

THE

# MODERATOR



B REACTOR MUSEUM ASSOCIATION

April - June

Vol. 20, Issue 2

Spring 2014

## From The Control Room

by Maynard Plahuta, BRMA President

I again open this news letter with sad news. The death of Roger Rohrbacher was difficult news. Roger was one of the founding members of BRMA. He was a very active member, including being an excellent tour guide. Although not certain, I believe he is the last surviving person who participated in the start-up of B Reactor.

We are very pleased with the new *Ranger In Your Pocket* B Reactor website tour which will likely be initiated by the time you receive this edition of the *Moderator*. BRMA thanks Cindy Kelly of the Atomic Heritage Foundation for this achievement. It was funded by grants from the City of Richland's lodging tax and the Murdock Charitable Trust. Also, I want to thank Hank Kosmata for his successful presentation request to the City for grant funds.

The *Ranger In The Park* virtual tour guide approach has recently been used by many high quality museums. The significant feature is that it is a very mobile application. The program displays like an app on phones or tablets, but was designed as a website to avoid taking up memory on personal devices. This application will enable students, researchers, and others to become more familiar with the reactor and other historical factoids about the Manhattan Project before touring. Among other things the history includes the farming and Native American communities, and a sense of life at Hanford during the Manhattan Project.

The tour guide contains oral video of a significant number of major early leaders at Hanford as well as everyday workers and residents. It also contains oral interviews with a number of BRMA members featured in segments of B Reactor operations. The website is at

*RangerInYourPocket.org*. Unfortunately we cannot yet use this guide inside B due to not being able to get wifi reception inside. This issue is being addressed and hopefully resolved soon.

April 1<sup>st</sup> started our 2014-2015 tour season. We are optimistic that this season will again be an outstanding success. A new feature this year is that the return route from B goes through the site near the White Bluffs and Hanford town sites. The route to B will continue to go via the State Rt. 240, with busses entering the site near the Vernita Bridge.

With the closing of the CREHST Museum, BRMA has been working closely with CREHST and the Hanford Interpretive Center to preserve many of the CREHST holdings. Space is not currently available for many of the holdings at the new REACH facility currently under construction. BRMA was particularly interested in preserving many of the models, displays, and other exhibits at CREHST and has agreed to temporarily take ownership of these items. They will be stored in our current rental space and at the DOE 400 Area. We thank Colleen French of DOE for making the 400 Area storage space available.

We continue to work with Tri-City community leaders and those from the Oak Ridge and Los Alamos sites for Congressional authorization of the Manhattan Project National Historical Park. Washington Senators Murray and Cantwell, as well as Representative Hastings, continue to provide full support in Congress to pass legislation. It appears our congressional delegation as well as those from the other two sites are optimistic that authorizing legislation will be passed. Hopefully THIS IS THE YEAR OF SUCCESS.

The B Reactor Museum Assn. meets on the 2<sup>nd</sup> Monday of each month at 7 p.m. in a Conference Room at the Richland Public Library, 955 Northgate Dr., Richland  
The next meeting is Monday, April 14, 7 p.m. at Richland Public Library

## 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, January through March, 2014.

Maureen Hamilton  
 Andy Kelly  
 Keith Klein  
 Richard Romanelli

We're pleased to acknowledge the latest generous donors to BRMA. Thank You!



## Membership Report

By Burt Pierard, Membership Chair

**2014 BRMA MEMBERSHIP DUES ARE NOW DUE.** Our paid membership is 70 people (3 New) and one Organization (Los Alamos Historical Society). Anyone who has paid and not received their 2014

Membership Card yet should receive it in a separate mailing. To send in your Renewal, the Form is on this page to Clip or Print and send in.



### 2014 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**

# Hanford Site Tours for 2014

## Bob Horgos, Tour Coordinator

Hanford Tours for the B Reactor began April 1, 2014. As in previous years there are two distinct Tours throughout the season. One Tour will cover the B Reactor and the second Tour will be Hanford Site specific. Registration for both Tours was initiated on March 3<sup>rd</sup>, 2014.

### B Reactor Tours

DOE has set the 2014 Tour dates for the B Reactor for the following dates:

April 1, 2, 3, 5, 15, 17, 19, 29 and 30  
May 1, 3, 13, 14, 15, 17, 28 and 31  
June 10, 11, 12, 14, 24, 25 and 26  
July 8, 10, 12, 21, 22, 23, 24 and 26  
August 2, 4, 5, 6, 7, 9, 16, 18, 19, 20 and 23  
September 2, 3, 4, 13, 15, 16, 17 and 18

Waiting List please call (509) 376-1647.

B Reactor Tours will initiate at the Manhattan Project B Reactor Tours Headquarters located at 2000 Logston Blvd., Richland. Two Tours each day are typically scheduled, one to depart, by bus, at 8:15 a.m. and the second to depart at 11:15 a.m. There is no charge for the Tours. All Tour participants must be at least 12 years old. Tour participants less than 18 years old have special requirements that are described on the Department of Energy Web Site at <http://manhattanprojectbreactor.hanford.gov/>. Registration for Reserved seats for the B Reactor Tours are made at the same website. CAMERAS, CELL PHONES and OTHER RECORDING DEVICES are **ALLOWED** on the B Reactor Tours. U.S. Citizenship is **NOT** necessary on B Reactor Tours.

For the 2014 Season a new feature has been added to the B Reactor Tours. After leaving the reactor following the visit there, the bus proceeds east through the Hanford Site on Route 1 to the turnoff to White Bluffs, then proceeds to the White Bluffs townsite and follows Route 2 North past the Hanford townsite and the Hanford Construction Camp and on to the Wye Barricade on Route 2 South.

The bus cannot stop during that alternate route and visitors will not be allowed to exit from the bus due to Hanford Security requirements. This route will exit the Hanford Site through the Wye Barricade. Total elapsed time for the B Reactor Tour will be a total of 4.5 hours.

### Hanford Site Public Tours

Hanford Site Public Tours are planned on the following dates:

April 8\*, 9 and 10  
May 6, 7\*, 8\*, 20\*, 21 and 22  
June 3, 4\*, 5\*, 17 and 18  
July 29, 30 and 31  
August 12, 13, 14, 26, 27 and 28

(Dates noted with an asterisk (\*) have tours beginning at 8:00 a.m. only. All other dates have tours beginning at 8:00 a.m. and 10:00 a.m.)

Hanford Site Public Tours will also initiate at the Manhattan Project B Reactor Tours Headquarters located at 2000 Logston Blvd., Richland. The Hanford Site Tours for the 2014 Season are basically identical to previous years' Tours.

Tour participants must be United States citizens and at least 18 years of age. All tour slots are filled on a first-come, first-served basis through an online registration system located at <http://www5.hanford.gov/publictours/>. Visitor restrictions and other requirements are also outlined at this same Web Site. There is no cost to participate in the tours.

Participants are guided through the Hanford Site and provided an overview of Hanford's role in the nation's defense effort during World War II and the Cold War, as well as information on today's environmental cleanup mission.

The tour route includes:

- Hanford's 300 Area where uranium was fabricated into fuel rods.
- The nine nuclear reactors in the 100 Area located along the Columbia River where the fuel rods were irradiated to produce plutonium for nuclear weapons.
- The original Hanford and White Bluffs town sites.

Visitors also will have a guided walking tour of the historic B Reactor, the world's first full-scale plutonium production reactor.

*(Continued on p. 4)*



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Our BRMA Sales Partner, Debbie Burnet, arranges BRMA sales items in her shop at 2000 Logston Blvd, Bay 133A, in Richland. Several new items have been added to the varied collection of sales items (see photo above). You can call Debbie at 375-6147 before you visit to confirm shop hours.

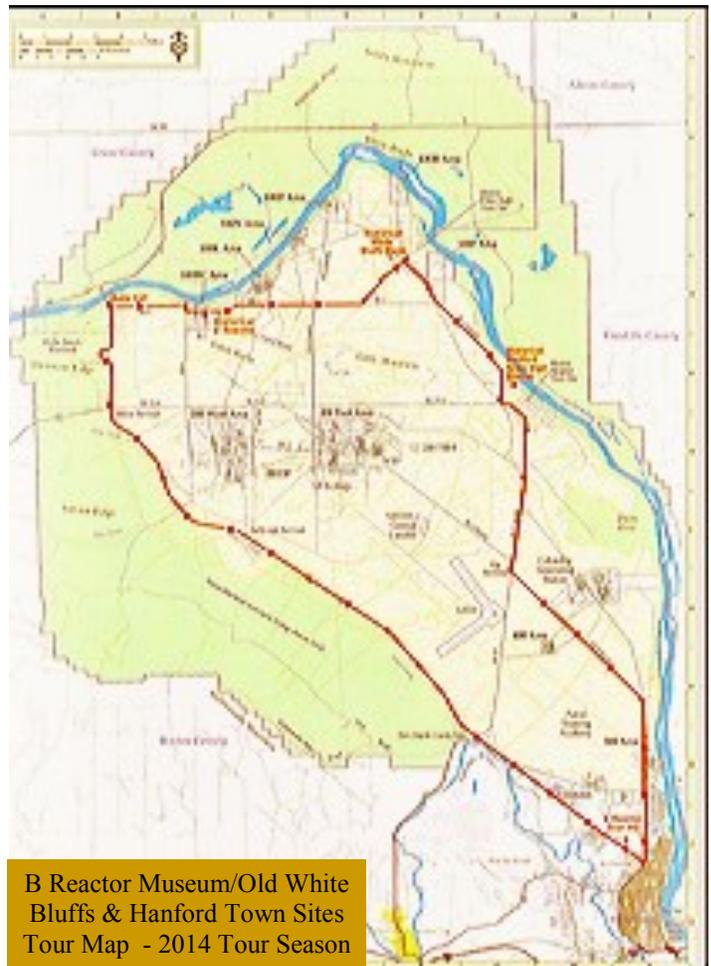


## Hanford Site Tours for 2014 (cont'd)

Additionally, the tour includes briefings on several Hanford facilities supporting today's cleanup mission:

- **Hanford's Cold Test Facility**, a scaled version of one of Hanford's 177 underground nuclear waste storage tanks.
- **Hanford's Plutonium Finishing Plant (PFP)**, which operated from 1949 to 1989, and represented the final step in the plutonium production effort at Hanford. Workers are now undertaking the monumental challenge of dismantling the PFP complex with the goal of tearing it down in 2016.
- **The 200 West Groundwater Treatment System**, which combines several technologies to remove nitrates and metals, as well as radioactive and organic contaminants, before returning clean water to the ground via a network of wells. The system is designed to operate at a rate of approximately 2,500 gallons per minute.
- **The Environmental Restoration Disposal Facility**, an 18-million-ton capacity landfill where Hanford's low-level radioactive, hazardous, and mixed waste are disposed. Since beginning operations in 1996 more than 15 million tons of contaminated material has been safely disposed at the facility.
- **The Waste Treatment Plant**, the world's largest facility for turning chemical and radioactive waste into a stable glass form suitable for safe, long-term storage.

Total elapsed time for the Hanford Site Tour is approximately 5.0 hours.



## 2014 Tour Schedule



May 17th

### Wildflowers & Ice Age Floods

This tour includes a narrated jet boat ride to White Bluffs. Enjoy a hike with Bruce Bjornstad up the bluffs to view wildflowers & learn about the Ice Age Floods impact on this area. Tour includes jet boat, beverages, bus, lunch, tour guides.

8am-4pm

\$175 per person



May 29th

### Chasing the Ice Age Floods

This tour will trace the Missoula Floods and the lake bed of ancient Lake Lewis. Experience the Ice Age Floods by land and by river. This tour starts down the Columbia River on board Columbia River Journey's jet boat through Wallula Gap. Depart boat for tours of McNary Dam and Sage Center. Tour includes jet boat, bus, tour guides, beverages, lunch at the River Grill and admission to Sage Center.

8am-5pm

\$175 per person



June 14th

### Agriculture, Water & History

Climb aboard Columbia River Journey's jet boat to Sacajawea State Park for a guided tour of the museum. The journey continues up the Snake River to learn about the contribution of hydropower/irrigation to agriculture. You will pass through the locks at Ice Harbor Dam and then board a bus for tours of Broetje Orchards and Boise Cascade Tree Farm. Tour includes jet boat, beverages, bus, lunch, museum admission, tour guides.

8am-5pm

\$170 per person



June 19 & 20th *Western Channeled Scablands/Grand Coulee*

June 27th *Photography class with John Clement*

July 19th *Ice Age Floods/Ice Harbor Dam/Palouse Falls*

August 9th *Chasing the Floods*

August 30th *Farm to Table*

September 18th *Cooking & Wine*

October 4th *Ice Age Floods & Vineyards*

July 10th *Ice Age Floods/Walla Walla & Snake River Valleys*

July 24th *Grape Escape Wine Tour*

August 21st *Ice Age Floods*

September 13th *Hops to Bottle*

September 27th *Ice Age Flood/Washtucna/Connell*

October 11th *Aquatic*

Call to register or for more information!



509.943.4100



## EXPERIENCE REACH MEMBERSHIP

LIMITED TIME OFFER  
*act now*

Become a charter member of REACH for Life! Purchase a \$5,000 Legacy Membership between now and June 1, 2014. Make it a Forever Legacy Membership.

FOR MORE INFO  
Contact the REACH for a full list of our membership programs.

509.943.4100

### BASIC MEMBERSHIPS

- **Student/Senior Membership \$35.00**  
(Student 18+ with valid school ID / Senior 55+)

Unlimited free admission for one adult, with proof of age/enrollment, for one year.  
10% discount in the REACH Store. Access to special members-only events

- **Individual Membership \$50.00**

Unlimited free admission for one adult for one year  
10% discount in the REACH Store. Access to special members-only events

- **Dual Membership \$85.00**

Unlimited free admission for two adults for one year  
10% discount in the REACH Store. Access to special members-only events

- **Family Membership \$125.00**

Unlimited free admission for two adults living at the same address for up to 4 children or grandchildren (under age 18) for one year  
10% discount in the REACH Store. Access to special members-only events



## Dog Days of Summer

Sponsored by



Join us on select Friday evenings during the months of July and August for *Dog Days of Summer*. Sit back with your four legged friends and enjoy lively entertainment from local bands on the outdoor stage. Enjoy food and beverages from area restaurants, wineries and breweries for purchase.

509.943.4100

Humans-Free

Dogs-\$5

### REACH T-SHIRT CONTEST

Show us your creative talent and submit your original design!  
The winner will have their design on the REACH T-Shirt for one year plus, free membership to the museum, and a cash prize of \$100.  
Submit your designs by: **FRIDAY, APRIL 11TH**  
For contest details call: 509.943.4100

### The Reach through Art

To visually capture the rich history of the Hanford Reach-  
*The land, the river and its people.*

The Hanford Reach Interpretive Center is looking for art created by local artists to display throughout the newly built facility. The REACH has partnered with Allied Arts Association, Washington State University (Tri-Cities) and Columbia Basin College to facilitate the selection of pieces of art to be on display for up to six months that will enhance the story being told by the Hanford Reach Interpretive Center. Call or email for official rules and entry form.

509.943.4100 Or [alliedartsrichland.org](http://alliedartsrichland.org)

All electronic entries due-April 15, 2014

### Volunteer OPPORTUNITIES

Many volunteer opportunities are available to fit your schedule and areas of interest. Contact the REACH for more information on volunteer opportunities today!

509.943.4100

### POSTCARDS FROM THE REACH STUDENT PHOTOGRAPHY Contest

We are seeking photo submissions from Tri-Cities area high school students. The top six photos will be turned into postcards for our "Postcards from the REACH" program. We are looking for photos that celebrate the Columbia River and the local, natural environment.

DEADLINE WEDNESDAY APRIL 9

WINNERS AWARDED CASH PRIZES

MORE INFO PLEASE CALL 509.943.4100

# Japanese Balloon Bombs And The Hanford Engineer

There were only two, confirmed, Japanese Balloon Bomb landings that affected the Hanford Engineering Works (HEW). Both incidents occurred on the afternoon of March 10, 1945.

In my opinion, the Japanese Balloon Bomb barrage was one of the most ingenious weapons of WWII but in the end, proved largely ineffective. It is not the purpose of this article to describe the balloons and barrage in detail. Suffice to say that they were fairly large (about 32 feet in diameter and 75 feet tall, including the rigging and “pay load”). The balloon envelope was constructed from several layers of fiber paper and cellulous glue that comprised an electrically semi-conductive surface. As we shall see, they posed a short circuit, or “fault,” threat to High Voltage Transmission Lines but that was not their intent – they were designed to drop their bombs and self-destruct before touching down. Literally thousands of the balloons were launched into the Jet Stream and hundreds made the 5000 mile, 100 hour (est.), journey to the United States West Coast and were recovered, at least partially.

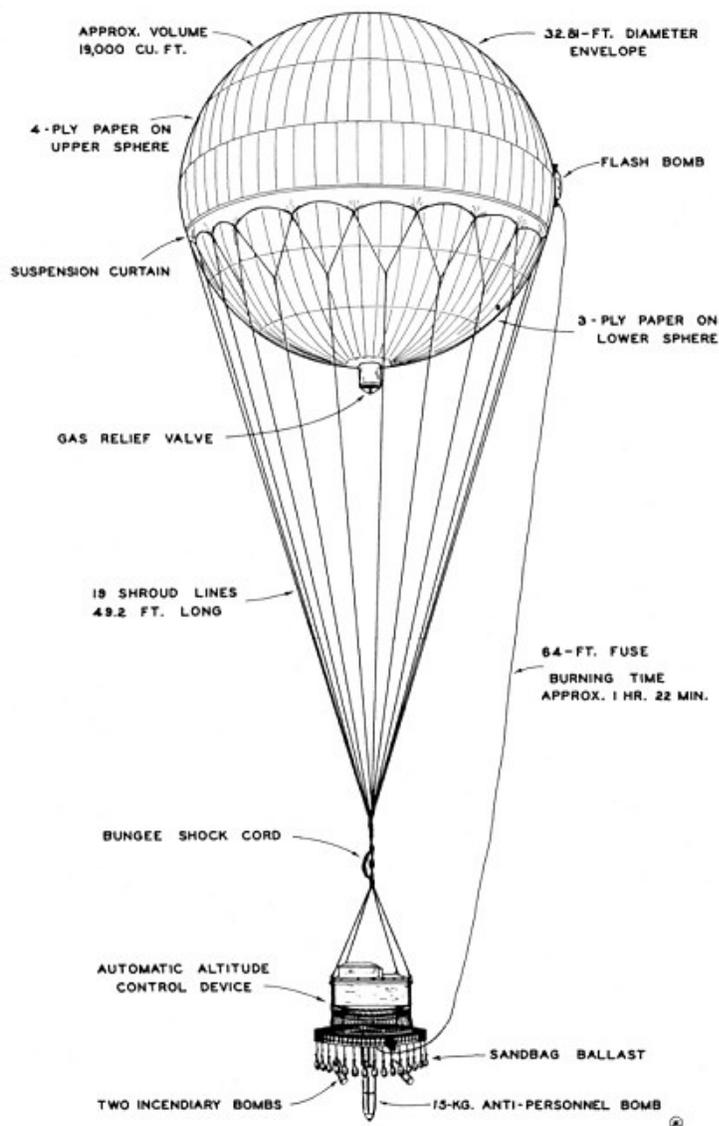
**The FIRST MARCH 10 incident** has been described in, essentially, all the History Books as a balloon going into a 230Kv transmission line between Grand Coulee and Bonneville generating stations and causing an electrical surge through the Hanford line that carried power to all 3 reactors, B, D and F. Automatic safety devices were actuated, which resulted in a full SCRAM of the reactors (dropping of the Vertical Safety Rods and the Accumulators to insert the Horizontal Control Rods).

The first problem with that account is that there was no such thing as a 230Kv Grand Coulee to Bonneville transmission line. Those of you who saw the Winter 2014 *Moderator* know that the insertion of the BPA Midway Substation in the system created twin Grand Coulee to Midway lines and twin Bonneville to Midway lines. For the second problem, I’m drawing from my 25 years as an Electrical Engineer in Transmission Line Protection and Control to state that the only power surges during a fault condition are from the substations at each end of the line (and any upstream sources) into the fault. Thus, no surge was possible on the Hanford line. The surges do cause a voltage drop, or “dip” (the familiar blink of the lights) at the substations, which permeates throughout the system (while the fault is present). In this case, the dip

was obviously severe enough to trip the Loss of Voltage Protective Relays on the reactors.

The only contemporary documentation of this incident is the Midway Substation Operator’s Log Book which recorded a trip of the Bonneville-Midway Line No.2 (at both ends) at 1523 hours (PWT). (Note: War Time was year-round Daylight Savings Time.) (The method of clearing the fault is to open the breakers to extinguish the arc and then, assuming the fault has burned clear, close the breakers to restore the line.) Bonneville closed its breaker 30 seconds later and Midway closed its breaker at 1524 hours (PWT).

At that time, no cause for the line outage (no load interrupted) was known. The fault duration (“dip” producing) was later reported as 5 cycles (1/12 of a



## Works — By Burt Pierard, BRMA Historian

second). What followed was a flurry of telephone conversations with an apparent ban on any paper trail (even Col. Matthias made no mention in his diary), until Gen. Groves sent a March 28 Teletype requesting a Teletype clarification of varying reports of Reactor Outage times and asking for a written report of the whole incident by mail. Col. Matthias added a note to the Gen. Groves message suggesting that Capt. Johnson, Intelligence Officer, should start the response memo by detailing the events leading up to the failure.

Capt. Johnson wrote his memo to Col. Matthias that same day. His first item concerned a March 10 report from the FBI Agent in Yakima, WA, at approximately 1700 hours (PWT) stating that a farmer living approximately 15 miles south of Toppenish, WA, reported that a balloon had struck a High Voltage line running across his property at about “3:30 PM.” Upon striking the wires, the balloon burst into flames. It was later concluded that this fault was, indeed, the 1523 hours event logged at Midway.

Capt. Johnson’s second item concerned a report on March 13 at 0900 hours (PWT) from du Pont’s Protection Department Superintendent, T. N. Stapleton, who tried to explain the sequence of electrical operations during the March 10 fault. I don’t know if there was a breakdown in the oral conversation, Johnson was unfamiliar with how a transmission system works, Johnson’s memory of the conversation was faulty, or some combination thereof, but Johnson’s account came out somewhat garbled and completely backward to what we know happened. His account said that a disturbance on the HEW line had caused an automatic safety device at Midway to function and cause the automatic tripping of the reactors. Also, on March 13, he received a report from the Area Engineer for the 100 Areas concerning the reactor outage times of: 100-B&D, 10 minutes; 100-F, 1 hour. (Later corrected information was: 100-B, 10 minutes; 100-D, 12 Minutes; 100-F, 68 minutes.)

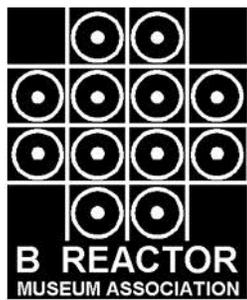
Col. Matthias condensed Capt. Johnson’s report and added a few details of his own in his reply to Gen. Groves. He did mention that the Toppenish farmer’s power line was the North Loop of the Bonneville to Grand Coulee but he mentioned them going through Midway from which the HEW line originates. Again the lack of knowledge of Transmission Line Operations arose when he said that the line surge opened the circuit for 5 electrical cycles representing

an outage of 1/12 of a second in the line serving the HEW. We have learned that the 5 cycles were actually the duration before the Breaker opened at Midway – no outage to the HEW, just the “dip.” Col. Matthias also explained the relatively long outage time for 100-F was due to difficulty in raising one Vertical Rod.

There is also some dispute on how long it took to get all 3 reactors back up to full power. According to Col. Matthias’ diary, that date was March 28, although that date was skewed somewhat by a 100-B refueling shutdown in the middle of that period.

**The SECOND MARCH 10 incident** was called the “Cold Creek Landing” by the Western Defense Command but I, whimsically, refer to it as “The Cold Creek Massacre,” where one Hanford Security Patrolman and one U.S. Army MP whipped out their pistols and mercilessly gunned down a helpless, landed Japanese Balloon (although it was being dragged by the wind across the ground toward the same Transmission Line involved in the Toppenish line earlier, but I’m getting ahead of myself.

Due to the Cold Creek landing occurring on HEW land it probably was the most documented of all the landings, generating 6 HEW Patrol Unusual Incident Reports representing 6 individual and at least 20 witnesses (all patrolmen or MPs). Ironically, the first sighting was only about 45 minutes after Capt. Johnson got his FBI report on the Toppenish incident. The first sighting was reported by 2 groups of 100-B patrolman’ at about 5:40 PM when the balloon was still about 1000 feet high and appeared to be heading to a landing west of the Yakima Gate. The balloon settled down about 5:51 PM at a spot  $\frac{3}{4}$  mile west of the Yakima Gate and  $\frac{1}{4}$  mile south of the old highway 11A (Highway 24 today), near the headwaters of Cold Creek. The previously mentioned patrolman and MP were 2 of the first 3 people to arrive at the scene and observed the balloon dragging its apparatus toward the power line so they used their guns to deflate it. They then took up positions 300 yards away to keep other arriving personnel away and organize them into a circular guard position. They also had several workers heading home who stopped to see what was going on and were encouraged to move on and say nothing to anyone else. They held these positions until the Army arrived to take over, at about 8 p.m.



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