

## EPA Farm

### Introduction

In November 1981, the last cattle roundup took place at the U.S. Department of Energy's (DOE) experimental farm, managed for DOE by the U.S. Environmental Protection Agency (EPA).

Operations at this unique, 30-acre experimental farm in Area 15 started in 1964 when the EPA was contracted to conduct research to determine if radioactive materials (radionuclides) found in the environment were being transported to humans. At the time, a major concern was the transport of radioiodine through the soil-forage-cow-milk food chain.

### Construction in 1964



*This unique 30-acre experimental farm facility in Area 15 at the Nevada Test Site was closed in 1981.*

Construction of the 30-acre farm began in 1964, when the land was cleared of desert growth, a 5,400-foot water well was rehabilitated, a one-million-gallon reservoir was built, and the first crops were planted -- mainly alfalfa. During the next two years, dairy facilities were added, consisting of several large open paddocks, individual shaded stalls, and a combination milking barn/main laboratory building.

During the farm's 17-year existence, extensive plant and soil studies were conducted. The uptake of pollutants in locally grown vegetables and in forage grown as feed for a herd of 25 to 30 Holstein cows, horses, pigs, goats and chickens was also evaluated.

### Studies Yield Normal Results

Researchers with the EPA's laboratory in Las Vegas performed experiments on the cows and their milk to determine how quickly radionuclides disappeared from the milk, and the proportion of radioactivity ingested or injected which showed up in the milk or in certain animal tissues. The resulting information was used to develop reliable human exposure/dose assessment models which would predict the potential hazard to humans; then to develop countermeasures which could reduce the quantity of radionuclides entering the human food chain. In addition, scientists gained more insight into the complex behavior of radioactive materials, such as tritium, plutonium, and other pollutants found in the environment, and their effect on plants and animals.

The tissues from sacrificed animals were analyzed for any discernable radiation effects. Results yielded during the life of this program showed the animals to be entirely normal.



## The End of an Era

When the farm closed in 1981, most of the steers and dairy cows were transferred to the University of Nevada, Reno, and the horses to the Nevada Department of Fish and Game.

Today, nothing remains of the farm, except for the cleared 16-acre site that was used to grow crops (mainly alfalfa and rye). These crops were harvested as green chop or as hay for the livestock during the April to October growing season.

### *The Legend of Big Sam*

Big Sam was one of four fistulated steers (animals with surgical openings in their sides) in the test site herd. The fistulated animals served as biological samplers of the forage that was consumed by the rest of the herd as it ranged over the Nevada Test Site.



*Big Sam was one of four fistulated steers.*

When the four steers, including Big Sam, were a year old, they underwent operations in which a capped tube was installed into the fore-stomach of each animal through a surgical opening (fistula) on the left side. The tube and opening caused no discomfort to Big Sam or his ranch mates.

This same technique is still used by researchers today in universities and agricultural research organizations.

Big Sam was well known to Nevada Test Site visitors, and to residents in the surrounding communities. The U.S. Department of Energy's Nevada Operations Office also sponsored Big Sam's appearance at special events where he was displayed in his own special portable pen. He was also featured at a number of fairs, expositions, and other public events. When the farm closed in 1981, Big Sam moved to Reno with most of the herd.

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**Nevada Test Site**