour, I promise you." She chuckles and then advises that everyone be mindful of uneven floors and hazards like lead paint, the occasional spider or bat, and overhead pipes.

Inside the building, the concrete walls are painted white in places, army green in others. The air is chilly and quiet. On a table in the entryway lie copies of the most famous letter of the atomic age. Dated August 2, 1939, and addressed to President Roosevelt, the slightly faded, eight-paragraph letter introduces certain "facts and recommendations" that the author felt it was

### 2007 BRMA Leadership

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Moderator Editor: Richard Romanelli

## “Gone Fission” (cont’d)

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his "duty" to bring to the president's attention. Recent scientific discoveries suggested:

*"(T)hat it may become possible to set up a nuclear chain reaction in a large mass of uranium, by which vast amounts of power and large quantities of new radium-like elements would be generated. Now it appears almost certain that this could be achieved in the immediate future."*

And then, after another caveat: "... extremely powerful bombs of a new type may thus be constructed." Albert Einstein's letter goes on to posit that Germany might already be, or soon could be, pursuing this new breed of weapon. The iconic scientist's recommendations to the president were straightforward: Secure supplies of uranium and intensify efforts to develop the technology for atomic bombs. It would take Roosevelt a couple years to get the message, but the seeds of the Manhattan Project had been sown.

In the main room of B Reactor, a lone orange warning light spins on its perch near the ceiling, as if to underscore the fact that here is where it all happened. Hank Kosmata and another Hanford alumnus greet visitors and usher them toward plastic patio chairs. Kosmata has a shock of silvery hair, wears sneakers, and speaks with a tempo and excitement that belie his age. Behind the two men looms the giant front face of the reactor. It looks a little like a gray, three-story version of the children's game Battleship, except that the round holes, all 2,004 of them, are closed over with large caps.

Kosmata breezes through a physics primer and an homage to Manhattan Project luminaries such as Enrico Fermi, then segues into an explanation of how workers standing on scaffolding along the reactor's face fed slugs of uranium into the core to be bombarded with neutrons to create plutonium-239. "B Reactor was the

first of its kind-there's nothing like it," says Kosmata, zooming out from the science. "And the fact that it worked was amazing. If a few things had been different, it wouldn't have."

Next, the tour group files into the control room, where the requisite Homer Simpson moment finally arrives. Dozens of dials and gauges loom within arm's reach for the visitors who try out the wooden operator's chair.

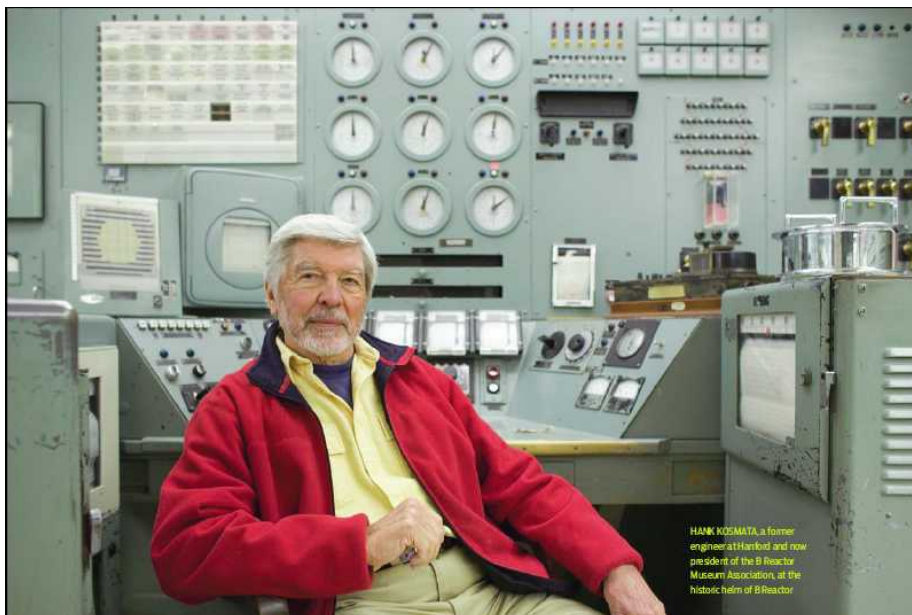
A 1968 calendar hangs on a back wall; a fly-swatter lies across the console; there's a large red button for emergency shutdown; and along a wall blanketed with gauges a sign reads, "Caution: Bumping panel may cause scram," i.e., shutdown.

Egressing from the massive reactor building to reboard the tour bus, various tourists mutter superlatives such as "phenomenal" and "amazing," while others bemoan the fact that their hour-long walk-through of B Reactor offered "barely enough time to scratch the surface."

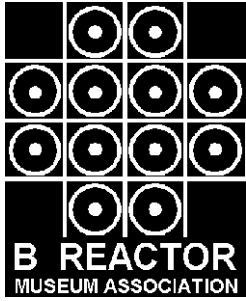
Seeing Hanford up close is an adventure in demystification. As Kosmata puts it: "If we preserve B, there will be more opportunities for people to understand what was done here." The laborers, technicians and researchers who built and operated B Reactor pulled off an astounding scientific and engineering feat that, in the eyes of

many, helped the United States and its allies win World War II and the Cold War.

The cleanup challenge they left behind is, as writer Michele Gerber puts it, "less glamorous but more vexing" than the wartime drive to produce plutonium. Yet at the risk of Pollyanna-brand speculation, visiting Hanford and learning about the success of the single-minded drive to make it work and make it work fast, one can't help but wonder whether applying a comparable sense of purpose might make healing this place possible after all.



BRMA President Hank Kosmata in B Reactor control room



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[info@b-reactor.org](mailto:info@b-reactor.org)

## Information Available On EEOIC Program

Nuclear Weapons Facility and Beryllium Workers have two programs that are a part of the EEOICP (Energy Employee Occupational Illness Compensation Program) Act. Nuclear weapons workers who were employed at Department of Energy (DOE) facilities and contracted cancer from radiation exposure, or were exposed to beryllium dust at a beryllium processing facility and now have Chronic Beryllium Disease (CBD), qualify under Part B of the act.

Home nursing services are available under the EEOICP and Professional Case Management. Program leaders are using massive networking and word-of-mouth advertising to reach potential clients who would benefit from these in-home nursing services. Although in-home nursing is not directly related to BRMA's objective, someone in our organization might know of someone who could benefit from the program.

Professional Case Management has a Department of Labor provider number that allows them to bill them directly for the in-home nursing care they provide to approved EEOICP clients. They are authorized to

provide RN/LPN-level care with approval from the Department of Labor and per physician order. They tailor the care to meet the client's needs and can provide any level of care needed from periodic visits to continuous twenty-four hour per day, seven days per week skilled nursing care.. They often work with hospices and other home health agencies to supplement the services they provide. The in-home nursing care is completely FREE to the client. There are no deductibles or caps to any of the medical benefits including the in-home nursing care. They hire local nurses to provide the care that supports the local economy and makes the services seamless for clients.

There is a web site: [www.dol.gov/esa/regs/compliance/owcp/eoicp/main.htm](http://www.dol.gov/esa/regs/compliance/owcp/eoicp/main.htm) that further explains the EEOIC Program. There also is a contact listed below who can answer any further questions.

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