Hanford engineer worked here 50 years

Michele Gerber, FH

Katayama then . . .

and now. . .

Bruce Katayama's tenure at Hanford has spanned 50 years of the site's 58-year history, and he's still going strong.

The chemical engineer, who commemorates his 50th anniversary as a Hanford employee this week, came to Hanford in June 1951 as a 21-year old graduate of the University of Washington. At that time the Korean War was raging, and both the REDOX (Reduction-Oxidation) Plant and C Reactor, Hanford's sixth production reactor, were under construction.

Katayama has worked at a series of jobs he has loved in corrosion engineering and in materials and nuclear fuels research and analysis. He still looks forward to coming to work in the morning, and often wakes up during the night thinking of new ways to approach engineering challenges. "Staying mentally and physically active keeps you young," he said. "It's the only way!"

Katayama began his Hanford work in the rotational training program, or "tech grad" program of General Electric Hanford Co. He and about 100 other young tech grads spent the summer of 1951 doing odd jobs such as typing catalog cards in the Richland library while they waited for the security clearances necessary for work in the nuclear areas of the top-secret site.

In autumn 1951, he received his clearance and joined the corrosion engineering group in the 3706 Building, then the site's only operating developmental chemistry laboratory. He soon transferred to the nearby 321 Separations Building where he and other tech grads were finalyzing cold experiments with new pulse columns that would soon be constructed in the PUREX (Plutonium-Uranium Extraction) Plant.

With the Cold War accelerating and Hanford's work expanding constantly, Katayama said, people felt their work was important and almost no one at the site worried about the possibility of layoffs.

Some unique problems

During the early 1950s, Hanford scientists were attempting continual increases in reactor power levels in order to produce more plutonium. However, the higher power levels brought with them a rash of "slug ruptures," or failures of the cladding metal on the outside of the uranium fuel rods, thus threatening production increases.

General Electric and the Atomic Energy Commission, a predecessor agency to the Department of Energy, formed a special corrosion group in the 108-B Building in the 100B Area, and recruited Katayama. He was a natural for that work, as his senior thesis in college had concerned electrochemical processing.

Continued on page 6.

Hanford engineer worked here 50 years, cont.

In 1954, when mercury from previous experiments in that facility poisoned some of the corrosion experiments, the group moved to the 222-B Building near B Plant in the 200 East Area. Later that year they moved again to the new state-of-the-art 325 Radiochemistry Laboratory in the 300 Area.

Asked today about the effect of all these moves on group morale, Katayama smiled. “You can’t let things like that bother you,” he said. “The work was exciting and you felt useful. I made great friends and we all moved together. Time passed and I was satisfied.”

Project Whitney

In 1955, Katayama transferred into the plutonium metallurgy group in the 231-Z Building in 200 West to work on a classified weapons development program known as “Project Whitney.”

For nearly the next 20 years (except for just over two years when he was loaned to another program), he was fascinated with this compelling and exacting project in a classified building far beyond Hanford’s security barricades. “There was an almost total absence of visitors,” he said. “And very few supervisors from the downtown offices came out. It was isolated, yet I never felt lonely.”

From 1959 through mid-1962, Katayama was loaned to the group that was testing fuel for the first loading and operation of the Plutonium Recycle Test Reactor in the 309 Building. The curious little reactor under the dome in the south-central 300 Area was a key part of President Eisenhower’s Atoms for Peace initiatives. Some of the earliest nuclear fuel types being developed for commercial electric power generation were tested there by the AEC beginning in 1960.

That same year, Katayama served on the original review team designing the 324 Building, then known as the Fuel Recycle Pilot Plant. The AEC was preparing to build the new facility just northeast of the 309 Building and use it to examine and reprocess the test-reactor fuel. Ironically, the 324 Building, having undergone multiple name and mission changes, is Katayama’s workplace today.

Contractor transition

Returning to the 231-Z Building in 1962, Katayama implemented early forms of electron microbeam analytical research, searching for slight impurities in materials that might be used in nuclear weaponry.

In 1965, GE left the site and transferred its Hanford laboratory and experimental work to Battelle Northwest, a precursor to today’s Pacific Northwest National Laboratory. Although initially worried about the change in management, Katayama says the transition was smooth. As a Battelle Northwest employee, he stayed on in the 231-Z Building and began experimenting with superconductors.

By the early 1970s, Katayama recalls, waste issues were receiving more attention at Hanford. Although the 1970 passage of the National Environmental Policy Act did not directly affect the site, increasing environmental consciousness throughout the nation caused Hanford to change several of its practices. Major environmental and waste containment upgrades were undertaken at N Reactor, the Plutonium Finishing Plant and many other Hanford facilities.

Continued on page 7.

Hanford engineer worked here 50 years, cont.

In step with this trend, and still working for Battelle Northwest, Katayama went to work in the 324 Building investigating waste vitrification and the storage properties of commercial light-water reactor spent fuel. In 1976, he presented his findings on spent fuel at an American Nuclear Society meeting in San Francisco.

He continued corrosion testing experiments on irradiated fuel in the 324 Building's C Cell until 1985, and then joined the team in B Cell fabricating radiation and heat sources for the Federal Republic of Germany. The "Mark 42 Project" in the 324 Building, which cut up special target fuel, occupied his time from 1988 until 1993.

By that time, major national changes, including the end of the Cold War and the start of massive waste cleanup endeavors at Hanford, drew Katayama into facility cleanout work. In 1995, a major enhanced retirement program offered by Pacific Northwest (National) Laboratory resulted in the retirement of 264 very senior personnel with 5,500 years of combined service history. Many of Katayama's friends retired — but he wasn't tempted by the offer, again believing that activity and involvement were the best ways to stay young.

Cleanup and cleanout

In 1996, management of the 324 Building transferred from PNL to B&W Hanford Co., a subcontractor to Fluor Hanford. Since that time, FH has absorbed the B&W Hanford work, but Katayama has taken all the management changes in stride.

"I know people can get quite upset about changes, and sometimes they are pretty outspoken about it," said Katayama. "Changes always cause uncertainty, and cause you to lose good people. However, if you just give new people and new management a chance, you might find that initial negative impressions can turn out to be positive. I always just try to get to know people, and generally it turns out OK."

Today, Katayama is the nuclear material custodian and design authority for the 324 Building's spent fuel transfer project. He spends much of his time imparting process knowledge about 324 Building programs to personnel working to clean out the highly contaminated hot cells in the facility. He's constantly educating the people who need to plan and manage cleanout.

"Bruce is a mainstay of the 324 Building," said his current supervisor, Dennis Takasumi. "He seems to be always providing other engineers with historical background and serving as a sounding board for engineering problems. He has a friendly and helpful attitude which makes him a pleasure to work with." Likewise, Mal Wright, director of the 324 Building Deactivation Project, and Integration Project manager Tim Erickson described Katayama as "professional, meticulous, positive, knowledgeable and a joy to work with."

Lifetime of lessons

"In hindsight," Katayama said, "we could have done better life-cycle planning in our earlier experiments and programs in this building. We could have designed for disposition. But this is part of learning and I'm glad programs do more of this type of planning today."

Continued on page 8.

Hanford engineer worked here 50 years, cont.

Katayama, a Seattle native, spent time in two different Japanese internment camps during 1942 and 1943. At Minidoka Camp near Hunt, Idaho, he lived in one room close to his mother, two sisters and two brothers, and he missed most of seventh and eighth grades. In September 1943, his family moved to Spokane — which was outside the Western Defense Zone where Japanese Americans were prohibited — to live with a married sister and attend high school.

In 1970, while at Hanford, Katayama married his wife Catherine. They have one son, Michael.

Looking back, his biggest professional disappointment has been the demise of nuclear power and nuclear endeavors beginning in the 1970s. A firm believer that nuclear power should be “the wave of the future,” he thinks that the failure to standardize designs in the nuclear industry allowed costs, safety analyses and approval times to soar. “This turned people off to nuclear power,” he said.

Katayama’s attitude toward waste is a practical one. “Waste disposal is an engineering problem that can be solved,” he said. “This issue is not so hard that we ought to stop using nuclear reactors. Let’s just make sure we have a good, well-designed repository and use it!”

Asked what single piece of advice he would give to today’s Hanford workers, Katayama is clear in the belief that people can influence their own environment. “If you don’t like your job, and you wake up in the morning and feel like calling in sick, then you should be looking for a job elsewhere. That attitude can really bring you down. But if you just stay enthusiastic and interested in the work, then you feel like getting up every day and doing it. This keeps you healthy, and then you don’t worry about the passage of time.” ❖