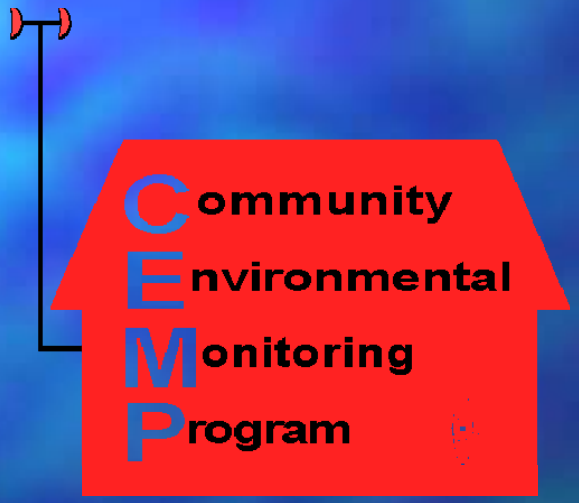
A Brief History of the Nevada Test Site and the Community Environmental Monitoring Program

Ted Hartwell

2009 CEMP Workshop---July 27, 2009

Ely, Nevada



Desert Research Institute
Nevada System of Higher Education

National Nuclear Security Administration

Community Environmental Monitoring Program

The Community Environmental Monitoring Program was established in 1981 to help foster better relations between the Department of Energy and the communities surrounding the Nevada Test Site (NTS) by increasing accessibility to monitoring data, and by involving stakeholders directly in the monitoring process.

Atmospheric Nuclear Testing At The NTS

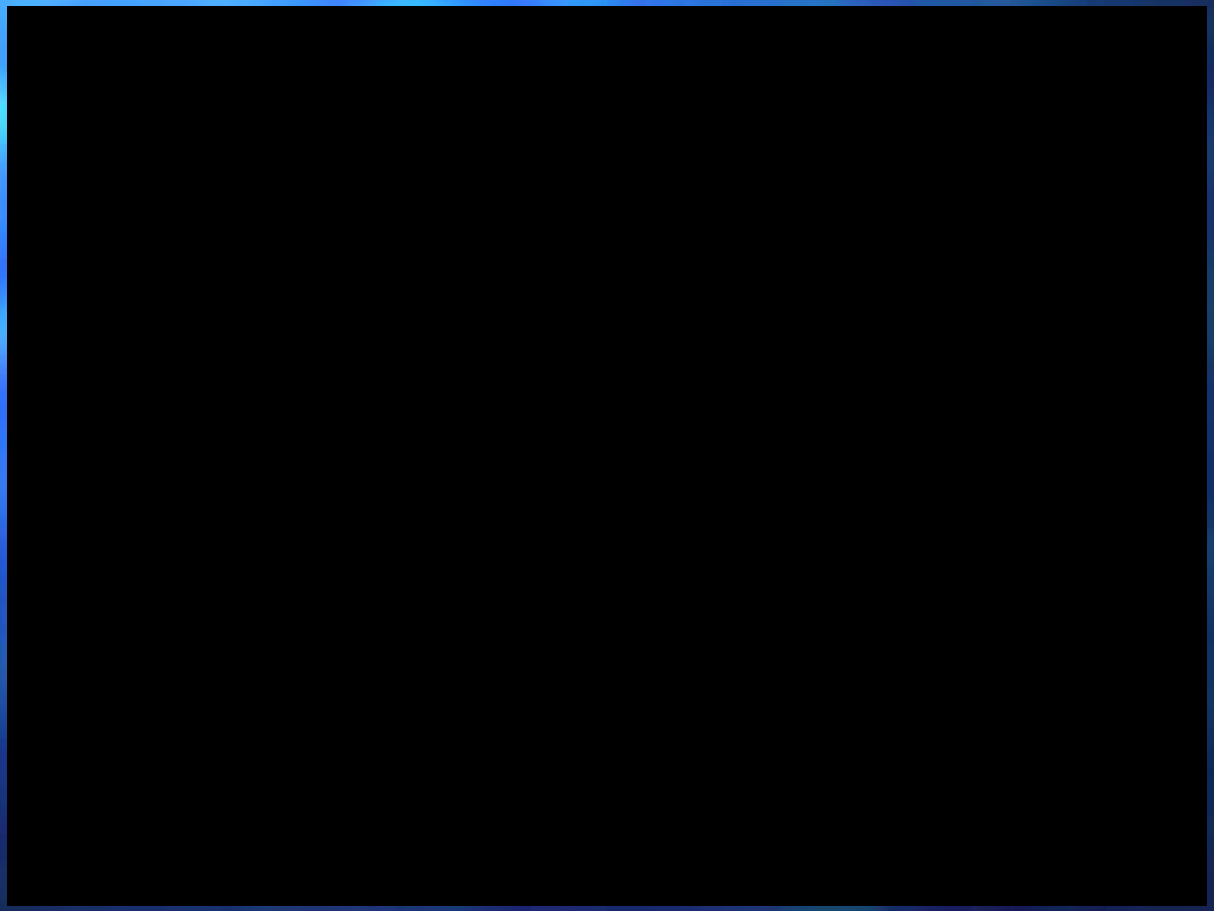
Between January 27, 1951, and July 17, 1962, 100 atmospheric nuclear tests were conducted at the NTS. The largest was the *Hood* test, with a yield of 74 kilotons.

Hood Test, July 5, 1957

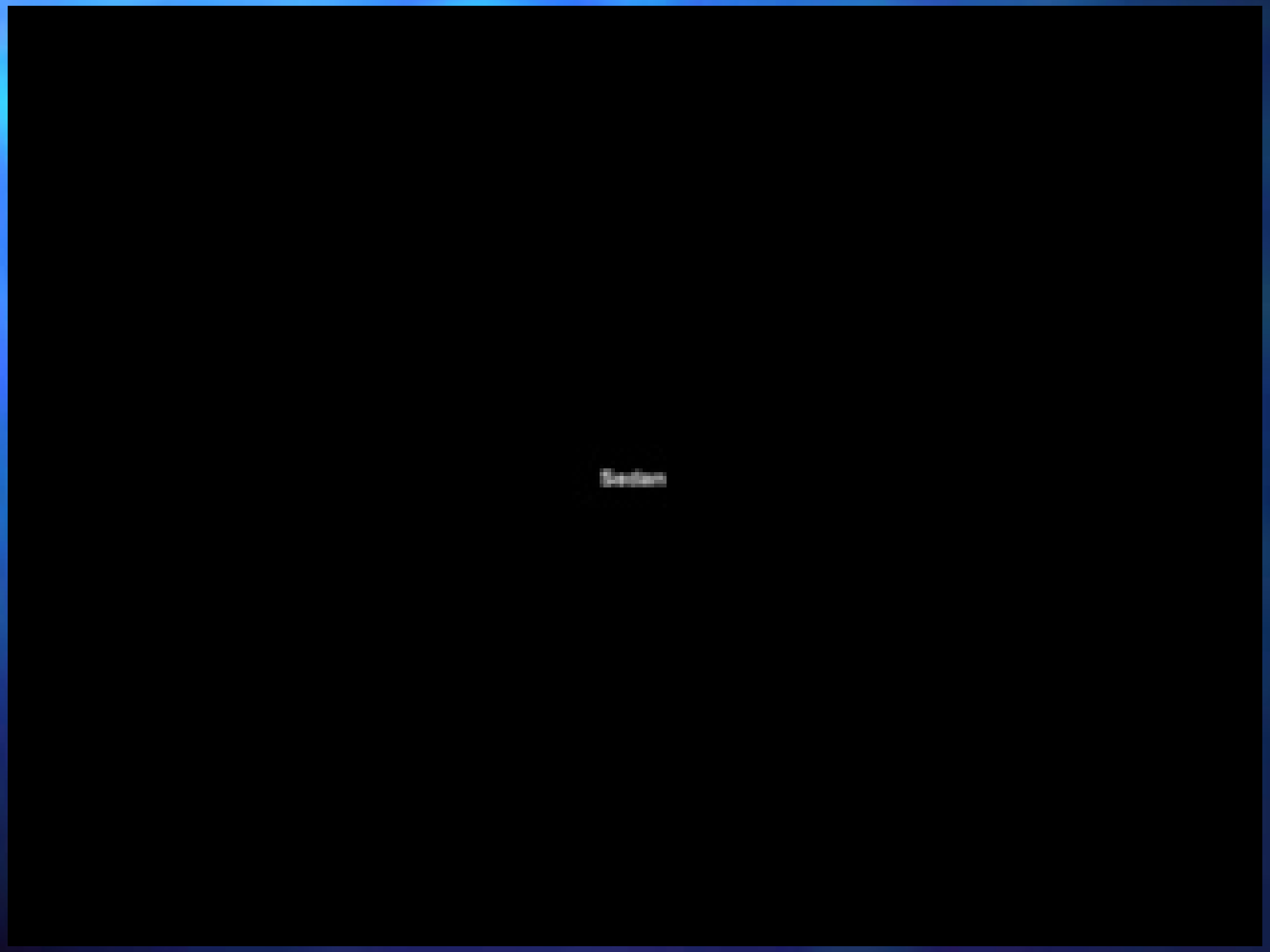
NTS Atmospheric Nuclear Testing

Balloon-Suspended Device Test At The NTS

NTS Weapons Effects Testing

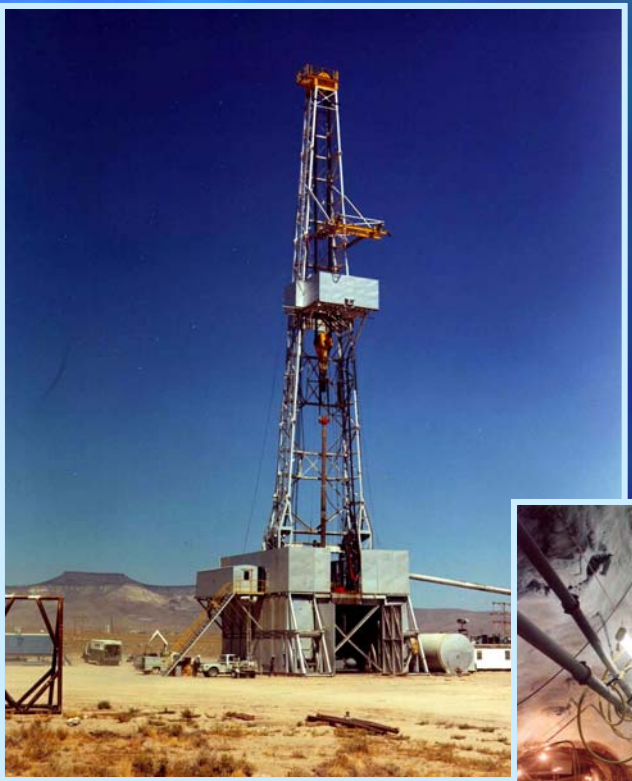


Peaceful Uses Of Nuclear Energy Plowshare Program



Underground Testing at The Nevada Test Site

A total of 828 underground nuclear tests were conducted at the NTS between July 19, 1957 and September 23, 1992. The largest was 1.3 megatons for the *Boxcar* test of April 26, 1968.



Subsidence Crater Formation

Unplanned Venting Of NTS Test Underground Nuclear Test

Baneberry, December 18, 1970

Artifacts of Underground Nuclear Testing At The Nevada Test Site

The Early ’60s Atmospheric Tests

In 1958, the U.S. and Soviet Union placed a moratorium on nuclear testing. This moratorium was ended by the Soviets in 1961, and both parties resumed atmospheric testing on a large scale. Atmospheric testing again ended late in 1962, after an additional 41 U.S. and 136 Soviet atmospheric tests. Many of these tests were high-yield devices, including the largest ever tested, a 50-megaton device by the Soviets in October 1961.


Soviet “Tsar Bomba” October 30, 1961

Initial Public Perception & Nuclear Testing

Early in the Cold War, the public perceived nuclear testing to be not only necessary for national defense but also as a display of national prowess. The word “atomic” was a heavily utilized item, and members of the public were often rapt witnesses to weapons tests.

1950’s Postcards---mushroom clouds likely added to photos.

Changing Perception of Nuclear Testing

By the late 1950's, public perception regarding ionizing radiation had begun to change. Evidence of the potential for adverse health impacts from radiation brought ever-increasing concern the public. By the 1970's, this concern had for many become fear, and protests outside the NTS became larger and more frequent.

Three Mile Island

The 1979 accident at the Three Mile Island Nuclear (TMI) Station in Pennsylvania, and the associated media coverage, only enhanced the fear of all "things nuclear." As a result of the accident, EPA radiological personnel who performed offsite monitoring for the NTS were deployed to monitor radiation levels in the area surrounding the plant.

Three Mile Island Plant in 1996

Community Environmental Monitoring Program

- Includes a total of 29 monitoring stations
- Twenty-four stations are located in Nevada, with 18 in communities and six at ranches
- Four stations are located in towns in Utah
- One station in California
- All stations collect information on both background radiation and weather information
- Employs members of the local communities as independent Community Environmental Monitors (CEMs) to serve as station managers

CEMP station in Mesquite, Nevada

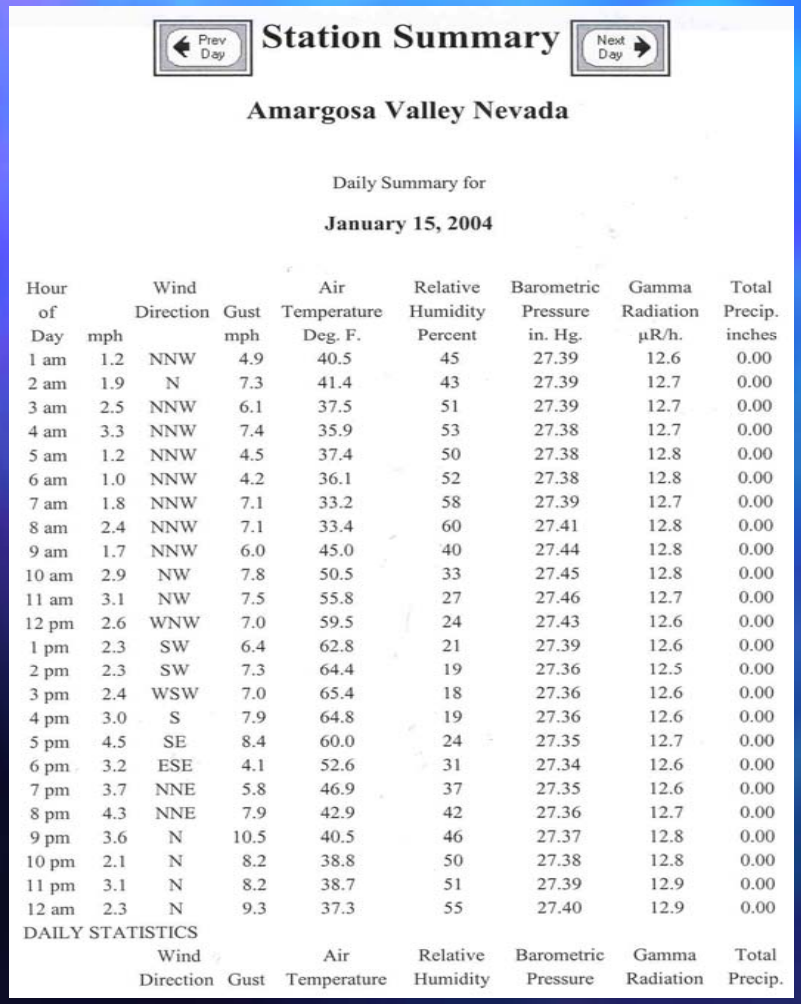
Desert Research Institute

National Nuclear Security Administration

Community Environmental Monitoring Program

http://cemp.dri.edu/

Data Dissemination



Prev Day **Station Summary** Next Day

Amargosa Valley Nevada

Daily Summary for

January 15, 2004

Hour of Day	mph	Wind Direction	Gust mph	Air Temperature Deg. F.	Relative Humidity Percent	Barometric Pressure in. Hg.	Gamma Radiation µR/h.	Total Precip. inches
1 am	1.2	NNW	4.9	40.5	45	27.39	12.6	0.00
2 am	1.9	N	7.3	41.4	43	27.39	12.7	0.00
3 am	2.5	NNW	6.1	37.5	51	27.39	12.7	0.00
4 am	3.3	NNW	7.4	35.9	53	27.38	12.7	0.00
5 am	1.2	NNW	4.5	37.4	50	27.38	12.8	0.00
6 am	1.0	NNW	4.2	36.1	52	27.38	12.8	0.00
7 am	1.8	NNW	7.1	33.2	58	27.39	12.7	0.00
8 am	2.4	NNW	7.1	33.4	60	27.41	12.8	0.00
9 am	1.7	NNW	6.0	45.0	40	27.44	12.8	0.00
10 am	2.9	NW	7.8	50.5	33	27.45	12.8	0.00
11 am	3.1	NW	7.5	55.8	27	27.46	12.7	0.00
12 pm	2.6	WNW	7.0	59.5	24	27.43	12.6	0.00
1 pm	2.3	SW	6.4	62.8	21	27.39	12.6	0.00
2 pm	2.3	SW	7.3	64.4	19	27.36	12.5	0.00
3 pm	2.4	WSW	7.0	65.4	18	27.36	12.6	0.00
4 pm	3.0	S	7.9	64.8	19	27.36	12.6	0.00
5 pm	4.5	SE	8.4	60.0	24	27.35	12.7	0.00
6 pm	3.2	ESE	4.1	52.6	31	27.34	12.6	0.00
7 pm	3.7	NNE	5.8	46.9	37	27.35	12.6	0.00
8 pm	4.3	NNE	7.9	42.9	42	27.36	12.7	0.00
9 pm	3.6	N	10.5	40.5	46	27.37	12.8	0.00
10 pm	2.1	N	8.2	38.8	50	27.38	12.8	0.00
11 pm	3.1	N	8.2	38.7	51	27.39	12.9	0.00
12 am	2.3	N	9.3	37.3	55	27.40	12.9	0.00
DAILY STATISTICS								
		Wind Direction	Gust	Air Temperature	Relative Humidity	Barometric Pressure	Gamma Radiation	Total Precip.

- Real-time data available locally via a built-in LCD display.
- Data are posted on a publicly accessible web site several times daily.
- Web site output formats include both tabular and graphical data for any user-selected period in the historical data record.

Data Dissemination

Monthly summary data for all stations is disseminated to local station managers who serve as liaisons to their communities. In addition, these “community environmental monitors” are responsible for the weekly collection and routing of filter samples to DRI, as well as for minor maintenance and ensuring that the stations are operating properly.

Annual Training

CEMs attend an annual 3-4 day training course that familiarizes them with the operation of the equipment at the CEMP stations. They also participate in a class that teaches them about the various types of both natural and man-made radiation that can occur in our environment. In addition, they are briefed on current activities ongoing at the Nevada Test Site, and attend lectures given by researchers on a variety of subjects related to all things nuclear.