

UPSHOT-KNOTHOLE: ANNIE Mushroom Cloud Trajectory, 1953

10,000-Foot TRAJECTORY: **NEVADA:** Alamo, Elgin, Carp • **UTAH:** Modena, Beryl, Paragonah, Spry, Panguitch • **COLORADO:** Grand Junction, De Begue, Parachute, Glenwood Springs, Boulder, Longmont, Greeley, New Raymer, Sedgwick, Ovid • **NEBRASKA:** Julesburg, Ogallala, Keystone, Stapleton, Gandy, Anselmo, Taylor, Neligh, Pierce, Carroll, Concord, Jackson • **IOWA:** Sioux City, Lawton, Kingsley, Diamond Center, Hanover, Nemaha, Rockwell City, Somers, Slifer, Stratford, Story City, Roland, Marshalltown, Chelsea, Haven, South Amana, Tiffin, Iowa City, Downey, Moscow, Pleasant Prairie, Bettendorf, Davenport • **ILLINOIS:** Rock Island, Moline, Buda, Tiskilwa, McNabb, Kangley, Streator, Dwight, Kankakee • **INDIANA:** Lake Village, Thayer, Wilders, Brems, Grovertown, Hamlet, Koontz Lake, Teegarden, Lakeville, Woodland, Jimtown, Elkhart, Bristol • **MICHIGAN:** Vistula, Sturgis, Findley, Coldwater, Litchfield, Pulaski, Vandercook, Grass Lake, Ann Arbor, Plymouth, Livonia, Oak Park, Highland Park, Detroit • **NEW YORK:** Westfield, Point Chautauqua, Jamestown • **PENNSYLVANIA:** Westline, Guffey, Mount Jewett, Howard, Castle Garden, Spring Garden, Unityville, Elk Grove, Lopez, Sugar Run, Camptown, Little Meadows. • **NEW YORK:** Binghamton, Oxford, Norwich, Shelburne, Utica, Grant, Saranac Lake, Redford, Dannemora, Jericho, Champlain • **MAINE:** Dickey, St. John, Fort Kent, Frenchville.

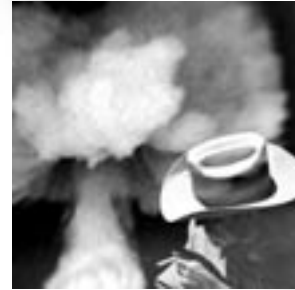


40,000-Foot TRAJECTORY: **NEVADA:** Alamo, Ash Springs, Hiko • **UTAH:** Modena, Beryl, Paragonah, Spry, Panguitch, Mount Ellen • **COLORADO:** Gateway, Delta, Hotchkiss, Paonia, Crested Butte, Granite, Tarryall, Palmer Lake, Elbert, Hale • **KANSAS:** St. Francis • **NEBRASKA:** Danbury, Oxford, Mascot, Ragan, Hildneth, Holstein, Roseland, Hastings, Harvard, Lushton, McCool Junction, Beaver Crossing, Malcolm, Ashland, Smithfield, Bellevue, Omaha • **IOWA:** Council Bluffs, Hancock, Marne, Lorah, Monteith, Minburn, Alleman, Maxwell, Melbourne, Marshalltown, Dysart, Walker, Troy Mills, Farley, Centralia, Asbury, Dubuque • **WISCONSIN:** Kieler, Cuba City, Avon, Lamont, Argyle, Monticello, Evansville, Edgerton, Fort Atkinson, Hebron, Palmyra, North Prairie, Genesee, West Allis, Milwaukee • **MICHIGAN:** Holland, Grand Rapids, Cedar Springs, Trufant, Six Lakes, Wyman, Mount Pleasant, Leaton, Edenville, Estey, Rhodes, Bentley, Omer, Twining, Tawas City, Au Sable • **NEW YORK:** Waddington, Chase Mills, Norfolk, Dickenson Center, Duane Center, Hawkeye, Clintonville • **VERMONT:** Huntington Center, Waitsfield, Northfield, Corinth, Bradford • **NEW HAMPSHIRE:** Wentworth, Stinson Lake, Melvin Village, Wawbeck, Tuttonboro, Wolfeboro Center, Wakefield, Sanbornville • **MAINE:** Emery Mills, Springvale, Sanford.

plutonium-239 iodine-131 strontium-90 cesium-137 americium-241 plutonium-240



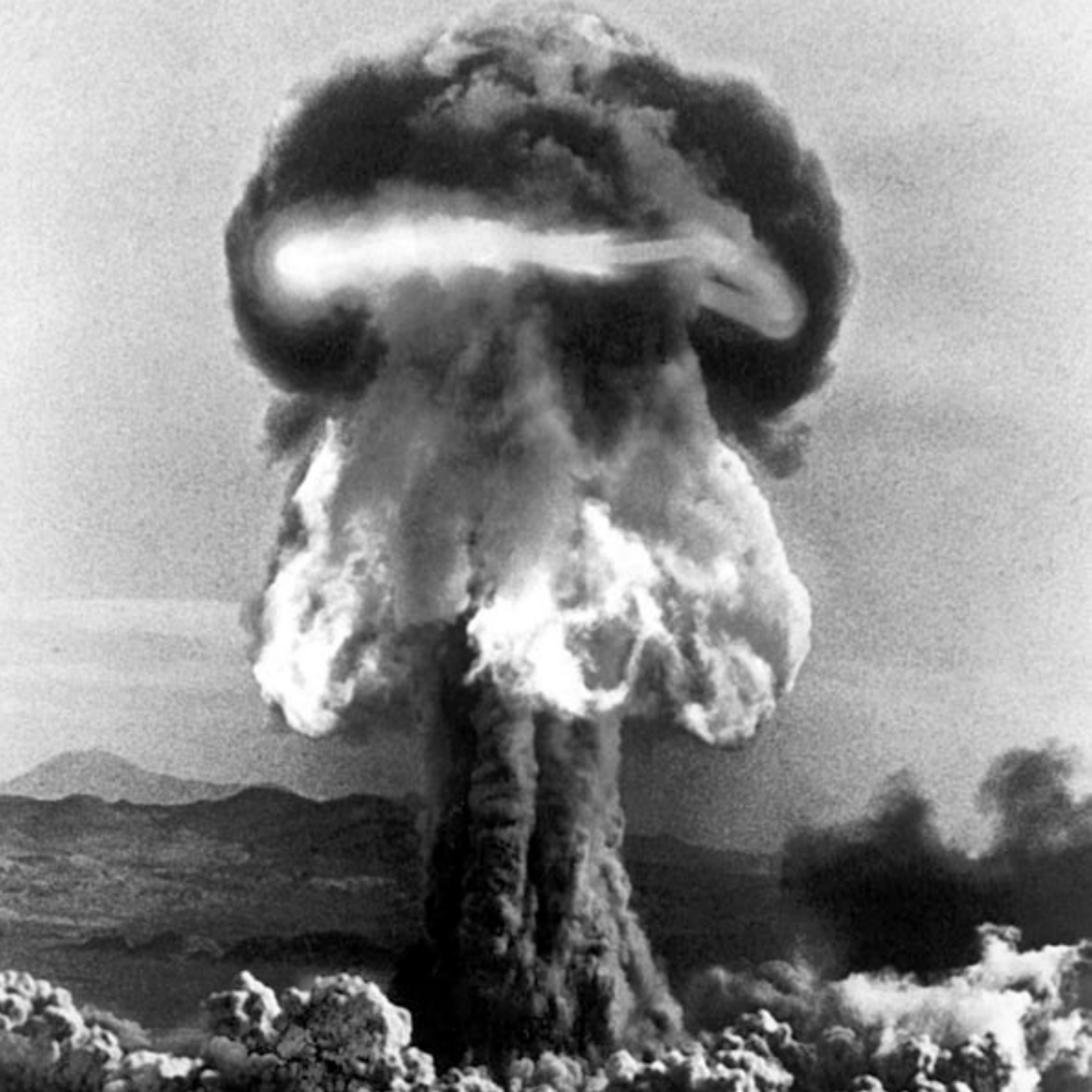
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marlboro man
thermonuclear country

come to marl~~x~~oro thermonuclear country

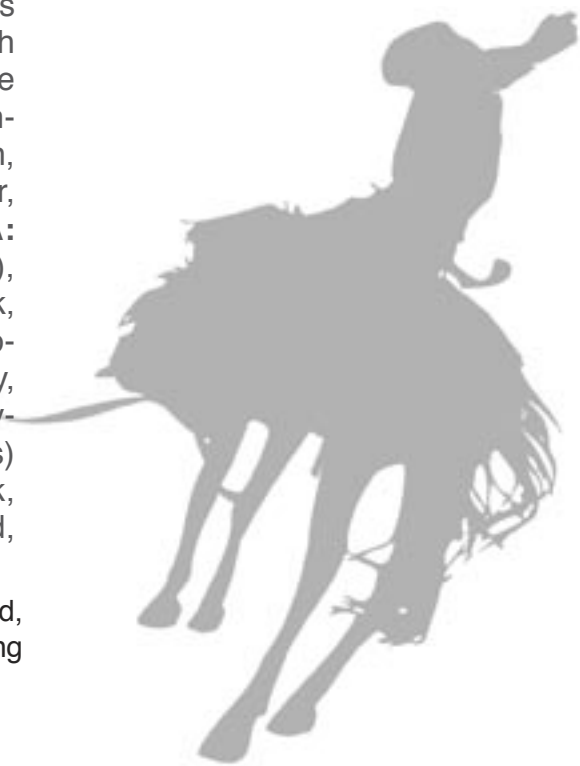




UPSHOT-KNOTHOLE: GRABLE
Mushroom Fallout Cloud Trajectory, 1953

10,000-Foot **TRAJECTORY**: **NEVADA**: (Grant Range), Ruth, Steptoe, Currie, (Snow Water Lake), Thousand Springs • **IDAHO**: Three Creek, Glens Ferry, Mountain Home, Mayfield, Boise, Pearl, Montour, Payette, Weiser • **OREGON**: Pleasant Valley, Baker, Haines, North Powder, (Blue Mountains), Pilot Rock, Echo, Irrigon • **WASHINGTON**: Paterson, (Horse Heaven Hills), Yakima Indian Reservation, (Lincoln Plateau), (Mount Adams Wilderness Area) (Gifford Peak), (Gifford Pinchot National Forest), North Bonneville, Skamania • **OREGON**: Gresham, Boring, Eagle Creek, Estacada, (Goat Mountain), (Round Mountain), (Monument Peak), (Tombstone Pass), (Three Sisters Wilderness Area), Bend, (Bear Creek Butte), Post (Spanish Peak), Hamilton, (Meadow Creek Pass), (Blue Mountains), La Grande, Island City, Alice, Imbler, Minam. Walowa • **IDAHO**: Waha, Lewiston, Lapwai, Spalding, Julietta, Southwick, Helmer, Boyill, Avery, Saltese, Mullan • **MONTANA**: Belknap, (Mount Headley), (Blue Mountain), Tray • **IDAHO**: Moyie Springs, Meadow Creek, (Moyie Falls), Nordman • **WASHINGTON**: (Molybdenite Mountain), Lost Creek, Arden, Addy, Cedonia, Hunters, Marlin, Moses Lake, Sunnyside, Grandview, Mabton, (Horse Heaven Hills) • **OREGON**: Arlington, Blalock, Rock Creek, Mikkalo, Kent, Shaniko, Antelope, Ashwood, (Grizzly Mountain).

—Richard L. Miller, *Under the Cloud*,
The Decades of Nuclear Testing





It is 1954. “Do you know anything more masculine than a cowboy,” Leo Burnett asks his cohorts at Philip Morris as they launch their Marlboro Man ad campaign. The Marlboro Man succeeds beyond their wildest expectations.

Everyone wants to ride through Marlboro Country.

Shoshone Country. Paiute Country.
Thermonuclear Country.

The masculine Marlboro Man rides point through a West contaminated by the detonations of Annie, Nancy, Ruth, Dixie, Ray, Badger, Simon, Encore, Harry, Grable, and Climax at the Nevada Test Site the previous year. Harry is known as Dirty Harry by inhabitants living downwind from the blasts.

Even cowboys get the blues.

Goats turn blue after radioactive clouds from Dirty Harry waft through their grazing area. Lambs are stillborn and sheep drop dead. Eviscerated jackrabbits are strewn across the Nevada landscape.

Dirty Harry, shot #9 of the 11 tests in the Upshot-Knot-hole series, emits radioactivity at 1,230 times “permissible” levels for 16 consecutive [make my] days.

aftermath

afterimage

aftershock

aftereffects

afterglow



Annie Nancy Ruth Dixie Ray Badger Simon Encore Harry Grable Climax

“Your best action is not to be worried about fallout,” an Atomic Energy Commission booklet assures the blue goats, blistered cattle, stillborn lambs, dead sheep, scorched ground squirrels, blinded coyotes, charred tortoises, carbonized lizards, vaporized spadefoot toads, and other inhabitants of the area.

Duck and cover-up. After Dirty Harry, President Dwight D. Eisenhower suggests to the head of the Atomic Energy Commission that the word **thermonuclear** be deleted from press releases and speeches. Also **fusion** and **hydrogen**.

“Keep them confused as to **fission** and **fusion**.”

It is 1954. Philip Morris’s corporate motto on their Marlboro pack:

Veni. Vidi. Vici. I came. I saw. I conquered.

It is 1954. They came. They saw. They contaminated.

Dirty Harry, Dirty Annie, Dirty Nancy, Dirty Ruth, Dirty Dixie, Dirty Ray, Dirty Badger, Dirty Simon, Dirty Encore, Dirty Grable, and Dirty Climax.

Marlboro country is so contaminated that a year-long moratorium is called on all detonations at the Nevada Test Site.

“Ladies and Gentlemen:

We interrupt this program to bring you important news.

Word has just been received from the Atomic Energy Commission that due to a change in wind direction the residue from this morning’s atomic detonation is drifting in the direction of St. George.

There is no danger.”





UPSHOT-KNOTHOLE: SIMON **Mushroom Fallout Cloud Trajectory, 1953**

The day after the Simon explosion at the Nevada Test Site, physics students at Rensselaer Polytechnic Institute in upstate New York determine that the rain puddles outside their laboratory are 270,000 times as radioactive as water approved for drinking. When the students test the radiation level of tap water, they find that the levels are 2,630 higher than normal.

When radiochemistry professor Herbert Clark calls the AEC to report the astronomic radiation levels, the AEC official tells Clark there must be a mistake.

—Richard L. Miller, *Under the Cloud,*
The Decades of Nuclear Testing

30,000-Foot Trajectory: NEVADA: Moapa Indian Reservation, Cameron, (Painted Desert), Navajo Indian Reservation, Mesa, Polacca, Keams Canyon, Nazlini, Fort Defiance, W. Brimhall, Crown Point, Hospah, San Ysidro, Santo Domingo, Galisteo, Lamy, El Pueblo, Ribera, Serafina, Los Montoya, Wildorado, Bushland, Amarillo, Pullman, Washburn, Conwood, Lutie, Aberdeen • **OKLAHOMA:** Madge, Vinson, Cache, Lawton, Hulen, Gas City, Duncan, Sunray, Velma, Woodford, Newport, Springer, Gene Autry, Dickson, Matoy, Cade, Bokchito, Boswell, Soper, Goodland, Bokhoma, Tom • **ARKANSAS:** Arkinda, Fomby, Emerson • **LOUISIANA:** Summerfield, Lillie, Fairbanks, Collinston, Oak Ridge, Epps, Montina, Ballard, Sharon, Offahoma, Carthage, Pickensville, Beaver Town, Carrollton, Fultondale, Gardendale, Mount Olin, Gallant, Reece City, Gadsden, Berryton, Holland, Crystal Springs, highest point in Georgia: 4,784 feet • **NORTH CAROLINA:** lotla, Webster, Cullowhee, Sylva, Barnardsville, Little Switzerland, Celo, Estatoe, Miraville, Jefferson, Warrensville, Lansing, Grassy Creek • **VIRGINIA:** Alum Ridge, Copper Hill, Bent Mountain, Roanoke, Monty Hall, Free Union, Nortonsville, Ruckersville, Hood, Wolf, Orlean, Old Tavern, Marshall, Rectorville, Halfway, Aldie • **MARYLAND:** Tuscarora, Adamstown, Thurston, Union Bridge, Ladiesburg, Uniontown, Middleburg, Mount Royal, Newberrytown, Royalton, Hummelstown, Oak Grove, Ravine, Donaldson, Branch Dale, Buck Luzerne, Upper Exeter, Dalton, Lewisville, Royal, Downsville, Lake Delaware, Bovina Center, Chariton, Factory Village, Saratoga Springs, Fort Hampton • **VERMONT:** West Haven, Benson, Brandon, Northfield, Berlin, Montpelier, Barre, North Montpelier, Plainfield, North Danville, Lyndon, Burke, East Haven, Lemington, Colebrook, Hollow, Mount Pisgah, Magalloway Mountain • **MAINE:** Katahdin, highest point in Maine), Patten, Crystal, Island Falls, Shin Pond

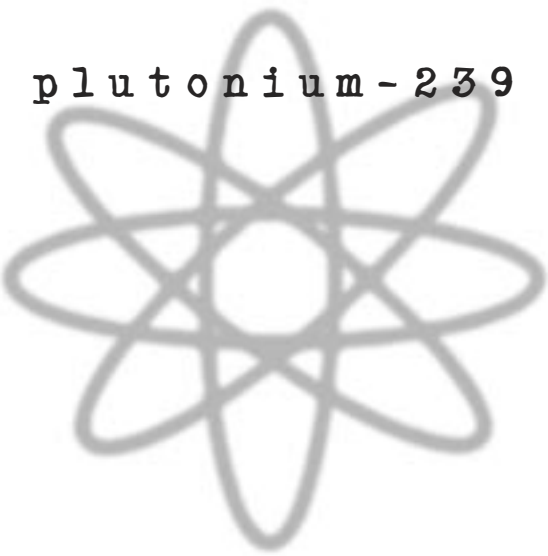




Snow Canyon, location site for The Conqueror
stills (right) from The Conqueror



d o w n w i n d e r s



plutonium-239

iodine-131

strontium-90

cesium-137

americium-241

plutonium-240

It is 1954. There may be a moratorium on nuclear testing, but there is no moratorium on film production. Quintessential and masculine Marlboro Man, John Wayne, rides through the desert sand dunes of Utah's Snow Canyon outside of St. George. Wayne plays the swashbuckling and hot-blooded Genghis Khan in the big-budget extravaganza, *The Conqueror*, produced by billionaire Howard Hughes. Snow Canyon is directly downwind of the Nevada Test Site.

A bomb at the box office, *The Conqueror* is now available on DVD. *The Conqueror* is considered one of the 50 worst movies of all time.

John Wayne:

Tempting!

Pedro Armendariz:

Tempting, but unwise, my brother.

Listen to me.

John Wayne:

There are moments for wisdom,

Jamuga, then I listen to you.

And there are moments for action,
and then I listen to my blood.

I feel this Tartar woman is for me!

My blood says 'take her!'

Dick Powell, director of *The Conqueror*, listens to the government experts who assure him and the RKO location scouts that residual radiation levels in Snow Canyon from Annie, Nancy, Ruth, Dixie, Ray, Badger, Simon, Encore, Dirty Harry, Grable, and Climax are perfectly safe.

"Your best action is not to be worried about radiation levels."

For the film shooting, huge electric blowers are used to create epic sandstorms when the winds gusting through Snow Canyon are not strong enough. For three months while shooting the desert battle scenes, the actors and the Mongol and Tartar extras roll in the contaminated sand dunes.

Iodine-131	8.1 days
Strontium-90	28.1 years
Cesium-137	30.2 years
Americium-241	42,400 years
Plutonium-239	6,580 years
Plutonium-240	458 years





flash forward . . .

All of the stars of the Conqueror—John Wayne, Susan Hayward, Agnes Moorehead, and Pedro Armendariz—die of cancer. So does director Powell. At least half of the 220 members of the supporting cast and crew are diagnosed with cancer. No one counts the numbers of Shoshone and Paiute extras diagnosed with cancer.

flash flash forward . . .

Snow Canyon State Park. “With hot showers and hook-ups for trailers, the scenic campground at Snow Canyon is among the best in this part of the state. If you hike to the small arch in the canyon, try to find the Indian pictographs on the canyon walls. Kids especially like to play in the sand dunes.” [emphasis added]

Call 1-800-322-3770 for camping reservations.

—Utah, Fodor’s 2001 tourist guide
to [contaminated] Snow Canyon

all my relations . . .

o v e r e x p o s u r e

fission

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o v e r d o s e

Rancher Ken Case is hired by the Atomic Energy Commission to ride a herd of cattle and horses over ground zero after nuclear detonations at the Nevada Test Site.

The backsides of the cows are branded with three 12" letters: AEC, for the Atomic Energy Commission.

Atomic cowboy Case rides the AEC cows and horses over thermonuclear country for seven years to enable Los Alamos National Laboratory scientists to measure the effects of radiation at ground zero.

You don't have to be a rocket scientist to know that the effects of radiation on atomic cowboys and their animal sidekicks will be deadly.

Marlboro Men. Thermonuclear Country.



marlboro