Strong quake shakes central mountain area

SALT LAKE CITY (AP)—A strong earthquake, which could have caused severe ruination but left only minor damage in a small Idaho town, rumbled through a 400-mile wide area of the central Rocky Mountains Thursday night.

One high school girl received a minor cut in Malad City, Idaho, scene of greatest property damage. It was the only injury reported.

The quake, which struck at about 8:31 p.m. MDT, also shook skyscrapers in Salt Lake City, the region’s largest city. It was the strongest earthquake in the United States since the one which took 64 lives in California’s San Fernando Valley in 1971.

Meanwhile, earthquake experts at the University of Utah said the possibility of a stronger followup earthquake “cannot be ruled out.”

Tom May of the university’s seismograph station said Thursday night, “There is no way to predict if, but the possibility is there.” He said that if it comes it would likely be larger than Thursday’s or a smaller one in the same area as Wednesday night.

In Malad City, Oneida County Sheriff Kenneth Wharton said a girl was cut on the leg when a scenery panel tumbled during a play rehearsal at the local high school auditorium which developed a wall crack.

Wharton said four plate glass windows broke in downtown buildings and bricks were strewn about the town. He said chimneys fell on three or four houses and cornices dropped to the sidewalks from several downtown buildings.

He said bookcases tipp’d over, light fixtures broke and cracks appeared in the walls of many buildings in the town of 2,000.

The University of Utah seismographic center today sent two crews to northern Utah and southern Idaho to search for fissures in the ground.

Steve Bellon, senior technician-analyst for the center, said between 30 and 40 aftershocks had been measured by the seismographic station, but he said probably only three or four were strong enough to have been felt by people.

He said no cracks in the earth had yet been located but he said an earthquake of the size of Thursday night’s could have produced fissures between six inches and one foot.

There was an unofficial report of a broken natural gas line in northern Utah’s Cache County, scene of an earthquake which registered 4.3 on the Richter Scale Wednesday night. It was not known if the two quakes were related.

Thursday night’s trembling lasted for about 10-15 seconds in downtown Salt Lake City, but reports from northern Utah indicated it lasted for about 20-30 seconds.

Fosc Pistello, Idaho, residents said they felt two short shocks.
Dozens of unofficial reports of the quake came from Twin Falls and Burley, Idaho, and Jackpot, Nev., to the west; Idaho Falls and Pocatello, Idaho, to the north; Rock Springs, Thayne and Afton, Wyo., to the east, and Provo and Delta in central Utah, to the south.

The Richter Scale is a measure of ground motion as recorded on seismographs. An earthquake of 3.5 on the scale can cause slight damage in the local area; 4 can cause moderate damage; 5 considerable damage; 6 severe damage. A 7 reading is a "major" quake capable of widespread heavy damage; 8 is a "great" quake capable of tremendous damage. The San Francisco earthquake of 1906 registered 8.5.

**Earthquake**—a real moving picture

SALT LAKE CITY, Utah (AP) — Patrons at a movie theater in downtown Salt Lake City said they thought the trembling was only part of the movie they were watching: "Earthquake."

Box office personnel said they knew it was real, however.

People throughout a 400-mile area around the Utah-Idaho border, felt the effects of a Thursday evening earthquake which registered over 6 on the Richter Scale and was the strongest in the United States since 1971.

Mrs. Kenneth Wharton, wife of the Oneida County (Idaho) sheriff, said "some cuckoo clocks in Malad City that haven't worked for years have started up."

MALAD CITY, Idaho — A Malad City resident inspects damage to her front porch caused by a strong earthquake that rumbled through the central Rocky Mountains Thursday night. The tremor, which shook skyscrapers to the south in Salt Lake City, was described as the strongest in the United States since 1971. (AP wirephoto)
Utahns find earthquake faults

TREMONTON, Utah (AP)—After several days of searching remote farmland along the Utah-Idaho border, a Utah farmer and his son apparently have found two faults from last Thursday's earthquake, says a Utah state geologist.

The earthquake, described as the strongest in the United States since 1971, rumbled through a sparsely populated region of the West and caused only one minor injury and only scattered property damage.

Utah state geologist Bruce Kalisher said Sunday it appeared that two faults, one about a mile long, had been discovered by Earl Fuhriman and his 28-year-old son, Sidney, roughly four miles north of the Idaho border.

He said the faults were found Saturday and Sunday a short distance north of where searchers quit looking Friday. The area had been virtually inaccessible last week because of heavy snowfall and drifting.

"You can see the mark in the ground but the soil is such that it has run back together," said the elder Fuhriman in a telephone interview.

Fuhriman is a dryland farmer in the basin, known as the Pocatello Valley, where the apparent faults were found. He lives in Tremonton during the winter.

The basin, about 80 miles northwest of Salt Lake City, is not inhabited during winter months but about three dozen farmers have property there in the summer and fall.

"We could see one crack in the snow three-quarters to one inch wide. It looked just like a piece of broken glass in the frozen snow," Fuhriman said. "We could see where it was heaved up in little chunks."

Kalisher said the longest fracture ran north and south through the basin, while the second was a couple hundred feet in length running across a farm and under a farm building.

He said geologists would visit the area Monday to determine if the breaks were the actual earthquake faults or just phenomena related to the quake.

"It does not appear there was a big displacement as scientists had expected," said Kalisher.

He said geologists had expected a quake of the magnitude of Thursday's would have produced a vertical break in the ground of possibly one foot.

Kalisher surveyed an area near the faults Friday but quit looking before they were located.

The geologist said damaged, but unoccupied, farm buildings near the epicenter of the quake showed that the tremor would have caused casualties and widespread destruction if the area had been populated.

Aftershocks 'little larger'

SALT LAKE CITY (AP)—The strongest aftershock so far since Thursday night's major earthquake near the Utah-Idaho border was recorded at 7 a.m. today, the University of Utah seismology center reported.

The center had forecast that aftershocks would occur for days but center director Kenneth L. Cook said this morning's tremor was "a little larger than we had predicted."

He said the aftershock was felt in Salt Lake City about 80 miles south of the suspected epicenter of Thursday night's earthquake.

According to the seismology center, evidence indicated the epicenter of today's aftershock was within five miles of Thursday's earthquake, which had been pinpointed just north of the small community of Blue Creek near the border.

The Oneida County sheriff's office at Malad City, Idaho, where most of the damage occurred Thursday night, said it did not receive any reports of additional damage today.

Cook said the aftershock was recorded at the university at 4:55 to 4:57 on the Richter scale, which was considerably less than the shock measured Thursday night. He said the exact reading of the main earthquake has not yet been determined but he said it may be less than the 6.3 reported earlier, possibly about 6.0.

That reading still would be considered a "major" earthquake capable of substantial damage in populated areas. However, Thursday's tremor occurred in a relatively remote area of Utah and Idaho.

Meanwhile, a University of Utah scientist who surveyed the area of the earthquake Friday said there appeared to be no breaks in the ground, although he said much of the area was snow covered.

Steve Bellon, an analyst for the university's earthquake center, said one scientist did find some breaks in the snow near the border but was unable to determine if there were fissures in the ground beneath it.

He said this morning's aftershock was strong enough to have toppled chimneys that may have been weakened by the main earthquake.

Thursday's earthquake was the strongest in the United States since a 1971 tremor in California killed 64 persons and caused millions of dollars of damage.
Quake’s Ferocity Found Intense In Remote Utah

By Charles Seldin
Tribune Staff Writer

The wrath of the earthquake that Thursday night shook a four-state area appears greater than originally estimated, a Utah geologist said Saturday. Bruce Kaliser, of the Utah Geology and Mineral Survey, said he visited the area of the quake’s epicenter ̶ about 80 miles north of Salt Lake City ̶ by four-wheel-drive vehicle on Friday. After hiking to what he determined to be the exact epicenter, Mr. Kaliser said he found abandoned homes completely knocked off their foundations.

Meanwhile, the strongest aftershock since Thursday night’s major quake was recorded at 7:01 a.m. Saturday at the University of Utah Seismology Center.

Registers 4.6 on Scale

Steve Bellon, an analyst for the university’s earthquake center, said the aftershock registered 4.6 on the Richter Scale and occurred within five miles of the original quake’s epicenter.

The major quake, Mr. Bellon said, measured closer to 6.0 than the 6.3 originally recorded. It was the most severe in the United States since 1971, when a tremor killed 64 persons in California.

Mr. Kaliser said Saturday, “The physical evidence of earth movement in the area of the epicenter was far more intense than what was reported earlier.”

Knocked Off Foundations

“We found a collapsed metal storage bin, and several homes had been rocked off their foundation. Most of the movement appeared to be in a north-south motion,” he said.

The epicenter was near Blue Creek (population 33), Box Elder County, and just north of the Utah-Idaho border.

The country is virtually inaccessible because early spring snows and drifting have blocked roads. Most buildings in the area are used only in the summer and fall for dry farming, he said.

None Occupied

All were abandoned, Mr. Kaliser said.

He said damages resulting from an earthquake are not recorded from the Richter Scale. An earthquake’s intensity, from the standpoint of damage to people or structures, is judged by the Modified Mercalli Intensity Scale.
He said the Utah-Idaho quake would have been rated VIII or IX on the
Mercalli Scale. The damage scale uses
Roman, rather than Arabic, numerals.

The Richter Scale is a measure of
ground motion as recorded on seismog-
raphs. Every increase of one number
means a tenfold increase in magnitude.
Thus, a reading of 7.5 reflects an
earthquake 10 times stronger than one
of 6.5.

"If those homes had been occupied,
there would certainly have been casual-
ties. Everything on their shelves had
been spilled, foundations were badly
cracked and the buildings shifted on
their foundations," Mr. Kaliser said.

The geologist said he found no large
earth or snow slides but found
"intensive ground cracking caused by
the severe ground motion."

He said the movement was so strong
that a 10,000-pound farm tractor stored
in a barn moved about a foot to the
north.

Mr. Kaliser said he could not esti-
mate the monetary damage resulting
from the earthquake.

Although there was intensive ground
racking, there were no fissures, he
said. Fissures are usually of considera-
able length and depth and constitute a
major restructuring of the earth.

Sensations from the quake were felt
from Pocatello in the north, Evanston
and slightly farther to the east, Rich-
field to the south and Wells, Nev., to the
west.

The only known injury from the
tremor was Kenna Lee Kent, 14, a
daughter of Mr. and Mrs. Robert Kent,
Malad City. The girl was cut on the leg
when a scenery panel from a Miss
Malad rehearsal fell on her.

In Malad City, the hardest hit town,
several homes were damaged. Else-
where, the effects were confined to
"what might have been, rather than
what was," according to officials at the
seismograph station.

Of the epicenter site, Mr. Kaliser
said, "If the weather had not prevented
the rural homes from being occupied,
the farm residents caught in the quake
would have needed emergency help.

"They would have been thrown
across the walls, some of which opened
up enough to slide your arm through," he
the geologist added.

The university seismograph center
had forecast that aftershocks would
occur for days after Thursday's quake.

Dr. Kenneth L. Cook, center direc-
tor, said an earthquake of 3.5 on the
Richter Scale can cause slight damage
in the local area; 4 can cause moderate
damage; 5 considerable damage; 6
severe damage.

A 7 reading, Dr. Cook said, is a
"major" quake capable of widespread,
heavy damage. A quake rated 8 is
capable of tremendous damage.

Damage caused by earthquake is
evidenced by disarray in farm-
house kitchen, located near the
epicenter on Utah-Idaho border.
Severe ground motion caused by Thursday night's earthquake is evident as storage bin was ripped from its foundation, spilling barley in the process. Damage appears to be worse than expected.
MALAD CITY, Idaho (UPI) — The March 27 earthquake and aftershocks along the Idaho-Utah border caused an estimated $959,357 damage to homes, businesses and other structures in Oneida County, Mayor Glen B. Williams said Thursday.

H. V. Peden, chairman of the Oneida Chapter, American Red Cross, reported that about 80 percent of the homes in Oneida County and most other structures were checked during a survey of damage by 55 Red Cross volunteers.

**Damage Mounts**

As aftershocks continued more than a week after the earthquake which registered 6.3 on the Richter scale, structural damage intensified, especially in buildings of older masonry construction.

Damage to 530 homes was estimated at $653,000 with seven of the homes considered destroyed. Two of the 26 businesses damaged also were classified as destroyed although they are still occupied. There was $2,500 damage to inventories.

Farm buildings such as graneries, shops and other outbuildings sustained an estimated $91,000 damage.

Peden said the amount of damage could go even higher when the effects of the tremors on irrigation deep wells has been determined. Some farmers in the area have reported roily waters in domestic wells since the earthquake and damage to the irrigation wells would push the total much higher.

**Start in May**

In normal years, irrigation wells are not put into operation until May.

Damage to one well already has been verified. The Smith Dairy Farm at Pleasantview, six miles southwest of Malad, reported that a flowing well has decreased its output since the quake.

The well had provided water for a young dairy herd and without the water supply, the dairymen are considering moving the stock to another field where the animals will at least have creek water.

Malad High School gymnasium, of school buildings in the area, was the most severely damaged. Private engineers who surveyed the building the day after the quake said the walls at the southwest corner where the gym joins the main structure should be replaced.

Many chimneys in the area toppled or were cracked by the quake. In some cases the mortar was shaken from between the bricks.

Of churches in the community, the worst damage was sustained at the Pleasantview Church of Jesus Christ of Latter-Day Saints Ward Chapel where a band of plaster dislodged at the top of the masonry walls.

In addition, the front entryway to the LDS Bishop's Warehouse on Bannock Street was dislodged from the main part of the building. The building now must be entered through the rear door.

The United Presbyterian Church, a 90-year-old structure, did not appear to sustain damage beyond the breaking of two windows.

The Oneida County Courthouse, U.S. Post Office, and the Oneida Hospital all escaped serious damage.

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**Mushy clay poses earthquake threat**

SALT LAKE CITY (AP) — The valley floor along Utah's heavily populated Wasatch Front contains thick blankets of mushy clay which could pose a serious earthquake threat, a University of Utah seismologist said Thursday night.

Dr. Robert B. Smith, associate professor of geophysics, said that the "quick-clay" sediments underlie many of the residential and industrial areas along the Wasatch Front, as well as highways, railroads and airports.

In a campus lecture one week after a major tremor jolted southern Idaho, northern Utah and adjacent areas, Smith said a possible consequence of even moderate tremors is "liquefaction."

He defined that as a condition which results when water-saturated clay is changed from a solid to liquid state by severe ground shaking of the quick-clay sediments.

"This means that where there is a strong shock to the quick-clay, suddenly you've got a condition where the ground just gives way to a soil which is essentially a liquid. If you have weight pushing down, the structures push into it," he said.

Smith said he and other university staff and students, as well as some federal government scientists, are closely monitoring the Pocatello Valley tremor of last week for clues to a possible ensuing shock.
Geological survey to hasten study of Intermountain quakes

The sharp earthquake (magnitude 6.3 on the Richter Scale) that shook the Utah-Idaho border during the night of March 27 produced the need to better define the area's earthquake hazards and has spurred additional studies by the U.S. Geological Survey.

According to Dr. Al Rogers, USGS geophysicist of Golden, Colo., and leader of the USGS earthquake team in Utah, "the area has produced at least six strong earthquakes of magnitude six or larger this century and undoubtedly will produce more in the future. We can expect future earthquakes to be more destructive, however, because more and more buildings and people are moving into areas that are potentially unsafe because of earthquake-related hazards."

The USGS scientist noted that parts of the 500-mile-long Wasatch fault between Ogden and Salt Lake City, Utah, have not moved in several decades — a matter of considerable concern because the fault may be storing stresses which could eventually result in a major earthquake.

Because of the severity of the March 27 quake (it was the largest in the continental U.S. since the destructive San Fernando earthquake, Feb. 9, 1971), and the large number of aftershocks that continue to shake the area, USGS and University of Utah scientists have deployed a network of seismometers around the quake center near Malad City.

"A special effort will be made to locate the aftershocks precisely and thus give us a better understanding of the area's future earthquake potential as well as its geologic and tectonic structure," Rogers said, noting that "at the same time, detailed studies of the aftershocks can help determine the area's particular response to ground shaking and other earthquake forces and thus give us some idea of the risks and hazards associated with future earthquakes."

Working immediately in the wake of the March 27 earthquake, USGS scientists, with colleagues from the University of Utah and airmen from the Utah National Guard, reported that except for cracks in frozen snow and mud, no evidence of ground breakage, rockslides, dammed streams, or damaged reservoirs or irrigation canals in the area has been found. They noted that earthquakes of this magnitude frequently produce such ground damage.

Snow cover in the area, however, may conceal such evidence, which could help to pinpoint the particular fault that produced the crustal movement and the resulting earthquake. Structural damage also was moderate for an earthquake of this size, the USGS said.

The main March 27 earthquake, centered about three miles beneath the Utah-Idaho border, about 100 miles north of Salt Lake City and a few miles south of Malad City, Idaho, was preceded by a magnitude 4.5 foreshock on March 26. At least 500 aftershocks have been located and hundreds of smaller events have been identified, USGS scientists noted.

Aftershocks include a magnitude 4.7 on March 29 and a 4.5 and a 4.0 on March 30. Since March 30, none of the aftershocks have exceeded 3.5, and since April 1, none have exceeded 3.0, although the quakes continue to occur at the rate of 30-40 per day.

The earthquake occurred within the so-called Intermountain seismic belt, a zone of active faults that extends from southern Utah into Idaho, Wyoming, and Montana. Several faults considered geologically "young" — showing evidence of movement within the last million years — have been mapped in the area of the earthquake, including one USGS summer employee, Dr. Lucian B. Platt, chairman of the Department of Geology, Bryn Mawr College.

USGS scientists note that the earthquake caused groundwater levels to fluctuate an inch or two in at least two Utah and five Idaho observation wells. The five Idaho wells were located 50-100 miles away from the earthquake and showed a maximum fluctuation of about four inches. High winds prevented observation of any measurable fluctuations in the level of Great Salt Lake, but the USGS recorder on Lake Walcott is south-central Idaho picked up a slight fluctuation (0.5 inches) at the time of the earthquake.

Previous large earthquakes in the area include: an estimated magnitude 6.7 near Richfield, Utah, in 1901; an estimated 6.7 in northwest Utah in 1968; a 6.1 on the Elsinore fault, central Utah, in 1921; and the 6.6 and 6.0 earthquakes on Haas Valley faults, northwestern Utah in 1994, which produced one of the few visible evidences of surface rupture outside of California, the USGS stated.

Salt Lake Tribune
Ap. 11, 1975
Utah, Idaho Again Feel Aftershocks

LOGAN, Utah (AP) — More earth tremors were felt along the Utah-Idaho border Sunday in the aftershock of Thursday night’s earthquake which joined the Wasatch front.

Dr. Walter Arbasz, University of Utah Seismographic Station, said the aftershocks are continuing and are expected to continue for some time. He said this is normal following an earthquake.

The tremors felt Sunday registered an estimated 3 to 4 on the Richter scale. Arbasz said, Thursday’s quake hit 5.3 on the Richter scale, making it the strongest earthquake in the continental United States since 1971.

Arbasz said there were four quakes Sunday morning which hit between 3 and 4 on the Richter scale.

Law enforcement officials said they had received no reports about more tremors or damage.

Quake Faults Found

TREMONTON, Utah (AP) — After several days of searching remote farmland along the Utah-Idaho border, a Utah farmer and his son apparently have found two faults from last Thursday’s earthquake, a Utah state geologist has reported.

The earthquake, described as the strongest in the United States since 1971, rumbled through a sparsely populated region of the West and caused only one minor injury and only scattered property damage.

Utah state geologist Bruce Kalisher said Sunday it appeared that two faults, one about a mile long, had been discovered by Earl Fuhriman and his 23-year-old son, Sidney, roughly four miles north of the Idaho border.

He said the faults were found Saturday and Sunday a short distance north of where searchers quit looking Friday. The area had been virtually inaccessible last week because of heavy snowfall and drifting.

"You can see the mark in the ground but the soil is such that it has run back together," the elder Fuhriman said in a telephone interview.

Fuhriman is a dryland farmer in the basin, known as the Focustello Valley, where the apparent faults were found. He lives in Tremonton during the winter.

The basin, about 80 miles northwest of Salt Lake City, is not inhabited during winter months but about three dozen farmers have property they use there in the summer and fall.

"We could see one crack in the snow three-quarters to one inch wide. It looked just like a piece of broken glass in the frozen snow," Fuhriman said. "We could see where it was heaved up in little chunks."

Kalisher said the longest fracture ran north and south through the basin, while the second was a couple hundred feet in length running across a farm and under a farm building.

He said geologists would visit the area today to determine if the breaks were the actual earthquake faults or just phenomena related to the quake.

"It does not appear there was a big displacement as scientists had expected," Kalisher said.

He said geologists had expected a quake of the magnitude of Thursday’s would have produced a vertical break in the ground of possibly one foot.

The geologist said damage, but unoccupied, farm buildings near the epicenter of the quake showed that the tremors would have caused casualties and widespread destruction if the area had been populated.

Post Register (Idaho Falls)
Behemoth of destruction, Wasatch Fault sleeps

Fortunately for Utah, that slumbering behemoth of potential destruction — the Wasatch Fault — has suffered no great commotion since before pioneer times.

The ponderous masses of broken rock, for underground, have struggled occasionally, rattling the valley’s earth but not causing the immense destruction of which it is capable.

Most severe Utah quakes in modern times have occurred in fault areas sufficiently distant from populated centers to muff the effects of the shocks.

Such was Thursday’s tremor which centered in the Wasatch Valley fault system near the northwest Utah border. It was felt for 200 miles in every direction, but caused damage only in Malad City, Idaho, and a few other small towns in the area.

At a Richter Scale intensity of 6.2, the quake was a “big one” in the parlance of geologists. Had it occurred in the Wasatch Fault zone in the eastern (rings) of Salt Lake Valley, the destruction would have been “major,” seismologists said.

The Wasatch Fault meanders for 150 miles along the western base of the Wasatch Mountains from Collinston, Box Elder County, to Nephi, Utah County. In Salt Lake County, it wanders within an area between Wasatch Boulevard and 13th East.

Some 85 percent of the state’s population and the bulk of its assessed valuation lies within “shaking” distance of the fault.

Although it is the most famous and potentially most dangerous, the Wasatch Fault is only one of Utah’s five major fault zones.

In addition to it and the Hensel Valley Fault, others are:

—The Sevier Fault, which runs along the eastern base of the Gunnison Plateau in Sanpete County and then shifts to the western base of the Sevier Plateau in Sevier, Piute, Garfield and Kane counties.

—The Elsinore or Tushar Fault, which parallels the Sevier Fault on the opposite side of the Sevier Valley in Millard, Piute and Sevier counties.

—The Hurricane Fault in Washington and Iron counties, which extends southward into Arizona and crosses the Grand Canyon.

There are also lesser fault systems, such as the Oquirrh Fault in western Salt Lake County and the East and West Cache Faults which skirt the western and eastern bases of the two mountain ranges running north and south through Cache Valley.

A fault is a fracture or weak point in solid rock core, often many miles below the earth’s surface, according to John Hanson, analyst and technician for the University of Utah Seismograph Department.

The Hensel Valley Fault is a relatively shallow one, being about 9,000 to 16,000 feet below the surface, he said.

See WASATCH on A-11
Aftershocks keep area jittery

By Dexter C. Ellis
Deseret News staff writer

ALOY, Idaho — Heavy damaged farm buildings, indicating savage earth movements, were found west of here Friday by scientists driving into the area to investigate Thursday's quake.

Meanwhile, aftershocks — one strong enough to be felt in Salt Lake City at 7:01 a.m. today — continued to be felt by jittery area residents. Both Malad and Snowville, Utah, residents felt several aftershocks Friday night.

Police officers in the high-rise Salt Lake Metropolitan Hall of Justice felt this morning's tremor and also received several calls from Salt Lake County residents who detected the earth movement.

"The aftershock was the heaviest of more than 100 which have been registered at the University of Utah seismic laboratory.

"At an intensity of 4.6 on the Richter Scale, it was sufficient to revive fears in Malad of a repeat of Thursday evening's quake which caused widespread, but relatively minor, damage. Another shock about 10 a.m. Friday registered about 4 points.

"The one this morning was so bad we thought if it gets any worse, it's going to be like the last one," said Norma Smith, a resident. "But luckily it wasn't."

Geologists stressed that aftershocks were normal and usually diminish in intensity.

The next time a quake strikes, don't run, stay put

Wherever you are when an earthquake strikes, stay put.

This is the word from the Utah Office of Emergency Services.

If you're inside a building, don't run outside. Take cover under a desk, table, bench or in doorways, halls and against side walls. Stay away from glass.

If you are outside, move away from buildings and electrical wires. Once in the open, stay there until the shaking stops.

Don't run through or near buildings.

The greatest danger from falling debris is just outside doorways and other entry ways.

Stay out of severely damaged buildings; aftershocks can bring them down.

Continued from A-3

shaking that could have caused injuries or death.

The damage to buildings was much worse than reported in Malad and other towns in the area, he said. For instance, a large metal storage bin at one farm collapsed, and the grain was spread over the ground.

"We didn't find any major ground breaks," he said. "We did find some minor ground cracking, but nothing significant."

"We were looking for a fault, but we found no evidence of this," he added.

"If the farms had been inhabited, it would have led to casualties," the geologist said.

"Fortunately all the houses were abandoned. On our way out we ran into many of the owners trying to get in to inspect their property."

The quake gave Utah's Emergency Operating Center a chance to test its facilities under genuine conditions of a possible disaster, and everything reportedly went well.

Mr. and Mrs. Fred Gilgen, 60 and 59 years of age, lost 350 gallons of furnace oil when a line broke, allowing the sticky fluid to pour into their basement.

Stam Thomas, operator of the Malad store, said smashed merchandise resulted in a loss of $1,000.

Promoters of tonight's "Miss Utah beauty pageant fear many of the crowd of 200 who bought tickets for the show may stay away out of fear of another quake."

The 28-year-old brick building in which the pageant will be held was cracked by Thursday's quake. It was there that heaviest injury from the tremor occurred.

Kermallene Kent, whose older sister is a contestant, suffered a badly bruised arm when a piece of ceiling paneling fell and struck her during a pageant rehearsal Thursday.

The contestants were in bathing suits, two of them ran out into the bitter cold.

The potential destructiveness of the quake demonstrated by the condition of buildings in the epicenter area.

Vacant buildings were moved on foundations, brick chimneys disabled, heavy stores moved across rooftops and walls were smashed, said Bruce Kaliser, Utah Geologic Survey.

He was with a team of scientists who bucked snow and mud in a four-wheel-drive vehicle to investigate the epicenter of a heavy earthquake which rattled a large area Thursday night.

Kaliser said the damage in the epicenter area — near Blue Springs in northeastern Cache County, Utah — indicated a 7.5-magnitude tremor.

See QUAKES
Quake aftershocks go on

The center became operational at 8:31 p.m., according to Donald R. Spradling, director of the Office of Emergency Services. Emergency operating centers in Salt Lake City, Box Elder and Davis counties were operational by 9 p.m.

The National Warning System (NAWAS "Hotline") was used extensively, said Spradling, for both interstate and intrastate communication. Contact was established with Idaho, Colorado and Wyoming.

The Highway Patrol communications system, the Emergency Services System, radio amateurs and citizens band capabilities were pressed into service, he explained.

After damage areas were inspected and dams in the area surveyed, it was concluded that no "disaster" declaration was warranted.

No cracks or leaks were found in any of the earthen or concrete dams, but a Federal Aeronautics Administration official from Malad City said he found a disturbance at the Malad-Holbrook Divide apparently caused by the quake.

Norman Jausi, traveling his customary route to check navigation instruments, found a 200-foot-long depression in a snowdrift. Nearby was a crack in the snow running for hundreds of feet.

Dr. Kenneth Cook, director of the University of Utah's seismol study station, said there will be many more aftershocks in ensuing weeks.

The Thursday night quake figure of 6.2 was the highest in the continental United States since a 6.7 quake near Los Angeles which caused a billion dollars damage and claimed several lives.

Cook said the epicenter of Thursday's quake in the Blue Springs area was farther west than originally supposed. It is located in a valley where faults have been relatively inactive, he said.

Teams from the seismic laboratory spent Friday placing temporary monitors in the area between Snowville and Malad.