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Information Categories

A -- Aid:

provide medical services, shelter, donations, loans, advice, encouragement, implement safety measures

B -- Building Damage:

structure itself plus windows and chimneys (typically damage visible from outside the building)

E -- Earthquake Description:

where, when, duration, direction, sound, motion, number and timing of aftershocks

G -- Geologic Effects:

changes at the Earth's surface, fault scarps, rockfalls, landslides, ground cracks, ground subsidence, sand boils, water spouts; effects on springs, lakes, wells

H -- Humor:

I -- Impact:

changes in daily routine; rumors; influx of reporters, politicians, cost in dollars

L -- Lifelines:

effects on transportation: roads, bridges, railroads, airports

effects on communications: telephone, telegraph

effects on power, gas, water, and sewer lines

effects on dams

N -- Nonstructural Effects:

effects on plaster, furnishings (typically damage or rearrangement of furnishings visible inside a building)

P -- People:

effects on and responses to, during and after; deaths, injuries, near misses

R -- Recovery:

clean up, rebuild

S -- Scientific:

explanation of the day

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LOGGING TRUCK SINKS THROUGH HOLE IN BIG HILL ROAD

By Molly O'Leary-Howard

A logging truck, freshly loaded with timber, sank through the main road on Big Hill, five miles from Challis, at approximately 3 p.m. Tuesday.

The truck sank through the ground just above a Maranatha Mine underground drift, leaving a hole that's approximately 10 by 8 feet wide and 30 feet deep, according to local Forest Service service coordinator Dale Armstrong.

According to Sharon Bradley, a Forest Service worker in charge of timber sales who was at the scene, the driver of the truck, E. E. Holstein, felt the road start to go when his drive wheels crossed the spot where the road caved in.

"He tried to speed up and beat it, but it caught the back wheels of the trailer," Bradley said. Fortunately, there were no injuries, although the driver of the truck was understandably a "little shook up."

"If that trailer would've gone through that hole there we'd have had it," Holstein said. "We'd have had that load of logs right on top of us."

Holstein questioned the decision by the Forest Service to allow heavy traffic on the road after the quake. He had been hauling logs from the area for the past week but Monday's trip was the first since the earthquake on Friday. According to Holstein, the weight of the truck with the load was 40 tons.

"It seems to me like the responsible party was kind of lax in letting us haul that kind of weight over the road," Holstein said.

According to Maranatha Mine mill operator Dale Greenwall, "There were a couple of guys underground when the logging truck broke through but they weren't hurt. In fact, they didn't even know anything had happened."

Greenwall estimated there was between 10 and 20 feet of ground still remaining between the hole and the drift below.

The site of the cave-in had been under surveillance by the Forest Service for some time.

According to Armstrong, the mine had reported a cave-in in the drift below the road surface sometime last winter. They alerted the Forest Service because it is a main access road to the Challis National Forest and is maintained by that agency.

The mine company retimbered the drift--located approximately 80 feet under the surface--cleaning out the fallen dirt and rock as they went. Although the drift was retimbered and back in operation, the debris from that cave-in apparently left a cavity in the earth above the drift.

According to Armstrong, once the Forest Service was alerted of the potential hazard last winter, they contacted their Geo-Tech engineers and the Federal Mining Safety and Health Administration. After investigating the initial cave-in under the road, their findings were then reported to the University of Utah College of Mines.

The experts agreed that future failure of the site was possible but not imminent, according to Armstrong. As a result, the Forest Service had been monitoring the road regularly and had detected no changes in its stability.

Immediately following last Friday's quake the Forest Service checked the road for possible damage, according to Armstrong. Although none was found, caution signs were posted on either side of the hazardous area to warn traffic of possible road "settlement."

Armstrong feels that the fact that the workers underground didn't detect any signs of the cave-in when it happened Tuesday afternoon, indicates that the apparent cavity that resulted in the road cave-in was already there.

"Most of it had apparently caved in as a result of the earthquake," Armstrong said. "The weight of the truck was just more or less the straw that broke the camel's back."

The mine plans to backfill the hole in the road, but said that their engineers had to look at the situation to determine if their underground timbers in the drift would withstand the weight of the fill. Armstrong said the road probably will not be fixed for a couple of weeks.

[Challis Messenger; November 3, 1983]

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EVANS OFFICIALLY REQUESTS PRESIDENTIAL DISASTER DECLARATION

By Molly O'Leary-Howard

Governor John Evans officially requested a presidential disaster declaration last Friday, one week after a magnitude 6.9 earthquake rumbled through Custer County. Although the area had been declared a disaster on the state, county and municipal levels immediately following the quake, the governor delayed asking for the presidential declaration until initial damage assessments were compiled.

Damage More Than Originally Estimated

The rough estimates of damage have been set at \$2.5 million for the entire county, and \$1.5 million for the town of Mackay. According to Adjutant General Jim Brooks, Chief of the Bureau of Disaster Services, that figure "isn't worth the paper it's written on. There are a lot of things we don't even know about yet, and more damage turning up everyday." Because the state has no disaster relief program or related funds, a presidential disaster declaration is critical to the availability of comprehensive financial aid, according to Brooks. The Farmers Home Administration, Small Business Administration, Department of Agriculture, Division of Economic Development, and Red Cross have all been in the area and offered what assistance they have but, unfortunately, some of the most extensive damage in the county is not covered by their programs.

Presidential Declaration Needed for Aid to Schools

The public schools do not qualify for assistance from any of the agencies that can offer disaster relief without a presidential declaration. Local school Superintendent Dr. Donicht has estimated that it'll cost between \$1.5 and 2 million to restore or completely rebuild the old Challis High School facility damaged by the quake. Mackay school district estimates that it will cost \$754,000 to repair damages to their elementary and high school buildings.

Minor Damage Not Reported

Because the residents in this area are traditionally self-sufficient and fend for themselves, officials are concerned that much of the minor damage is not being reported. Although it is commendable that local people are self-sufficient and don't rely on government funds for assistance, the total dollar amount of the damage in Custer County is important in helping substantiate the governor's request for a presidential disaster declaration, according to General Brooks.

"Damage survey teams will stay until all the damage is surveyed," Brooks said. "We need your help--our people don't know where it is unless you show them. We need to paint as clear a picture as we can of the damage to this area."

Two Types of Aid

According to Brooks, two basic types of aid would become available upon Reagan's approval of a federal disaster declaration. The first type would be aid to individuals for minor repairs to homes, emergency unemployment compensation, and emergency food stamps. The second type of aid would be for public agencies such as cities, counties, highways, and schools.

The federal assistance to public entities would provide a grant from the federal government for 75% of the cost of restoring the damaged property to its original condition. An additional 15% would come from the state level, and the remaining 10% would have to be paid by the public agency making the application. According to Brooks, the 75% federal portion of the grant would be given in advance in order that work on the project could be started.

Brooks advised residents to keep all cancelled checks, receipts, invoices, and photos of damage if already repaired in order to substantiate any claims for aid they may need to make.

Presidential Disaster Declaration Deemed Likely

According to Brooks, because of the extensive economic impact of the disaster to this area, the possibility of a presidential declaration is fairly good.

"This would be the fourth such declaration in nine years," Brooks said, "and we've never been turned down yet. Besides, from a purely political standpoint," he added pointedly, "it is an election year."

[Challis Messenger; November 10, 1983]

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SBA PROVIDES ASSISTANCE TO EARTHQUAKE VICTIMS

United States Small Business Administration has declared Custer County a disaster area as a result of the recent earthquake, according to an announcement made November 4 by Vern Leighton, Boise SBA district director. This disaster declaration was made in response to a request for assistance made by Governor Evans.

Any Custer County disaster victim who owns property or rents in a disaster area declared by SBA as a result of the earthquake may apply for direct SBA district loans, Leighton said. "These loans may be used to repair or replace damaged or destroyed homes, personal property or businesses."

Leighton said victims may obtain disaster loan applications from SBA officials stationed in each of the temporary disaster assistance centers. These offices are located at the Courthouse in Challis and Idaho First National Bank in Mackay.

Home owners may obtain direct home repair and replacement loans of up to \$50,000 for real property damage and loans of up to \$10,000 for damaged or destroyed personal property. However, the combined maximum for one borrower may not exceed \$55,000. Persons who are renting a home or apartment may apply only for a loan of up to \$10,000 to cover damage or destroyed personal property.

Businesses which have suffered physical damage to real property, machinery, equipment, fixture and inventory may apply for direct SBA loans of up to 85% of the verified loss of up to a total of \$500,000.

Larry Henderson, Assistant District Director of the Boise SBA office, noted that SBA disaster loans would only cover any damages not covered by an applicant's insurance. Small businesses may also apply for Economic Injury Disaster Loans (EIDL) to permit a business to meet financial obligations which they could've met had the disaster not occurred.

"Remember that SBA issues loans, not grants," said Leighton. "Obviously, our first priority is to determine whether the applicant has the ability to repay a loan. After we determine this, then we determine what interest rate will be charged."

The interest rate which SBA charges on its disaster loans for homes, private property and businesses is determined through a "credit elsewhere" test after examining financial information submitted on the loan application. If SBA determines that an applicant is able to obtain funding from other sources they must be charged a higher interest than an applicant who is unable to obtain the funding from other sources.

The interest rates to be charged for assistance are:

Homeowners and private property, applicant able to obtain "credit elsewhere"--12.5%; unable to obtain "credit elsewhere"--6.375%.

Businesses: physical damage, applicant able to obtain "credit elsewhere"--11.00%; unable to obtain "credit elsewhere"--8.00%.

Business: EIDL--8.00%.

SBA disaster loans for homeowners, private property and businesses unable to obtain "credit elsewhere" may be made for up to a 30 year term. However, the actual length of the loan will be determined by the individual applicant's ability to repay. Loans to businesses able to obtain credit elsewhere may only be made for a period of up to 3 years.

Challis SBA representatives will be available at the County Courthouse Monday and Tuesday of next week from 9 a.m. - 6 p.m. Mackay SBA representatives will be available at Idaho First National Bank from 9 a.m. - 6 p.m. every day except Friday, November 11,

and Saturday, November 19. Those two days they will be at the new temporary City Hall, located in the old ASCS building in Mackay from 9 a.m. - 6 p.m.
[Challis Messenger; November 10, 1983]

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BUILDINGS RAZED IN MACKAY

By Molly O'Leary-Howard

"We haven't given up!" Mackay Mayor Oval Caskey vowed Tuesday, in spite of the estimated \$1.5 million in damages to the heart to the small rural community from the earthquake a week ago Friday.

Twenty of Mackay's buildings on the three-block stretch of Main Street businesses were extensively damaged by the quake. Eight of those buildings have since been condemned, according to Caskey.

Five Down Already

The Idaho National Guard has set up a "field" headquarters in Mackay and has been working all week at finishing off the job Mother Nature started on October 28. To date, five of the eight condemned buildings in Mackay have been torn down by the guard. According to Caskey, city hall, the city jail, the Lion's Club 'Den', the Mackay Drug Store, and a storage building by the Texaco service station have been razed.

"They had to come down," Caskey said. "They were condemned as a safety hazard by state disaster inspectors sent in by the Governor. We didn't have any trouble getting a release from the owners to tear them down. They were just as concerned as the city was and it didn't cost them anything."

The old LLL Cafe building is also scheduled for bulldozing, Caskey said, but releases by the owners of the old Custer Hotel and the Pilash Tailor and Cleaner Shop are still up in the air.

Officials have been unable to contact the owner of the hotel building, J.J.N.P. Company out of Park City, Utah, to get permission to level the structure, while the owner of the old tailor shop building, Steve Pilash, is reluctant to sign a release, according to Caskey. Despite the destruction that has dealt a severe financial blow to the community of Mackay, optimism remains.

"We're all still saddened and shocked by the destruction," Caskey said, "but we have hopes of rebuilding. We like to think of our city as up and coming and we haven't given up yet."

[Challis Messenger; November 10, 1983]

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TROUT FARM SUFFERS QUAKE DAMAGE

By Jim Connor

The earthquake caused extensive damage at the Lost River Trout Farm near Mackay. On Monday, Dick Smith, owner of the trout hatchery, reported 85% of his brood stock of 20,000 rainbow trout were killed. "It's hard to estimate the amount of damage at this point, but it will be near \$400,000," he said.

"Initially we lost our water because the upper spring opened up several hundred feet higher. Then gravel, rocks and brush blocked the inlets. Then the pressure broke through the inlets, bringing silt and gravel into the ponds," he related. "By this time most of the fish were dead."

Headgates and screens were damaged.

The weight of the dead fish caused the water to break through and flood new ponds which had not yet been used. Most of the dead fish were deposited there.

"So far we have hauled out four dump truck loads of fish," Smith said. "Volunteer help has been great. People have really helped us out cleaning up."

The Smith home at the hatchery was also flooded, causing damage to it.

The state fish hatchery nearby received some silt, but no loss of fish was incurred.

[Challis Messenger; November 10, 1983]

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CHALLIS SPARED BRUNT OF QUAKE Fault Splits

By Jim Connor

Much of the energy of the earthquake of October 28 was diverted west into the mountains instead of to Challis, reports a team of geologists. A fault, on which the earthquake occurred, extends from Arco to north of Challis.

The geologists, Drs. Peter Isaacson and Mark McFaddan of the University of Idaho at Moscow, and Dr. Curt Othburg of the Idaho Bureau of Mines and Geology have spent a week studying the earthquake area. They found that the fault splits near Willow Creek Summit and most of the force followed the western arm of it. This is the reason U.S. 93 was so badly damaged. If this had not occurred, the Challis area might have experienced much stronger tremors, they report.

"A hillside northeast of Willow Creek Summit on Sheep Creek Road has been shattered," said Dr. Isaacson. "This is where the brunt of the energy came through," he said. Isaacson cautions hunters and other travelers in the Sheep Creek area that "rockslides will occur on the damaged hillsides. They may be set off by aftershocks, by rainfall, or by freezing and thawing weather."

The geologists have discovered that a similar earthquake occurred in the same place several thousand years ago. It was similar in magnitude. They add that it is impossible to predict when, or if ever, another earthquake might occur in the Mount Borah area.

"Aftershocks may occur for months, but they do not indicate, in any way, another large earthquake is coming," Dr. Isaacson emphasized.

The University of Idaho geologists plan to return to the earthquake site in the spring and continue their research.

[Challis Messenger; November 10, 1983]

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WATER BEGINS TO TRICKLE BACK AT INGRAM'S RANCH

By Jim Connor

"Water began to flow from one of our warm springs on Friday," reported Vangie Ingram. "On Sunday a second spring began to flow. We now have one quarter of our water back, and it seems to be a little more each day."

The Ingram Ranch, near Challis, depends on the water from its warm springs to irrigate over 1300 acres of hay and pasture ground. The springs had totally dried up after the earthquake on October 28.

Challis Hot Springs

Helen Cordingley, manager of the Challis Hot Springs east of Challis, reports the earthquake had little or no effect on the springs or property. "We are open as usual," she reported.

[Challis Messenger; November 10, 1983]

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DAV OFFERS ASSISTANCE

On Thursday, November 10, 1983, National Service Officers Virgil Barnett and Tom Niehoff from the Disabled American Veterans office in Boise, ID will be at the American Red Cross Center in Mackay to provide some financial assistance to any service connected veteran and widows of any disabled veteran, who have suffered damage to their home due to the earthquake. Damage to homes must be verified no matter how slight.

Membership in the Disabled American Veterans is NOT REQUIRED. All members of the DAV are requested to bring proof of current membership.

[Challis Messenger; November 10, 1983]

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THE EARTH DIPS AND SLIPS

By Molly O'Leary-Howard

The October 28 earthquake that convulsed through Custer County may go as high as a 7.1 on the Richter scale once all the data is in, according to Charley Langer, an assistant branch chief with the United States Geological Survey.

(Langer, a former resident of Custer County, is the son of Charley J. Langer who lost his life in a plane crash April 5, 1943. The senior Langer had been on a rescue mission searching for survivors of a downed bomber. Langer was the Stanley ranger for the Challis National Forest at the time. Ruffneck Peak, the site of the crash, was renamed Langer Peak in his honor.)

In a meeting sponsored by the Forest Service last Thursday, Langer sorted out fact from fiction concerning the October 28 quake, in an attempt to dispel the many post-quake rumors circulating about.

According to Langer, the recent Custer County quake was similar in nature to the 1959 Hebgen Lake, Montana earthquake. Both of those quakes resulted from concentration of stress in the earth's upper crust. The release of that stress in the form of an earthquake in turn resulted in a Northeast--Southwest extension of the earth's crust in both cases.

Not Really Earthquake Prone

Despite charts and maps designating this part of Idaho as being equivalent in seismic activity to the San Andreas fault on the West coast, Langer said the area "is not really earthquake prone."

Although there is a considerable amount of continuous seismic activity in this area on a smaller scale, major remodeling of the earth's surface is unusual. This is, geologically speaking, a young area and likely to experience "growing pains" from time to time, according to Langer. However, it is not likely that any major terrestrial facelifting, that normally takes centuries upon centuries to occur, is suddenly going to start happening over night.

"There won't be another one of that magnitude along Mt. Borah for some time," Langer said. "It's done its thing."

Aftershocks May Continue

The aftershocks that have been rippling through the area and causing more than just a few to grab on to their chairs with uncertainty are normal, according to Langer. They are not indications of more catastrophic activity to come, but rather are the result of the main shock not completely relieving the concentrated stress energy along the fault plain.

"The fault slip may not have adjusted enough or may have adjusted too much," Langer said.

According to Langer, the largest aftershocks expected are statistically one order of magnitude lower than the main shock. The duration of the subsequent tremors is directly related to the magnitude of the original earthquake. In other words, aftershocks following a magnitude 6.9 earthquake would endure longer than those succeeding a magnitude 5.5 quake. Langer predicts that aftershocks will still be felt here for several weeks to as long as a month or more.

Asked by several in the audience why aftershocks are felt more frequently and with more intensity up the river from Challis than elsewhere, Langer gave a couple of possible explanations.

One of the reasons, according to Langer, is that there may be secondary faulting in the area. "The main fault was not the only one activated," he said. Another explanation could be that residents along the Salmon river and other water drainages are sitting on soft alluvial material which is considerably less stable than bedrock and therefore more sensitive to movement in the earth.

Information From Aftershocks

The aftershocks are of great interest to geologists and Langer showed a map to the gathering of the placement of numerous seismograms from the Grandview Canyon area south to the Mackay Reservoir. According to Langer, the information gained from recordings of additional seismic activity in the area will help geologists determine certain aspects of the earthquake not otherwise definable.

"The aftershocks help us define the zone of seismic energy being released, can help us further map the fault beyond what the surface scarp shows, and otherwise help us find out things we can't normally determine from the records of the main shock," Langer said.

As to the ability of what one person called, "the popular press", to predict future tremors and their exact time and magnitude, Langer remarked, "If whoever was publishing this information really knew what they were talking about they wouldn't be working for the press--they could make a lot more money elsewhere!"

At the conclusion of his presentation, Langer suggested that people with further questions write them down and give them to the Forest Service, who will forward them on to him. He also requested that people stop by the Forest Service office and pick up a questionnaire form and fill it out. Information attained from the people who witnessed the quake may help geologists piece together a more complete picture of what it all means.

[Challis Messenger; November 10, 1983]

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FUTURE CLIFF FAILURE POSSIBLE

By Molly O'Leary-Howard

The hill on the northwest edge of town that sent boulders sailing into people's homes and yards during the earthquake a week ago Friday, may not be through doing damage. According to Earl Olsen, regional environmental geologist for the Forest Service, parts of the hill are still unstable. Olsen reported his findings at a public meeting Thursday with USGS geologist Charley Langer.

More Rocks May Come

"I would suggest putting a sign up that says, 'Don't Cough!'", Olsen told the group of people gathered at the American Legion Hall Thursday morning.

According to Olsen, more rocks may be sloughed off in the spring from the freezing and thawing that may disturb their present anchoring. Olsen suggested that residents who have homes beneath the hill should prepare for possible future failure of the rocky slopes above them.

According to Forest Service Resource Coordinator Bill Paddock, who surveyed the hill with Olsen, some particularly threatening rubble is hung up on the talus slopes just above the Hillside Motel and the McGowan residence.

Dealing With the Danger

Olsen hesitated to recommend one method of dealing with the potential danger over another, but rather gave several approaches to consider.

The most drastic solution would be to ban any residences at the base of the hill. Of course, that is hardly possible given the number of homes already built there. Another suggestion would be to prohibit any future residences being built in that area. Olsen suggested that using the area for something with a lesser concentration of people--horses, a cemetery, agriculture--than a residential area would reduce the danger to lives.

Other measures suggested by Olsen are digging a large barrier trench and filling it with rocks to deflect any future bouncing boulders, or putting up a wire mesh fence to arrest the rocks path of destruction.

Olsen emphasized that the residents themselves will have to decide what degree of danger they feel still exists and what they, collectively as a community or individually, do or don't want to do about it.

[Challis Messenger; November 10, 1983]

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PUTTING RESIDENTIAL DAMAGE IN PERSPECTIVE

By Roy Taylor
Extension Agricultural Engineer
University of Idaho

Wood is a forgiving construction material. With only a few exceptions the wood-frame, log, and post beam portions of houses have ridden the earthquake well. Wood construction has a high capability to absorb shocks, brief overloads, vibrations and oscillations. It can do this because it is not completely rigid. It can give a little and then return to its normal configuration.

Unfortunately, the plaster walls of houses do not have the same capability. Impacts and other distortions can cause the cracks that appear immediately or shortly thereafter. These cracks usually occur at the corners of wall openings, doors and windows, and are usually not indications of structural weakening of the house.

Many of the houses in Custer County have suffered plaster cracks in walls and ceilings. There are three reasons these occur: the movements directly associated with the earthquake or its aftershocks, tensions being released that have built up over the years in the structured lumber as it cured, and foundations that have broken or settled.

The last 2 of these reasons explains why plaster cracks can continue to grow even during periods when there is no seismic activity. The length and width of cracks should be measured and dated so that any change is documented.

An important thing to remember is that plaster cracks of up to inch wide very seldom indicate any change in the structural strength of the house.

An important thing to do is stabilize the foundation of the house as soon as possible before more serious misalignment occurs. This can be done by installing an interior post-and-beam wall on the immediate interior of the existing foundation wall or basement wall. In areas where ground extension has occurred, where earth cracks have opened up, the post and-beam wall should be checked regularly and either rebuilt or shimmed up to compensate progressive earth settling that may occur. Severe aftershocks should also prompt rechecking.

Vertical cracks in foundation or basement walls probably have not significantly decreased the bearing strength of the wall unless; the concrete was of poor quality to begin with, the vertical cracks are less than 10 feet apart, the top of the wall was not bolted to the house structure above, or the wall is no longer nearly vertical. Horizontal or diagonal cracks are more serious. Grouting and sealing of cracks before winter sets in will reduce the likelihood of more damage from frost action.

Water infiltration to basements and crawl spaces is almost inevitable where wall fractures have occurred. Sump pumps may be needed for houses where high water conditions occur. Excavation around the wall and the installation of drain tile and exterior waterproofing may not prevent all water penetration but can minimize it. Waterproofing methods applied to the interior sides of walls are usually considerably less effective.

Contact the county agent's office for more information.

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SUGGESTIONS OFFERED FOR REPAIR OF EARTHQUAKE DAMAGE

Custer County Agent Jim Hawkins stated Monday that he and Roy E. Taylor, University of Idaho Agricultural Cooperative Extension Service Engineer, have been observing earthquake damage and would like to offer the following comments and/or suggestions concerning the damage related to the earthquake of Custer County that occurred on October 28, 1983.

The post-beam method may be used for stabilizing broken basement walls or foundations. This method consists of installing a bearing wall on the immediate interior of the existing fractural wall.

It is most practical under the following conditions: walls with only a few vertical breaks, with at least 10 feet between breaks; walls of stable non-deteriorated concrete or of concrete-filled masonry block with solid mortar; structures on high ground with well drained soil that will have minimum ground water problems; or structures adapted to practical water control measures.

It is not recommended, except as a temporary emergency repair, under the following conditions: walls with considerable fracturization, particularly with horizontal or lateral cracks and showing hair-line deterioration in addition to the main fractures; walls of poor quality deteriorated concrete or of weak, broken or loose masonry block; structures located at sites where ground water problems occur and where those problems cannot be corrected expediently by the use of external wall surface treatments, perimeter drain tile, interception trenching or other methods.

For details on post-beam wall construction contact the county agent's office.

Evaluation and Repair of Chimneys

Two types of masonry chimney damage are apparent. The vibrating and undulating effects of the earthquake have caused cracking and breakage, particularly to above-roof portions of chimneys. Separations in the ground surface have caused the concentrated weight of the chimneys to settle or to shift in relation to the building structure.

Leaning and Settling

More settling of concentrated heavy loads can probably be expected in those areas where stretching or "extension" of the earth's surface have occurred. Evidence of "ground extension" are the presence of cracks or fissures. Additional settling is apt to occur at such times as the water content of the soil increases.

Under normal conditions, chimneys can be stabilized or even re-aligned into position by careful excavation around their footings, by the use of heaving jacking systems, and by pouring extended footings beneath the existing mass. However, the condition of the earth in those areas where "extension" has taken place is not known. Consequently it is not known whether efforts to stabilize or re-align these chimneys would be effective.

Cracking and Breaking

Chimneys that have been damaged should be repaired or replaced, or else sealed or removed. All masonry fireplaces should be inspected for damage and deterioration. Specific conditions to look for include cracks, loose or deteriorated mortar, damaged or deteriorated bricks, fractured footings, misalignments and loosened flue connections from stoves or furnaces into the chimney. If structural defects, except for minor isolated cracks, are identified throughout the chimney, it should be dismantled and replaced.

Suggested Steps in Evaluating Chimney Damage

1. Remove all loose brick from above roof portion of the chimney.
2. Where accessible, inspect exterior of the chimney for damage and deterioration.

Chimney surfaces are often exposed where the chimney passes through an attic, basement or crawl space.

3. Inspect chimney interior for blockage and debris by the use of a light. An electric light lowered into the flue is preferred to a flashlight. CAUTION: Do not let a light bulb remain in contact with creosote deposits.

4. If extensive debris is present, remove through clean-out door at base of chimney or by snagging or bucketing from the top.

5. Clean the chimney interior with a good chimney brush of the proper size and shape, or have the chimney professionally cleaned. It is not advised to clean the chimney with a weighted sack as this can fill cracks and mortar voids with soot and leave them undetected.

6. Inspect the interior of the chimney, using a light, to check for damage and deterioration. A mirror, suspended at a 45° angle and lowered into the chimney, can be helpful in examining the condition of the walls.

7. Another method that can be effected in locating chimney cracks is the smoke test. Plug the top of the chimney tightly with a wet blanket, then burn tar paper or other smoke producing material. The trapped dense smoke, seeping out through cracks, can sometimes pin point their location.

Making Repairs

Small cracks in an otherwise structurally sound chimney can often be sealed with cement mortar. Lower a weighted sack, or a weighted block covered with carpeting, into the chimney to below the point where the crack occurs. The weighted object must be sized so it brushes against the entire interior perimeter. Small amounts of semi-fluid mortar are then poured down the chimney. As the weighted plug is worked up and down, mortar is pressed into cracks and voids.

Minor problems can also be solved by installing a stainless steel flue liner into the existing chimney. It should extend to a point just above where combustion gasses enter the chimney. The liner should be solidly mortared into the chimney at the bottom and at the top. Space between the liner and the chimney wall can be filled with cinders. The availability of commercially manufactured flue-liner kits can be determined by checking with wood-stove distributors.

Glazed brick, layered with cement mortar, should be used to replace chimney tops. The upper course of existing brick should be cleaned and free of old mortar before starting repairs. A tapered cap should be mortared atop the uppermost brick course. Refer to codes and suggestions, items #1 and #2 for a mortar recipe and a guide to chimney height.

Suggestions for Durable, Safe Chimney Construction

Chimneys that require major or complete replacement should be constructed to comply with the following:

1. Cement mortar can be purchased, or made using 1 part Portland cement, 1 part hydrated lime and 6 parts clean sand.

2. A chimney should rise at least 3 feet above roof contact and be at least 2 feet above any object within a distance of 10 feet.

3. Chimneys made of stone should have walls at least 12 inches thick.

4. Chimneys of brick or reinforced concrete, when inside a structure, need walls 4 inches thick; where exposed to weather walls should be 8 inches thick. NOTE: 4-inch chimney walls inside a building must be expanded to 8 inch walls before the chimney penetrates the roof structure. (Building code recommendations)

5. Chimneys with 4 inch walls are required to have 2 inch clearance from wood surfaces. Eight inch chimney walls require only inch clearance.
6. Flue liners of vitrified (ceramic) fire-clay, at least inch thick, should be used in all chimneys. Flue liner sections should be solidly mortared together.
7. Chimneys with 4 inch thick walls should have flue liners mortared in only at top and bottom. Space between liner and chimney walls can be filled with cinders.
8. Chimneys with 8 inch thick walls can have flue liners mortared in solid.
9. Chimney flues for home heating systems should have a minimum dimension of at least 8 inches.
10. Where stove or furnace flues penetrate through the chimney wall, holes should be lined with fire-clay or metal thimbles. Air tight sealing can be accomplished using boiler putty or cement putty.
11. Metal roof flashing should be anchored between brick courses to provide water proofing around chimney.
12. Metal chimneys require ventilated metal thimbles, fire clay thimbles, or special insulated chimney mounts where they pass through ceilings or roofs.

More information can be obtained from the Custer County Extension Agent.

References: USDA Farmers Bulletin No. 1889, Fireplaces and Chimneys; University of Idaho CIS No. 485, Wood Stove Installation and Safety; University of Idaho CIS No. 487, Fireplace Safety.

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A NEW DEVICE FOR FINDING GAS TANK LEAKS DEMONSTRATED

By Molly O'Leary-Howard

Amidst the swarm of experts that descended upon once 'remote' Custer County as the dust was still settling from the October 28 quake, there was one quiet, unassuming gentleman--John Ainlay.

Ainlay, like countless others, packed his gear and headed out to the scene of the worst earthquake in the continental states in 25 years. Unlike the others, however, he did not come to study the great "crack" in the earth, or steal pictures of grieving people, or make headlines with sensational predications. Instead, he came--all the way from Chicago--to see if he could help.

Gas Leak Expert

Ainlay, retired now after 29 years with the American Petroleum Institute, is considered one of the leading experts in the country on underground gasoline leaks. Ainlay has been "chasing leaks" all across the country for years. With that to his credit, and his recent invention for testing tanks for leaks in hand, Ainlay came to Custer County to check area petroleum tanks for possible leaks as a result of the quake.

According to Ainlay, no problems with underground gasoline tanks in the area have arisen as a result of the quake. Ainlay attributes this in large part to the fact that none of the tanks used by local dispensers are fiberglass.

All Local Tanks Are Steel

"Fortunately for the people in Challis and Mackay, all of the tanks are steel and there's none of them leaking," Ainlay said. "Everyone of these places were very concerned about possible leaks and taking very careful inventory checks to see if there was any loss."

According to Ainlay, fiberglass tanks were at one time considered the answer to the problems incurred with old, corroding metal tanks. Unfortunately, they are not as strong as metal tanks and don't withstand pressure and stress.

"Galvanized steel tanks go through earthquakes with good results," Ainlay said, based on research he's compiled. "Fiberglass tanks don't fair as well. They're like an egg--thin and brittle."

Had there been any possibility of a leak at any of the places contacted by Ainlay, he was prepared to test their tanks for free.

"I have a patent on a tank tester," Ainlay said. "If anyone had any suspicion at all of a leak, I would have tested their tanks for nothing."

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EARTHQUAKE JOLTS MESSENGER STAFF INTO ACTION

By Peggy Parks

Putting out a small weekly newspaper is much more difficult than most people think. Some seem to think that all there is to producing a newspaper is taking pictures and writing stories. But, taking notes and photographs is just the tip of the iceberg as far as getting it all together and into print is concerned.

Material gathered has to be organized, stories written and film developed. Stories have to be edited and the pictures that will accompany them chosen. Material must be typeset, proofread, and corrected. Pages are then laid out, and the headlines and picture cutlines are written and typeset. Photographs have to be made and reproduced as PMT halftones. Finally the copy, headlines, halftones and cutlines are pasted up and photographed. The full page negatives are opaqued, stripped into flats and plates are burned. These plates are put on the press and the paper is printed, one four-page signature at a time.

Hours after the initial process is begun--many hours later--the paper is ready to be put through the folder-collator, addressed and bundled for mailing.

The work involved in producing a small weekly paper is a lot more involved than most people realize, but it's easier than it used to be. I'm the only person left on the staff who was here in the "good old days."

In the letterpress days the work was hard, dirty and never-ending. The transition period from letterpress to offset was even harder. It was common practice to work until midnight Tuesday nights, then all day Wednesday until the paper was printed and ready to be mailed. Sometimes Wednesday turned in to a 24-hour shift that continued without end into Thursday afternoon when the last mail went out.

I thought my staff was soft. They have it easy compared to what we had to do in the old days. That is, until last week.

Earthquake Rocks Newsroom

After the initial shock of the earthquake and the events of the day had passed, we all realized that we had to get to work. By Sunday there were pages of notes, several tapes full of interviews, and rolls and rolls of film. In addition to the earthquake there were other, not so mundane items, such as an upcoming city election, an airplane crash and a large hole in the Big Hill road, that had to be reported.

Nobody asked how we were going to cover it all. Everybody just got to work.

Pam Markley, who was in the process of recovering from finding a rock in the middle of her kitchen, called Sunday evening to see if she could help. Her offer was immediately accepted and she was put right to work chasing down and interviewing city council candidates. She also wrote her own story about her experiences during and after the quake.

Jim Connor, our pressman who also writes "Mountain Transitions", has more than a passing interest in geology. I suggested that he cover that aspect of the earthquake. He immediately plunged in and put in several marathon days researching, interviewing geologists and writing. He did an incredible job of presenting the information so that we laymen could understand what the earthquake was all about.

After putting aside his note pad on Tuesday, he donned his printers' apron and put in a full day and a night-long shift on Wednesday shooting page negatives and doing a press run that was twice that of the normal paper. He was still at it when the girls came in at 6 a.m. the next morning to start folding and mailing the papers.

Thank goodness for Robb Markley, who showed an interest in the workings of the press and stayed through the night to help Jim. That gave me the luxury of being able to go home at 3:30 a.m.

Jim was back again on Sunday to print the special edition that had to be run to meet the demand for issues. This time Barbara and Johnny Hammond gave up their Sunday for the "cause" and helped him with the press run and the folding chores.

Sue, as usual, had taken loads of pictures and had hundreds of impressions filed away in her mind about all that she had seen the day of the quake and the weekend after. She had to put it all on the back burner for a day or two while she worked on selling ads and laying them out. After all, that is what pays the bills. More about that later.

After the mundane ad chores were done, she began developing film and made proof sheets. She pored over them and marked the ones that her expert eye told her were the best photo possibilities. After the photos to be used were selected and their sizes determined, she put in many long, long hours making prints and halftones. We counted 50 pictures in last week's edition. In her spare time she also wrote a story about her experiences with the out-of-town press. She was back again on the weekend to make some extra pictures and halftones that were needed for the special edition.

And what would I ever have done without Molly! Her energy and enthusiasm seemed limitless. She interviewed, sorted, and sifted through material and wrote--and wrote and wrote and wrote. I teased her about taking a pen name for some of the bylines so people would think that we had at least one more reporter on the staff.

After her job for that week's issue was finished she still had enough energy left to come in Thursday morning to help the girls fold papers and to cover two important meetings that day. Later in the day she also took time to interview a gentleman who is an expert on underground gasoline tank leaks. He wandered into the office and asked her if she would "like a little news."

Behind the Scene

And there's Betsy Burchill, Donna Leuzinger and Peggy Wilson. They don't get a lot of public attention because they don't get bylines or photo credits. They set type, proofread, paste up, take care of subscriptions and classified ads, answer the phone, help out in the office, take care of folding, addressing and mailing the papers, etc. They just do a lot of work that most people don't realize even has to be done.

Peg, who normally only works on Mondays and Tuesdays, worked her regular shifts and had to go out of town Wednesday, so she missed out on that day's "excitement."

Betsy usually doesn't work on Wednesdays either, but she answered a frantic call for help and gave up a day with her new grandson to pitch in. Both she and Donna, who do the folding and mailing chores Thursday morning, got to go home relatively early Wednesday evening. They still worked very late considering that they had to be in at 6 a.m.

Donna didn't hear me tell her to go home and worked an extra two hours longer than she should have Wednesday evening. I was so busy that I didn't notice she was still here until at least an hour later, and it took another hour to get her out the door and on her way home.

During that week the crew worked together as a team like never before. The hours were long and everyone was tired. Tempers could have flared but didn't. The spirit of cooperation was never better. They were at their finest.

The Results Were Good

The issue turned out better than any of us ever dreamed possible. The praise and compliments that we have received from our readers have been exhilarating. The

knowledge that someone appreciates the hard work that was put into it means more than winning any coveted journalistic prize ever could.

I feel that I now have a team of seasoned veterans on the staff. I can already hear the "war stories" they will tell in the future. The next time a neophyte to the Messenger staff remarks about how hard a particular week has been, they will say, "You think this week was bad, you should have been here the week after the earthquake . . . We put out three papers that week . . ." They've paid their dues, and they're entitled to their stories.

Everyone's still a little tired. There wasn't much time to rest between that issue and this one. But even after there has been time to relax a little, and after the last trace of fatigue has gone, there will still be a warm glow of satisfaction that will last for a long, long time.

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DAMAGED BUILDINGS EXAMINED, RECOMMENDATIONS MADE

By Molly O'Leary-Howard

Masonry buildings fifty years old and older in the Challis and Mackay area should be destroyed, according to University of Idaho Geophysicist Dr. Ken Sprenke.

Sprenke was one of the many scientists that flocked to the area following the October 28 quake. While here Sprenke looked at the damage to buildings in the area. Sprenke attributed the minimal structural damage in Challis in comparison to the magnitude of the quake, to the fact that most of the structures here were either wood or of prefabricated mobile home-type construction.

Two stone buildings in Challis were severely damaged by the tremors, while 80% of Mackay's downtown suffered extensive fracturing. All but two of the eight Mackay buildings condemned by state inspectors were of brick and cinder block construction, according to Mackay mayor Oval Caskey.

Although the old Challis High School building has not been officially condemned, it has been declared unsafe and uninhabitable in its present condition. The Shoup building at the northwest end of Main Street, whose facade tumbled down on two small children during the quake, is also in unstable condition. The stone building located just behind the Shoup building and occupied by Custer Cycle and Snow has also suffered severe structural damage.

All three of the buildings were built out of the same stone, quarried on the hill on the northwest edge of town. Each has historical significance. Each would take considerable amounts of money to restore them as certifiable historic sites.

Historical Society Team Surveys Damaged Buildings

The Idaho State Historical Society had a team of people in Challis last week to survey local buildings of historic interest.

According to Don Watts, urban planner with the society, the team came to Challis to survey the damage, record the buildings' locations, and hopefully talk with the individual owners about their plans for the buildings.

The historical society team consisted of Fred Walters, a preservation consultant, George Siekkinen, an architect with the National Park Service, and Watts. None of the team had any engineering expertise, and they were not able to make determinations concerning the overall structural soundness of the buildings.

According to Watts, although the state has an historical society and a register for historic buildings, there is no money available to help owners restore and renovate significant sites. The state has no funds of its own and once available federal grant money has dried up.

According to Watts, the owners have several choices concerning the historic buildings. They can restore the building structurally and cosmetically, tear it down and start all over, or renovate and restore the building to its original historically significant condition.

Unfortunately, the most practical choice appears to be to tear it down and start over.

Local school superintendent Dr. Donicht has estimated that it would cost as much if not more to structurally restore the old high school building, than it would to tear it down and start all over. Restoring it to its original condition for historic purposes however, would be extremely costly, as is the case with most old buildings.

"Things can be repaired," Watts said. "But it's a trade off--is it important enough to the community to warrant the expense?"

Federal Tax Credits

About the only aid available to anyone interested in preserving an historic building is in the form of federal tax credit incentives.

One such tax deduction is for an easement by the owner agreeing not to structurally alter the exterior of the building. The easement essentially decreases the value of the building, because of the restrictions concerning its alteration. The amount of the depreciation then determines the easement's value and can be recovered in the form of a charitable tax deduction.

Investment tax credits of from 10-25% are also available for rehabilitation costs incurred by the owner. Accelerated depreciation of a building's real estate value is another type of incentive allowed, as well as a five year amortization of certain rehabilitation expenditures. Watts suggested that anyone who would like to know more about the federal income tax incentives for preserving and restoring historic buildings should contact him at the state historical society in Boise.

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SCHOOL BOARD REVIEWS CONSTRUCTION

School Board members reviewed a final construction "punch list" on the new high school building with project architect Gary Wallace, and agreed to withhold 5% of the total contract amount until all work is satisfactorily completed.

Classes began in the new building November 1, however, according to school board chairman Rose Johnson, several minor aspects of the construction project remain to be finished.

Open House Postponed

The open house for the new high school building has been indefinitely postponed. Originally scheduled for early November, according to Johnson the event had to be postponed due to scheduling complications. The board is now hoping for a mid-December date.

Junior High Uncertain

No decision was made by the board on the future of Junior High students as a result of the quake.

The Junior High was scheduled to be held in the old high school building once the high school students moved into their new facility. After the quake severely damaged the building, the Junior High students have had to double up with the older students at the new school.

As of the school board meeting a week ago last Tuesday, it still was not known whether or not any federal aid will be available to the district to help restore or rebuild the old facility. According to Dr. Donicht, until such information is available, the district can not make plans one way or another on the future of a Junior High facility.

Clayton Parents Concerned

Several parents of Clayton Elementary School children appeared before the board to express their concern for the safety of their children following the recent earthquake. The parents were concerned that rocks on the hill directly behind the school will continue to slide off into the school yard. One large boulder brought down by the quake knocked a foot by foot and a half hole in the outside wall of the school building. Other rocks have come down off the hill since the quake.

The board sympathized with the parents' concerns and Dr. Donicht agreed to consult with a highway engineer to find out what methods they use to stabilize hills against rock slides.

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BLM TO CLOSE HERD LAKE ROAD

The Salmon District of the Bureau of Land Management (BLM) has announced its intention to close the Herd Lake Road above the lake overlook to all motor vehicles. The closure has been prompted by the earthquake of October 28.

The road, which was built on a landslide, has been failing in recent years and the earthquake accentuated the problems. There are areas where parts of the road have caved off, making the road very narrow and hazardous to vehicular traffic. Don Smith, Challis Resource Area Manager noted, "Both our geologists and engineer have looked at the road and they consider it to be extremely hazardous to travel. The road is very expensive to maintain at best, but now with the earthquake, the cost of maintenance is prohibitive."

The campground facility at the end of the road will remain in place, Smith said, for backcountry users going in on foot or horseback.

If snow conditions permit, a crew will be out the week of November 21 to close the road. If the snow is too deep, the closure will not occur until next spring.

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SCENE FROM THE STATEHOUSE

Guest Commentary

By Governor John Evans

I have had some visible & dramatic proof in the past few weeks of the awesome power of nature and of the need to be prepared to deal with emergencies.

I'm speaking, of course, of the earthquake which centered in Idaho's Lost River Valley between Mackay and Challis.

In seconds, nature opened a rift in the earth that stretched along more than 20 miles. It lifted mountains and lowered valleys. It toppled buildings in nearby populated areas, changed waterflows and was felt throughout a seven-state area.

Tragically, it caused the deaths of two young children, crushed by debris from a falling store front.

As in the past, when tragedy has struck, Idahoans responded promptly. Local and state governments quickly mobilized rescue forces to clean up the debris, check remaining buildings for safety and provide whatever emergency assistance was needed.

Damage estimates are not complete but based on present information repairs and reconstruction will cost more than \$12.5 million.

The Small Business Administration has designated Custer County a disaster area, making low-interest loans available to help finance rebuilding of commercial structures.

The Idaho Housing Agency will make low-interest loans to homeowners to assist them in repairs and rebuilding.

The quake caused damage to schools in Mackay, Challis and Arco and caused officials to close the high school building that serves the State School for the Deaf and Blind in Gooding, because of fear for its safety.

No existing state or federal programs cover such losses or losses to the agricultural community. Accordingly we are asking disaster designation for all of Idaho by the federal government, thus making the state eligible for assistance from the Federal Emergency Management Administration.

Preliminary estimates indicate repair costs of \$2.2 million for schools in Custer County and \$1 million in Butte County. Cost of replacing the Gooding school is put at \$3.6 million.

Damage to private homes is estimated at more than \$1 million in Butte County. Cost of replacing the Gooding school is put at \$3.6 million.

Damage to private homes is estimated at more than \$1 million with similar losses to business establishments. Agricultural losses are estimated at around \$2.3 million.

Any loss of life is, of course, a tragedy. But we can be grateful that deaths were limited to two, for if the epicenter of the quake had been in a heavily populated area the result could have been disastrous.

Again Idahoans have demonstrated that when there is the need, they respond quickly and willingly.

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LETTERS TO THE EDITOR

Dear Editor:

Two segments of our small community of Challis did such a commendable job when the earthquake hit, Oct. 28, 1983.

Those two being the press and staff of the Challis Messenger and the police department. Losing my daughter, Tara, was hard enough, but sitting and listening to the planes, seeing the photographers with their cameras, and the reporters knocking on the door and calling seemed to compound the grief. I would pick up papers as far away as Washington, D.C. and read of the tragic event. The facts were outrageously wrong. They were written for sensationalism, instead of factual reporting. Sensationalism is fine when tempered with empathy, but this was not. After reading "The Quake of '83" in the Challis Messenger, I felt a great relief--these people knew Tara and reported accordingly. Not one of them called or came over, yet the facts were reported with accuracy and between the lines were the feelings. I realize the press that came from all over the country had a job to do and were only trying to accomplish it. Yet they did not need to be at the services--that is not news. Saying good-bye to someone is a private, personal heart matter and no one should be involved unless the feelings are true.

I really did not understand what was happening until I went down to the Church before the Rosary. I needed some private time--what I saw was a press man just leaving. I was horrified and did not understand what he could possibly gain from all this. I went straight to the police, told them my wishes and they complied. They did a tremendous job, without them the funeral would have been photographed and reported. One reporter did go inside and reported a few sentences the priest spoke of concerning Tara's death. That is his job I guess--each to their own.

One small word of thanks is not enough (not by far), but maybe, just maybe, we will appreciate these two agencies a little more in the future.

I know I will always appreciate the way they handled the tragedy with professionalism, ethics and most of all with understanding.

Sally O'Keefe Leaton

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AREA IS ELIGIBLE FOR FEDERAL DISASTER AID

By Molly O'Leary-Howard

Custer County residents have one more thing to give thanks for this Thanksgiving--a presidential disaster declaration.

President Reagan announced Friday afternoon that Custer County is eligible for federal disaster relief following the October 28 earthquake. The long-awaited decision came two weeks after Governor John Evans officially requested the declaration. Reagan's approval of the request will get the federal assistance "ball" rolling.

Field Offices Set Up

Federal and state agency representatives arrived in Arco Monday evening and began setting up disaster assistance field offices in Mackay, Challis, and Arco on Tuesday. People needing individual assistance, can contact the various representatives at the Mackay or Challis offices. The main disaster relief office will be located in Arco. Public agencies needing disaster information and assistance will deal with the Arco headquarters. A Question/Answer toll free information number will also be available.

The federal disaster declaration opens the door for assistance to individuals and public entities that would otherwise have not qualified for financial aid. The state has no disaster relief funds of its own.

The state itself will qualify for federal assistance in repairing damaged roads, as will the county. The public schools will now be eligible for Department of Education assistance in repairing or rebuilding their facilities. The city of Mackay will be able to receive grants to replace their city hall and city jail. Grants to make damaged homes habitable once again will be available to the individual homemakers.

The Federal Emergency Management Agency (FEMA) will be co-ordinating the efforts of the various state and federal agencies that will offer disaster assistance. The personal disaster aid field offices in Challis and Mackay will have representatives from nine different agencies on hand to offer assistance to individuals. A few of those that will be represented are the Internal Revenue Service, the Small Business Administration, the Farmers Home Administration, the Department of Employment, and the Department of Agriculture. According to Doug Jones, State Bureau of Disaster Services, some people may get frustrated by all the paperwork involved in applying for the aid but he urges them to be patient.

"It is taxpayers' money that is being made available so it's necessary to see that it's properly managed," Jones said. "Agency representatives will be on hand to help people with the application process and make it as smooth as they can."

Several Types of Aid Are Available

Because of the various types of aid that are now available, anyone needing assistance is encouraged to go to a disaster relief center to find out just what kind of aid they will qualify for.

For the individual there are home repair grants available to make a home habitable again. These grants have a ceiling of \$3,000, and can be used for structural repairs only. There are also low-interest loans available for damage to homes or personal property. Costs of repairs or losses may also qualify for income tax rebates.

According to Jones, the FEMA people will help individuals wade their way through the options open to them to get the aid best suited to their needs.

"That's the whole function of FEMA," he said. "No two disasters are alike. FEMA has a great deal of flexibility because of the very nature of the beast they're dealing with-- disasters."

The FEMA office in Challis will be set up in the Challis Elementary School media center. The Mackay headquarters will be located at the American Legion Hall, while the main FEMA field office will be at the ASCS office in Arco. The centers will be open from 9 a.m. to 6 p.m. beginning Wednesday, Nov. 23. They will be closed Thanksgiving day but will remain open this Friday, Saturday and Sunday. The offices will continue to operate locally as long as there is a need for their services.

[Challis Messenger; November 24, 1983]

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WARM SPRINGS 'SPRINGS' BACK Feast Or Famine

By Molly O'Leary-Howard

Everyone knows, "It's not nice to fool with Mother Nature," but unfortunately she is not always as considerate in return. The recent earthquake that rumbled through Custer County is proof of that.

Just as people were beginning to accept her latest prank, Mother Nature pulled another one. This time, the unfortunate subjects of her wrath are wondering about getting flood insurance.

The warm springs water on the Will Ingram ranch that mysteriously disappeared October 28 as a result of the earthquake has just as mysteriously reappeared. According to Tim Ingram, the water began coming back a little at a time ten days after the quake.

Needless to say, the Ingrams--to whom the water is their life's blood--were thankful for its return. What they hadn't anticipated was that over a period of two weeks the water has practically tripled its pre-earthquake volume. According to Dick Whitehead, U.S. Geological Survey records show that on September 19, 1979, the warm springs was flowing at 2700 gallons per minute. The flow was remeasured by the USGS on November 14, and recorded at 7580 gallons per minute.

What had only days before looked like financial famine, turned into a feast of the local equivalent of liquid 'gold'--but not without a price.

Homes in Danger

To the numerous homeowners who live just down the ditch from Ingram's, the abundance of water is anything but good news. At least seven homes, and possibly more, are in immediate danger of being flooded. The homes were built in a low lying area that once was "flood" irrigated farm land. According to many of the homeowners, they were not informed of the flooding potential from spring run-off and irrigation water when they purchased their property.

High Water Problems Common

The subdivision area had been periodically plagued with high water problems long before the recent earthquake. However now, with the added impact of three times the normal amount of water coming down their way and winter setting in, the threat of flooding will be constant unless something is done.

Although everyone affected by the increased water flow agrees that something needs to be done, the suggested solutions are as numerous and as varied as the people involved.

Agreement Suggested

At a meeting of the affected parties Monday morning at the courthouse, Raymond Burstedt outlined the situation to those present and suggested that an agreement amongst the landowners involved be signed. The agreement was drawn up by local attorney Jim Bennetts on a last minute's notice. The covenant states that, assuming funds are available, the individual landowners will grant easement on their property to agencies or contractors involved in assessing and correcting the problem.

Several of the ranchers and landowners present declined to sign the agreement, citing vagueness in wording and uncertainty as to future resulting liabilities.

Instead, it was agreed that the threatened property owners would arrange a meeting with Federal Emergency Management Agency representatives to first determine what, if any, federal assistance may be available to correct the problem. Once the FEMA people are

made aware of the problem, it is hoped they can steer the group in the proper direction to solve the matter.

Time, however, is not on their side. According to the subdivision developer Allen Getty, "The ditches are brim full now. If we get a good freeze and more water, we're in trouble."

Flooding Imminent

According to Raymond Burstedt, the state water resources representative who looked over the situation Friday at the county's request told him that flooding was "imminent" once the temperature drops to 0 (degrees).

"From the looks of things," Burstedt said, "you folks need to get the ball rolling now."

"One choice we don't have," Getty emphasized, "we can't just go up and shut the water off. I think we should work towards a common goal," he added, "and forget the petty personal squabbles that stand in our way."

[Challis Messenger; November 24, 1983]

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FLOODING STILL THREATENS ROUND VALLEY

By Molly O'Leary-Howard

A race against Mother Nature and Jack Frost is still underway in the Challis Hot Springs area.

Although Ma and Jack appear to have won the first couple of heats, State Bureau of Disaster Services representative Paul Massey has once again come to the rescue with some possible upset maneuvers.

Federal Emergency Protection Measures Grant

At a meeting last Wednesday with the residents threatened by the sudden and overwhelming return of Ingram's Warm Springs, Massey outlined the possibility of a federal Emergency Protection Measures grant to thwart the imminent flooding of homes. According to Massey, "It's a very touchy business when we start using federal money on private property."

Massey told the group that the county board of commissioners must declare that an emergency situation exists and, in effect, sponsor the project. If the county agrees to do so, then 75% funding by the federal government can be made available, with 15% coming from the state level and the county footing the bill for the remaining 10%, according to Massey.

County Liability Questioned

The immediate stumbling block thrown up by Commissioner Frank Maraffio in response to Massey's proposal, was the question of county liability if they become officially involved in the matter. In addition, Maraffio questioned the wisdom of setting a precedent for future claims against the county for assistance and finally, asked where the county's 10% was going to come from.

At that point, everyone in the room--ranchers and subdivision homeowners alike--jumped into the discussion.

The consensus of the public present was that the county doesn't have a choice concerning their involvement because county roads and, as a result, services--such as fire protection, ambulance, mail, and school busing--are as equally threatened by flooding as is personal property. In addition, the threatened property represents a tax base of approximately \$450,000 to the county.

The idea of those personally affected sharing the cost of guaranteeing the county's 10% portion was tossed out for consideration. Many indicated they would be willing to contribute but only if the cost was shared proportionately by all.

Question of Liability Poses a Major Obstacle

The question of easements and release of liabilities was once again brought up as a major obstacle in the way of getting anything done, if and when money is available. Although everyone seemed to agree that, "something must be done!", few could agree on the answer to the question "what?", and even fewer were willing to go along with a blanket approval of a nonexistent plan.

As tempers flared, and prejudices and personal grievances amongst the gathering were added to the confusion, the talk of lawsuits and injunctions was tossed onto the fire. Local rancher Will Ingram, whose ranch the warm springs is on, threw water on the entire furor by saying, "I think you'd better file an injunction against God!"

Other Channels Investigated

At the conclusion of the meeting, it was agreed that Massey would further investigate the federal aid channels, the county would consider the possibility of sponsoring the project, and a self-appointed committee would seek expertise from local forest service hydrologists and engineers to begin formulating a plan.

By Monday afternoon the concerned parties met again at the county commissioners' meeting to discuss developments over the Thanksgiving weekend.

Army Corps of Engineers

Massey informed the gathering that yet another avenue of assistance may be opened up to resolve the situation. According to Massey, there is a strong possibility that the Army Corps of Engineers can become involved in the project and, if they do, it will be financed 100% by that agency. The Corps will come and inspect the situation later this week, according to Massey, before making their determination on involvement.

Jack Bills, supervisor of the Challis National Forest, was present along with some of his staff, to discuss what conclusions they had been able to come to over the weekend as to what needs to be done.

Roland Leiby, a hydrologist, and Lewis Curry, a civil engineer, both with the Challis National Forest, recommended that approximately three miles of the east side channel of the warm springs be enlarged to a width of 12 feet by 1feet. In addition, they suggested placing rip-rap along the severe turns in the channel to reinforce the bank, as well as the construction of nine stream crossings with three, 30 inch by 20 foot culverts placed at each. The total estimated price tag came to \$50,800.

It was decided by those in attendance that the next logical step was to wait and see if the Corps of Engineers would become involved.

In the meantime, whichever way the situation may be resolved, the unanimous agreement and cooperation by those involved is still considered to be the major stumbling block in the road to resolution of the problem. As the old saying goes, one sour apple can spoil the barrel.

[Challis Messenger; December 1, 1983]

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FEDERAL DISASTER AID ON THE WAY FOR CHALLIS SCHOOL DISTRICT

Whether to "repair or replace" is the question local school board trustees hope to have answered by early December.

The old Challis high school building was severely damaged by the worst earthquake in the continental states in a quarter of a century and has since been declared uninhabitable. The facility was to become the junior high school once the senior high students moved into the new high school building.

The district delayed making plans concerning the damaged building until it was known whether or not federal aid would be available as part of a presidential disaster declaration. That declaration was made November 18.

Inspection Due

Now that federal aid is available as a result of the declaration, local school district officials are awaiting a visit by Department of Education representatives to inspect the building and assess the damage caused by the October 28 earthquake. The inspection is scheduled for sometime the week of December 5, according to Donicht.

"At that time, hopefully, it will be decided how much of the work can be financed, and whether or not we have to repair the old building or tear it down and start over," Donicht said.

According to Donicht, he personally doesn't believe that the school district will be advised to repair the damaged high school.

"I don't think there'd be a whole lot of confidence with the present structure no matter what we did," he said. "I think it would be kind of fruitless to pour \$2-3 million into the building and end up with what we had. I think parents would be a little hesitant to send their kids there," he added.

According to L. H. Balliff, Associates, an engineering firm in Pocatello that inspected the building at the district's request, it would cost approximately \$1.8 million to tear down the old structure and replace it with a new 10-classroom junior high facility. A new school building would include a small resource room and office space, according to Donicht.

100% of Cost Covered

Depending on the outcome of the DOE inspection and assessment, it is possible that an outright federal grant for 100% of the cost to either rebuild or restore the facility will be made to the district.

"To my knowledge," Donicht said, "it's an outright grant of 100%. They (DOE) give you 75% of that to begin with to get started and the rest upon completion of the project."

Should the money to rebuild become available, Donicht estimates that February or March of 1985 would be the earliest a new facility could be finished.

Donicht said he feels the presidential declaration and the resulting aid to the school district is really a boon to Custer County residents.

"It's really good for the people here," he said. "They've already footed enough of the bill for our expansion and operation."

[Challis Messenger; December 1, 1983]

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LOCAL DISASTER RELIEF CENTERS PROCESS DAMAGE CLAIMS

After a week's worth of interviews, the disaster relief field offices set up by the Federal Emergency Management Agency in Challis and Mackay have been closed.

According to State Bureau of Disaster Services official Mike Sweeney, 118 interviews were conducted with earthquake victims in Mackay, while the Challis office processed 48. The demand for interviews and applications for federal assistance has tapered off in both cities, thus the decision to close the field offices. However, FEMA engineers are still in the area and will continue to be present as long as reported damage needs to be inspected.

The main FEMA disaster relief headquarters in Arco at the ASCS office will continue to remain open until January 16, according to Sweeney. Anyone who has questions concerning damage and possible assistance can call the FEMA hotline 527-3778 collect, Sweeney said.

[Challis Messenger; December 1, 1983]

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'PEOPLE CARE' BENEFIT GIVEN FOR TRAVIS AND TARA

By Molly O'Leary-Howard

Peace on earth, good will towards men. What does it really mean? Ask the people at The Flying Saddle in Boise, Idaho--they'll tell you.

On November 20, what had begun as a handful of people's desire to say, "I care," culminated in a day-long benefit called, "People Care", for the families of Travis Franck and Tara Leaton.

According to Ellie Myers, a part-time bartender at the Flying Saddle, she and several others were sitting around the night after the October 28 earthquake that claimed the lives of the two young children, wondering what they could do.

"We were all saddened by the deaths of Tara and Travis," she said. "Saddened to the point of wanting to do something rather than just be sympathetic.

Donation Idea Snowballs

"I decided to donate my tips for a week, and then my boss, Tim McManus, said he'd match me. Then some of the customers joined in and said they'd match me, too," Myers said. It wasn't long before the word was out and a Boise TV station picked up the story and aired it. From that point on, according to Myers, the idea snowballed into a day-long benefit at the Flying Saddle, complete with an auction, live music, a buffet, and a whole lot of love. Janet Franck, mother of Travis, was able to attend the benefit while Tara's mother, Sally Leaton, went over and met the people involved the following day.

Their reaction? "Unbelievable!"

"When I first got the phone call," Janet said, "I just couldn't believe it. That strangers--in a different town--would do something like that.

"They wanted someone to come over, and I wanted them to know I appreciated what they were doing. And," she added, "I was curious to see what they were doing."

Janet and a friend, Carol Devore, made the long drive to Boise despite the winter weather conditions and icy roads. There they met Janet's sister, Patricia Fisher, who attended the benefit with them.

A Room Full of Friends

What they found when they arrived was, not a room full of strangers, but rather a room full of friends they just hadn't met yet.

When Janet first arrived, no one knew her and she took advantage of her anonymity to sit back and just take it all in, unaltered by her presence.

"I almost couldn't take it," she said. "I was really choked up. Those people were so good, and I couldn't believe what I was seeing. They were so sincere, and so caring."

Once Janet's identity became known, the reception was even more heartwarming.

"They greeted me with compassion and tears," she said. "I'm still overwhelmed.

"It has made me realize that people all over the country care about people. You don't have to know someone to care. I really haven't gotten over it completely," she added.

Although Sally was unable to attend the benefit itself, her reaction to meeting the people involved and learning of what they'd done was one of equal amazement and disbelief.

"I was totally amazed," she said. "I must've asked at least three times if there was some connection. I was sure someone involved had to have known someone in the families. But, no--they just cared."

People Care

"I have learned so much because of Tara's death," she continued. "I know now that people do care. Not just because of this one incident but because of so many acts incorporated into one. I realize now that people must help and love each other to ever make it through this life."

Thanks to the thoughtfulness and generosity of many, the People Care benefit has raised a total of \$1200 to date in memory of Tara and Travis. A bank account has been set up at First Interstate Bank in Boise, and will remain open for donations indefinitely, according to Myers.

Memorial Plaque

In addition to the multitude of donations from area restaurants, grocery stores, individuals and a variety of retail stores that made the benefit possible, an engraved plaque was donated by Pro-Am Trophy in memory of the two children. According to Sally and Janet, it is their wish that the plaque be placed in the elementary school the children attended as a memorial to them.

Donations continue to come in, according to the owner of the Flying Saddle, Tim McManus. Besides the fund at the bank and the containers placed along the bar, additional containers for contributions have been placed around Boise at various stores. "How long this will go on," McManus said, "I don't know. Hopefully long enough to let the parents of these children know that we care--that people care."

[Challis Messenger; December 1, 1983]

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LOCAL MEMORIAL FUNDS ESTABLISHED

In addition to the money raised in memory of Tara Leaton and Travis Franck in Boise at the Flying Saddle's "People Care" benefit November 20, several local memorial funds have been set up in Challis.

Karen Drobish has been organizing a fund drive for a living memorial to the children. It was Karen's idea that money towards a grove of trees for the city park be donated in honor of Tara and Travis. In spite of recent personal setbacks, Drobish is still pursuing the idea and has set up an account at the Custer County Bank for donations. Anyone interested in assisting her in the effort can contact her at 879-4533.

Jan Hardman has also opened an account at the local bank, the Travis Franck--Tara Leaton Memorial Fund. This fund is not designated for a specific type of memorial but rather, is intended for the two families to use as they see fit.

In addition, Tara's grandfather, Frank O'Keefe, has established a scholarship fund through the bank in memory of his granddaughter.

[Challis Messenger; December 1, 1983]

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FLOODING SHUTS DOWN OPERATIONS AT CLAYTON SILVER

By Molly O'Leary-Howard

Three months and several hundreds of thousands of dollars later, Clayton Silver Mine hopes to be back in operation by the end of January. The mine has been shut down since the October 28 earthquake.

According to Mine Manager Roland Rovetto, roughly twice as much water is surging into the 1100 foot underground level of the mine as was present before the quake. Employees of the silver mine have been working steady since the earthquake to pump the excess water out of the ground. Approximately \$200,000 in new pumping equipment has been purchased to keep up with the job.

Two Feet Every 24 Hours

"We're still pumping water," Rovetto said. "We do have it stabilized and we're pumping it out but it's very slow."

According to Rovetto they're lowering the level of the water at a rate of about two feet every 24 hours. At that rate, they anticipate they will be caught up with the excess flow by the first of January. The water still stands 90 feet deep in an 18,000 square foot area.

"Until we get that water out, we can't go back into production," Rovetto said. "We should be down to that level by January 1, and then we can begin recovering and repairing the equipment that's been under water all this time.

"Every piece of equipment down there has to be taken apart and cleaned and put back together," he added. "One hundred and fifty feet of water--that's a lot of pressure!"

Rovetto estimates that the mine, located up Kinnikinic Creek just north of Clayton, will be ready for production by the end of January.

Losses Hard to Calculate

Although costs in terms of new equipment are easily calculated, the additional costs of loss of production without a corresponding decrease in overhead are not as easily figured.

According to Rovetto, prior to the latest shutdown they were producing 2,000 ounces of silver a month, at \$8-10 an ounce.

This is the second shutdown of production at the mine this year.

Second Unexpected Shutdown

"We'd just gotten back into production when the earthquake hit," Rovetto said. "This makes two shutdowns in a year that we hadn't anticipated."

The previous interruption in production was the result of the mine not being geared up to keep pace with the increased efficiency of the new mill, according to Rovetto.

The mine experienced its first shutdown in 47 years of operation a year ago last July.

Sagging silver prices was the cause of that six month closure.

Despite this most recent setback, Rovetto remains optimistic.

"We're just gambling that the price is going to go back up so that we can afford to mine it. We're still looking for \$15 an ounce silver, and at that price we'd do okay."

[Challis Messenger; December 8, 1983]

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AREA FEELS 4.6 AFTERSHOCK

Christmas trees seemed to come to life and walls shook and swayed as the result of last Sunday night's tremor.

The aftershock, reportedly measuring 4.6 on the Richter scale, left Custer County residents a bit shaken and wondering if it was indeed an aftershock or the start of a whole new round of tremors.

No serious damage was reported following the recent jolt, although one grocery store manager reported that several items "committed suicide" by jumping off of shelves and crashing to the floor.

According to seismologists, the epicenter of Sunday's tremor was in the same general area as the October 28 earthquake, near Mt. Borah. That earthquake's magnitude has since been adjusted to a 7.3 on the Richter scale instead of the initial reports of 6.9. As a result of this upward adjustment of its magnitude, it is now considered a major earthquake. The rule of thumb for aftershocks, according to U.S. Geological Survey geologist Charley Langer, is that the largest expected to occur is one order of magnitude lower than the main earthquake. The duration of aftershocks is also tied to the magnitude of the main tremor, according to Langer.

At an informational talk in Challis last November 3rd, Langer predicted that aftershocks would be felt in the area anywhere from a couple of weeks to several months after the October 28 quake. As a result, last Sunday night's tremor is not considered unusual, although it caught more than a few local residents off guard.

[Challis Messenger; December 15, 1983]

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FATE OF OLD HIGH SCHOOL STILL UP IN THE AIR

By Molly O'Leary-Howard

The fate of the old Challis high school building is still uncertain, according to District Superintendent Dr. Terrell Donicht.

A Department of Health and Welfare structural engineer arrived here last week under the auspices of the Department of Education to survey the damage to the building as a result of the October 28 earthquake. Based on his findings, according to Donicht, the district should receive word in the next couple of days from the DOE as to whether the building should be repaired or replaced.

Funding Also Uncertain

Once that determination has been made, it is still uncertain what, if any, federal funding will be available to the district. According to Donicht, there are apparently several options that the DOE can choose to follow, and they range from no funding, to partial funding, to 100% federal funding of the project.

Although Donicht said the final word has not been received from the DOE, he added that it was his impression from talking to the structural engineer, Charles Kato, that repairing the building "was not a strong or valid proposal."

Restoration Unlikely

Should the DOE recommend repairing the building and allocate money to do so, Donicht said he doubted that the board would choose to go that route.

"I think the board would take a very strong look at refusing that kind of money," he said.

"They really don't have much faith in the overall soundness of that building."

Despite the uncertainty surrounding the building's future, some tentative plans were agreed on by the school board at last Tuesday's meeting.

Two Bid Packages Likely

The board has decided that, if the district is awarded a grant to resolve the problem, the project will be let out for bid in two separate bid packages. The first would be for demolition of the old building, the second for construction of a new Jr. High facility. The reason behind this, according to Donicht, is to allow for a greater opportunity for participation in the bidding process by local contractors.

The board also tentatively decided to go with the present location as the site for a new Jr. High facility should funding be available. It was agreed, however, that a new building should be set back further on the lot than the present structure.

Aftershock Taking a Toll

In the meantime, while officials await the final word from the federal government on the building's fate, aftershocks continue to take their toll on the building. According to Donicht, last Sunday's tremor widened cracks that were already present and caused several others to appear. It has been suggested by some that, regardless of the DOE's decision, the continuing aftershocks may have the final say and beat them to the punch besides.

[Challis Messenger; December 15, 1983]

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FEMA OFFICIALS DISCUSS EARTHQUAKE DAMAGE TO LOCAL BUILDINGS

City Council Briefs

Buildings that were damaged by last October's earthquake were the subject of a discussion between Federal Emergency Management Agency representatives and the city council at Tuesday night's meeting.

According to LaRue Bevington, a public assistance specialist with FEMA, the inspection team assigned to this area needs to know if the city has changed its mind about applying for federal aid. According to Bevington, he was under the impression that the city had changed its mind since it applied for assistance and had decided that there was not enough damage to public structures to warrant receiving FEMA aid.

Bevington informed the council that, acting through the city, the FEMA team could assist in making determinations concerning several buildings in the city that pose a possible danger to the public due to damage from the October 28 earthquake. Bevington told the council that from just a "windshield inspection" they had identified several buildings in town that may be unsafe.

Without the city's approval, however, they are not authorized to act on their own in conducting inspections of questionable structures. Although the buildings are not city owned, they would qualify for 75% funding through FEMA for demolition and removal if the city declares them a public hazard. The remaining 25% of the costs for their removal would be assessed against the owners.

The council asked the FEMA team to further discuss the options open to the city with their attorney Chuck Roos, before making any final decisions on the matter.

[Challis Messenger; December 15, 1983]

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CHALLIS WILL GET A NEW JUNIOR HIGH SCHOOL

By Molly O'Leary-Howard

Down with the old, up with the new! This was the message received Friday by the local school district from the Department of Education, regarding the old Challis High School building damaged in last October's quake. According to district superintendent Dr. Terrell Donicht, the DOE has determined that tearing down the structure, which was to be the new Jr. High facility, and starting over is the best route for the district to go.

100% Funding Available For New Building

In addition, the DOE informed the district that they will provide a maximum of \$177,600 for demolition and removal of the old building. Funding for a new Jr. High facility will be at 100% of whatever the cost to accommodate the 150-155 students displaced by the earthquake's damage.

In a special meeting of the board Tuesday, Donicht outlined the DOE decision and the board began steps to enact the demolition process.

Some Items Salvaged

The demolition of the structure will be bid out separately from the actual construction of a new facility. The board included the salvaging of several items of sentimental or financial value to the district as part of the demolition project specifications. Items such as sinks, desks, and light fixtures will be auctioned off in the spring. Other items, such as the two original front exterior lights and the building plaque will be saved and somehow incorporated into the new structure.

Wallace and Hudson, Associates, Pocatello, was unanimously selected by the board to be the project architects. The firm has been the district architect on several building and remodeling projects in the past, the new high school building being the most recent. The firm offered a contract rate of 6% of the total project cost.

20,000 Square Feet

According to Donicht, the new school will be somewhere in the neighborhood of 20,000 square feet. This figure is based on state requirements of 130 sq. ft. per student. The old high school building is approximately 23,000 sq. ft.

Donicht told the board that he is anticipating that bid specs will be ready in time to allow the letting of demolition bids by the end of January or the first of February. Based on this estimate, Donicht further stated that he hopes to have the demolition completed in time to begin construction on the building by March or April. The projected completion date of construction at this point is August, 1985, according to Donicht.

Building Site

The site of the new building was also discussed by the board. Although all are in agreement as to the building's general location, a couple of possibilities were proposed. Board chairman Rose Johnson wondered about the possibility of locating the school at the present site of the administration building. The football field would then be moved to the west end of the block, and run north and south.

All agreed that their main concern was to set the school back as far away from Main Street as possible for safety reasons, and it was decided to present their ideas on the matter to the architect for consideration.

[Challis Messenger; December 22, 1983]

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FEMA INSPECTS BUILDINGS, MAKES RECOMMENDATIONS

By Molly O'Leary-Howard

Four buildings in Challis have been marked for possible demolition as a result of the October 28th earthquake.

A Federal Emergency Management Agency team inspected six buildings in Challis last Thursday at the request of the city. The inspection was made, with the owners' permission, to determine their overall soundness following possible damage from the 7.3 quake. According to the FEMA team spokesman, LaRue Bevington, each property owner is being sent a notice of their findings.

The four buildings that were given the ax are the old cold storage building at Third and Main that partially collapsed and killed two small school children; a Challis Transportation stone building across from City Hall; an old stone cabin located behind Bux's bar on Pleasant Street; and another stone building located half a block north of Main, on Third. The old Campfire bar, also located at the upper end of Main Street, as well as Frank O'Keefe's building across the street, that houses Smitty's Saw Shop and The Hub, were given a clean bill of health in terms of earthquake related damage.

City Will Use FEMA Recommendations

Although the FEMA team has no authority to act on it own, its recommendations on the buildings will be used by the city to take action towards removing the hazard they represent to the public.

According to the letter sent to city attorney Chuck Roos by Bevington, the FEMA team "could see no reasonable method for preservation" for the Challis Transportation building, nor for the stone structure located on Third Street which had been occupied by Custer Cycle and Snow.

The team's recommendation regarding the old stone cabin owned by Lewis Reece on Pleasant Street, was that it "be demolished or the owner be required to construct a child-proof fence to completely surround the building."

Evacuation of Cold Storage Building Suggested

The old cold storage building owned by Bob Ralphs was the subject of a somewhat lengthier report by the team and several recommendations were offered the city in regards to it.

"We concur that, if this was our property, we would evacuate as soon as possible," Bevington wrote. "We would immediately request permission from the city to barricade the structure with an 8 foot high solid wood protective fence sufficient distance from the structure to ascertain no one would be injured in case of future failure. "Also," the letter continues, "if we were a portion of the city government, we would allow no reconstruction permission without a certification from a structural engineer licensed to practice in the state of Idaho."

Demolition Package

The next step, according to Roos, is to receive permission from all affected property owners to proceed with demolition. If approval is obtained, a package demolition contract would be let out for bid by the city, according to Roos. The cost of the demolition will be shared by FEMA (75%) and the individual owners (25%).

In the event that any or all of the property owners are reluctant to go along with such a plan, Roos said, the next step would be to declare the buildings a public nuisance under section 50-335 of the Idaho code.

"If the city goes that route," Roos said, "they will have to give the individuals notice, and afford the property owners the right to have a hearing before the council at which time they can present whatever evidence they wish to argue their position."

Roos was quick to add that this last approach is the least desirable, and "No one has any desire to do this to inconvenience anyone. We're just looking out for any potential liability as a result of any of these buildings collapsing on a public right-of-way and injuring someone."

Roos further stated that his advice to the city, if demolition of any building was waived, would address two aspects. The first would be that any restoration approved by the city would have to be done within a "reasonable time", and second, that in the interim a protective device constructed by the landowner to "protect the citizenry from potential collapse" be required.

All But One Agree With Demolition

All but one of the landowners contacted are in complete agreement with the proposed demolition solution at this time.

"We're relieved to know one way or another," said Jan Hardman of Challis Transportation. "We've wanted to know since the earthquake and it took us two months to get an answer." Bob Ralphs, owner of the old cold storage building on Third and Main, said he is not necessarily opposed to the idea but still has plans to have a structural engineer look at the building.

"I've had a couple of architects and construction people look at it," Ralphs said, "and I'm trying to get a structural engineer to look at it and tell me what I can do."

Although Ralphs had at one time expressed concern about the building's historical significance, he said that is no longer a consideration as there are no funds available to assist in preserving the structure.

According to Ralphs, safety and economics are his prime concerns at this point.

"If it can be feasibly reconstructed--from a safety and economical point of view--that's what I'll do. You just have to look at the trade-offs," he said.

[Challis Messenger; December 22, 1983]

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SBA EXTENDS FILING DEADLINE

The Small Business Administration has extended their filing deadline for earthquake related assistance.

According to State Bureau of Disaster Services information officer Mike Sweeney, the deadline has been extended from January 1 to January 16. Sweeney said the extension is due in part to the December 11 tremor that may have caused additional damage.

Another factor in extending the deadline, according to Sweeney, is to coincide with the closing of the Federal Emergency Management Agency field office in Arco. That office, located at the ASCS building in Arco, is scheduled to close January 16.

The hours for both the SBA office, located in the county annex building on Main Street in Mackay, and the FEMA headquarters in Arco are 9 a.m. to 6 p.m., Monday through Friday. The FEMA disaster hotline, 527-6778, will remain in service until the January 16 closing date, according to Sweeney.

[Challis Messenger; December 22, 1983]

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GRANDVIEW CANYON DECLARED SAFE

By Molly O'Leary-Howard

Two months and numerous phone calls and letters later, Grandview Canyon south of Challis on U.S. 93 has been declared "reasonably safe" following last October's earthquake.

Citizens Express Concern

Several concerned citizens, along with state and county personnel, have been keeping a wary eye on a particularly threatening-looking rock formation on the east side of the canyon. According to local residents who pass through the canyon on a regular basis, the rock tower in question has always had a slight crack in it, appearing to separate it from the rest of the rock face. However, depending on who you talk to, the crack has worsened since the October 28 quake.

Uneasy parents worried about their children riding through the canyon on the school bus, along with a variety of other regular travelers through the canyon, have been asking local authorities to provide them with a qualified determination of the rock formation's safety since the 7.3 quake. There has been considerable concern that further tremors and the effects of spring thawing and freezing could bring the rock crashing down on some unsuspecting passerby. The worst case scenario is a bus load of school children being the tragic target.

According to Leona Hatch, who lives on the south side of the canyon and whose children ride the bus to and from school through it, "The rock is tear-shaped with the most weight at the top. There's nothing really underneath it to support it. Before the earthquake there was a fine crack in the rock; since the earthquake it's gaped 1- 2 feet at the top.

"Our biggest concern," Hatch continued, "is this spring when all this snow and moisture gets down there and freezes and pushes the rock right out.

"Of course they (state and local authorities) aren't worried about it--they don't send their kids through it everyday."

No Answer On Danger

According to Hatch, she's run into nothing but brick walls in trying to get a satisfactory answer on the possible danger posed by the rock.

"They told me over a month ago at the sheriff's office that there was too much red tape involved to do anything about it," she said. "They even had the nerve to ask me if I'd crawled up there and measured it! Someone else suggested that the whole canyon would have to be condemned. I don't want to have to wait ten years--I just want my kids safe!

"It's one thing to have an earthquake and not expect it but it's another thing entirely to be aware of this and not do anything about preventing the danger because of 'red tape'," she added.

Despite letters, first person inquiries, and phone calls made by the county to various officials and agencies--including the governor--to obtain a satisfactory answer to people's concerns, there had been no official response in nearly two month's time. That is, until Monday afternoon when an engineer with the Rigby district office of the State Department of Transportation returned one of several calls made to that office for an answer.

Crack Not Altered By Earthquake

According to Jerry Dick, district engineer, several of the Rigby district personnel have inspected the menacing looking rock and have determined that it has not been altered by the earthquake, nor by subsequent aftershocks.

"It'd probably scare you to drive through there but it's no different than before," Dick said. "There's always some rock that'll come down in there due to natural weathering. Every spring we have to do some clean-up but it's been no different for the last hundred years. Although Dick said he felt local residents had a legitimate concern regarding the rock's post-earthquake stability, the department has determined that there has been no change in the rock's condition as a result of the quake. Dick added that he would write the county a letter to that effect to officially verify their determination.

Dick stopped short, however, of declaring the canyon "certifiably safe."

"I wouldn't go that far," he said. "But, we are aware of it and are watching it, and if we think there's a danger, we'll be in there working to make it safe."

[Challis Messenger; December 22, 1983]

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AFTERSHOCKS KEEP ON ROCKIN'

Custer County was rudely awakened at 5:21 Tuesday morning with another 4.6 aftershock. Although the tremor was equal in magnitude to a previous one on December 11, few people reported actually feeling it. This perhaps being an indication that aftershocks have become a way of life here since the 7.3 earthquake on October 28.

Little damage was recorded as a result of the aftershock, although one man said it jarred his door off the hinges and several others reported further widening of existing cracks.

The epicenter of Tuesday morning's tremor was reportedly in the same area as that of the October 28 quake, near the base of Mt. Borah.

[Challis Messenger; December 29, 1983]

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AFTERSHOCK EPICENTER LOCATED NEAR CHALLIS

By Jim Connor

Many aftershocks have been felt in this area since the October 28th earthquake, and information recently gathered by United States Geological Survey (U.S.G.S.) geologists indicates that the strongest of these was located near Challis, Idaho. After studying data from 183 seismograph stations located around the world, U.S.G.S. officials have determined that the epicenter of the December 11th 4.6 aftershock was located in Round Valley to the south and east of Challis. The aftershock caused little or no damage but was felt by most area residents.

Epicenters Moving

Since the major earthquake on October 28th there have been 350 aftershocks of sufficient magnitude to warrant further study. According to the U.S.G.S. data, many of the aftershocks have been centered both to the north and south of the original epicenter, with the stronger aftershocks all located to the north.

Most Challis residents indicated that the December 11th aftershock felt like it should have been rated much stronger than a 4.6. This was due to the close proximity of the epicenter. Generally, the force of a shock diminishes with distance. Mackay residents felt little effect of the December 11th quake.

Similar to Avalanches

An extensive fault system extends the length of the Lost River Mountain range from Arco to Ellis. Aftershocks have occurred along these faults to the north and south of the original epicenter. Aftershocks are the result of the Earth readjusting itself after a major earthquake. This is similar to what happens after a large avalanche. There is the very rapid sliding of snow and rocks, followed by smaller amounts of snow falling for minutes or hours afterward. Just as these dribbles of snow do not portend another avalanche, aftershocks do not portend another large earthquake. An aftershock of magnitude 3.3 is only one ten thousandth as intense as one of 7.3.

Some report feeling aftershocks more strongly than others. This is often the result of several factors. Those inside are more likely to feel them than someone working outside. Some structural types are more sensitive to the vibrations. Certain types of rocks are better conductors of shock waves. A house built over shallow bedrock might feel more tremor than one built over deep gravel. Due to the wave nature of the shocks, it is normal for them to be more intense at some points on the ground than at others.

Aftershocks will probably continue for some time. As time passes and the Earth adjusts itself, they should become less frequent and less intense.

Borah Quake At Great Depth

U.S.G.S. geologists have now determined the focus or hypocenter of the October 28th earthquake was located 9.3 miles below the surface of the ground. This is deep, but not abnormal for a major earthquake. The hypocenter is the actual point where the earthquake begins. According to U.S.G.S. findings, the Big Lost River Valley near the earthquake center has dropped over eight feet. There is no evidence at this time that Mount Borah has risen as popularly reported. Geologists plan to study the Mount Borah earthquake and its aftershocks in detail. It will be months or years before the project will be completed.

[Challis Messenger; January 5, 1984]

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CANAL DESIGN CRITICIZED

The continual rise of Ingram's Warm Springs has spilled over into the new year and has county commissioners swamped with related problems.

Local ranchers Gary Rogers, Gary Ingram, and Glen and Ryan Hunt, appeared before the commissioners Monday to claim that the canal is not properly constructed and is quickly eroding its banks.

The canal was initially designed by local Forest Service representatives at the county's request. The Army Corps of Engineers then revised the design based on a 50-year-flood plan. However, once the Corps backed out of the project, the design was implemented on a case-by-case basis to accommodate each landowner.

The canal was constructed on an emergency basis to prevent imminent flooding of several homes below the springs' heading on the Will Ingram ranch. The springs first completely disappeared following the earthquake, returning little by little, eventually surpassing their original level of flow. The latest United States Geological Survey measurement of the water flow was on January 5, at which time it was recorded to be 2700 inches, nearly four times its pre earthquake level.

Ranchers Allege Canal Design is Poor

The ranchers blamed the erosion in part on poor design, but also pointed to the fact that virtually all of the warm springs water is being sent down the newly increased east side channel. Glen Hunt claims this only aggravates an already bad situation and ignores alleged water rights that he and others have on the west side channel.

The delegation asked the commissioners to consider sponsoring the construction of a \$2000 concrete head-box at the point of diversion to control the splitting of the water.

The commissioners explained to the group that they are aware of the erosion problems and are open to suggestions as to how to better the design of the canal to prevent further washing of the banks. They drew the line, however, at agreeing to become involved in any water rights dispute and reminded the group that State Bureau of Disaster Services representative Paul Massey had said that construction of a head-box would not be covered by federal funds.

Army Corps of Engineers representative Tom Tate was contacted in Walla Walla, Washington, by the commissioners concerning the erosion problem. Tate agreed to take a look at the situation when he comes to Custer County on Corps business next week.

SCS To Revise Design

In the meantime the commissioners accepted an offer by Glen Hunt on behalf of the local Soil Conservation District to look into the matter and come up with design suggestions to alleviate the erosion.

Massey, working as the liaison between the county, the state and the Federal Emergency Management Agency, informed the county later that day that whatever additional measures were needed to ensure the stabilization of the canal would be approved for FEMA funding. The project was sponsored by the county in order to obtain federal (75%), and state (15%) matching funds.

Costs Escalate

The project, originally estimated to cost approximately \$85,000, has already climbed to \$111,000 in contractor bills alone, with an additional \$7,900 being spent on culverts. The county has ordered another 1000 feet of rip-rap, at \$20 per foot, for bank stabilization on curves.

A considerable amount of additional rip-rap will be needed if intermittent step-dams are built every half mile or more to slow down the velocity of the water, as Hunt and others at the meeting suggested.

[Challis Messenger; January 12, 1984]

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CLAYTON SCHOOL MAY BE IN DANGER

By Molly O'Leary-Howard

A letter from Federal Emergency Management Agency inspector LaRue Bevington has raised some questions about the future of the Clayton Elementary School building. The school was damaged by a large boulder sloughed off during the October earthquake from the cliff directly behind the building. Parents of children attending the school expressed concern at the November school board meeting for the safety of their children should future tremors bring down more rocks.

The board in turn agreed to look into the potential danger, and an inspection of the site December 14 by a FEMA team headed by Bevington resulted.

The team consisted of Jim Blake, Construction Manager for the State of Idaho, Division of Public Works-Eastern Idaho area; Doug Chase, P.E., Assistant Maintenance Engineer, District Six, State Division of Highways; and Bevington, who is retired from a position as Construction Manager for the Division of Public Works.

Similar to Challis Cliffs

Bevington's report to Dick Buck, head of FEMA Region 10, states that they were unable to talk with any geologist who had surveyed the cliff in question, however, it appeared to be similar in nature to the cliffs on the northwest edge of Challis. Those cliffs were inspected following the October quake by Earl Olsen, regional environmental geologist for the Forest Service. Olsen is based out of Ogden, Utah.

According to Bevington's letter, Olsen determined in his November inspection of the Challis cliffs, that outcroppings and isolated boulders present the greatest threat.

"The outcroppings are more weathered and fractured and easier to shake loose,"

Bevington wrote. "The isolated boulders were undoubtedly loosened in their settings and thawing conditions, with the resulting moisture, will lubricate the seating and boulders falling can be expected."

Bevington continues in his letter by saying, "The area above the Clayton school is very much like the Challis area. We can see no economical means to protect this property because of its location against the hill and the magnitude of the imminent hazard.

"In our opinion the school is in an extremely hazardous area!," Bevington states. "We are in total agreement that if we lived in the area we would not want our children attending this school."

Geologists Opinion Needed

District Superintendent Dr. Terrell Donicht said Tuesday that the matter is being looked into further by his office.

"Before we panic, we want to have a little more substantiation," Donicht said. "If you look at the FEMA inspection team's credentials, none of them are geologists and they do not have the expertise to make such a determination.

"We really don't think there is an "imminent" threat over the next couple of weeks," Donicht added. "If they felt there was such a threat, why did they wait for a month to make a report?"

According to Donicht, he has contacted both the Bureau of Land Management, and the Forest Service and asked for their assistance in the matter. Two BLM geologists are expected to look at the school site this week and, according to Donicht, the Forest Service has asked Olsen to return to the area and inspect the cliffside next week.

"Hopefully they will be able to give us a little more valid report on the "imminent" hazard that potentially exists," Donicht said.
[Challis Messenger; January 19, 1984]

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COUNCIL APPLIES FOR EARTHQUAKE ASSISTANCE

By Molly O'Leary-Howard

The new city council took action Tuesday night on the potential public nuisance of three buildings in the city that were severely damaged by last October's earthquake.

A simple application for Federal Emergency Management Agency assistance was signed by the city, following a not-so-simple discussion of the federal government's responsibility to the city's taxpayers vs. the government's obligation to protect said taxpayers' money.

Who Should Pay?

In the process of defining what would constitute adequate measures to protect the public from possible future failure of the three buildings identified by a FEMA inspection team as potential hazards, the question of who would pay for the measures arose.

State Bureau of Disaster Services representative Paul Massey, pointed out that the project could qualify for federal Emergency Protective Measures funding. Massey cautioned, however, that the key word was "emergency" and therefore something should be done immediately.

\$500 Minimum

In addition, Massey pointed out that there was a \$500 minimum cost in order to consider the project, and suggested that while the city was at it, perhaps they should reconsider applying for assistance to repair the bridge on north Fourth Street damaged in the quake. The city had previously rejected the idea, citing too much paperwork for the small amount of money at stake.

Massey's point was lost somewhere in between, and the discussion evolved into talk of inflating the cost of the protective measures project in order to meet the \$500 minimum limit.

Massey responded to this suggestion by saying, "I have an obligation to see to it that you people get what you've got coming to you, but I also have an obligation to protect the taxpayers' dollars."

Massey stressed the fact that he could not approve any measures taken that were over and above what was reasonable and prudent, especially if the whole purpose was to accumulate digits to meet a minimum dollar requirement for qualification.

Following a verbose defense of the city's right to federal aid by city attorney Chuck Roos, an intervention on the behalf of Massey by FEMA inspector LaRue Bevington finally cleared the air and assured the council that the aid was being offered, not denied.

Application Signed

The up-shot of the discussion was the signing by the city of an application for federal aid, which will open the way for shared funding for both the bridge repair work and the protective measures project. The funding, if approved will provide 75% assistance from the federal government, 15% from the state, with the remaining 10% to be paid by the city.

[Challis Messenger; January 19, 1984]

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CLAYTON SCHOOL

Caught Between A Rock And A Hard Spot!

By Molly O'Leary-Howard

A room full of tense and concerned parents greeted the school board Tuesday afternoon with the future of the Clayton Elementary school on their minds.

A copy of a letter from Federal Emergency Management Agency inspector LaRue Bevington to FEMA Region 10 chief Dick Buck, has raised some questions let alone a few tempers.

The letter followed a December 14th inspection of the Clayton school site by a FEMA damage assessment team headed by Bevington. A copy of the letter was sent to State Bureau of Disaster Services representative Paul Massey, who in turn forwarded a copy to Superintendent Dr. Terrell Donicht on January 13, a month after the inspection was made.

Imminent Hazard

According to the letter, the location of the Clayton school at the base of a large, rocky cliff represents an "imminent hazard" to the school children there.

"In our opinion the school is in an extremely hazardous area!," Bevington wrote. "We (the inspection team) are in total agreement that if we lived in the area we would not want our children attending this school."

Although Bevington qualified his remarks by noting they had been unable to talk to any geologist who had studied the area, and they were unable to closely inspect the hillside itself due to fog, the letter has, in effect, officially identified the school site as hazardous. And, unless that assessment is subsequently refuted by a forthcoming report based on a study made January 18th by two Bureau of Land Management geologists, the school will be closed.

Residents Don't Want Kids Bused to Challis

The delegation of Clayton area residents that met with the school board Tuesday questioned the validity of the FEMA team's report, and voiced their objections to busing their small children to Challis should the school be closed.

"I don't feel they should say it's unsafe unless they get up there and really look at it (the hill), and find exactly where it's not safe," Cheryl Baker commented. "I think Grandview Canyon looks worse than that hill," she added.

"All of us want our children safe," said Cecilia Teschler. "If it can be proven it's unsafe, then fine. We don't want our children jeopardized.

"But," she continued, "neither do we want our children bused back and forth on that river road 25 miles each way. How safe is the trip to Challis on that road?"

More than once the emotions of the gathering swelled into a room full of everyone talking and nobody listening.

"We're just trying to solve a problem," board chairman Rose Johnson interjected at one point. "And, I think if we just talk about it calmly I'm sure we can come up with an answer."

"We don't want to move the kids" Dr. Donicht told the group. "We're already overcrowded in Challis.

"But, if the BLM geologists don't refute this (report) it'll in a sense substantiate it and the board will have no choice," Donicht said.

Donicht added that he didn't think a favorable report from the BLM geologists was likely.

"No one wants to take on the liability of issuing a favorable report," he said.

Alternatives Discussed

Alternatives to busing the children were discussed, and ranged from building a new school, to finding another existing building to serve as a school, to temporarily moving the students to a Yankee Fork Ranger District building until further assessment of the potential danger could be made this spring.

The meeting concluded with Donicht agreeing that he would immediately begin investigating the possibility of temporarily moving the children to an old Forest Service district office building located up the river from Clayton. Lisa Hurless had earlier said she'd been told the building might be available as a last resort.

In addition, the board agreed to further investigate the possibility of blasting away any threatening outcroppings as a means of eliminating the "imminent" hazard. Several of those present agreed for their part to begin looking for a suitable site should the need for a permanent new school result.

[Challis Messenger; January 26, 1984]

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FEMA PULLS THE PLUG ON WARM SPRINGS PROJECT

By Molly O'Leary-Howard

A memo written Friday, as part of a Disaster Survey Report, has recommended a shut down on the Warm Springs flood abatement project. The report by LaRue Bevington, a Public Assistance Specialist with the Federal Emergency Management Agency, was written following an inspection of the project to determine if additional work would qualify for federal funds.

On January 19 Army Corps of Engineers specialist Tom Tate surveyed the project and recommended re excavation of a seven-tenths of a mile section of the channel along with placement of an additional 1000 feet of rip-rap.

Re-excavation on the stretch of the project that crosses the Gary Rogers and Will Ingram ranches has been completed, widening the ditch to conform to the overall design of a 14 foot wide, flat-bottomed watercourse. Approval for the additional rip-rap, however, was denied as a result of last Friday's inspection by Bevington.

Immediate Threat Eliminated

According to Bevington's report, "The immediate threat to the houses in the area and the road system appears to be alleviated."

Imminent flooding danger to the homes and county roads, from the increased flow of the warm springs that head on the Will Ingram ranch, was the basis for the county sponsored flood abatement project. The project has been funded jointly by federal (75%), state (15%), and county (10%) monies under a FEMA Emergency Protective Measures program.

Can't Justify Expense

The cost of the project to date, according to County Clerk Ethel Peck, is approximately \$183,000. According to Peck, Bevington stated that he could not justify spending another \$20,000 on the project for 1,000 feet of additional rip-rap needed to protect a seven-tenths of a mile stretch of ranch land. The EPM project was intended to prevent imminent flooding danger to homes, Peck said, and land used for agricultural purposes is specifically excluded by law. "Additional rip-rap has been requested to prevent erosion and is no doubt needed," Bevington stated in his memo. "It is my belief that this does not fall within the guidelines established by Federal Code for the Federal Emergency Management Agency at this time. "I am recommending," Bevington continued, "that if any additional help be needed that the request by the landowners be channeled to the Department of Agriculture or the Corps of Engineers."

State Concurs With Analysis

According to Peck, Jim Blake, acting as a disaster assessment representative for the state concurred with Bevington's analysis of the situation. The county did not agree, Peck said, leaving the door open for possible further work should flooding recur following the spring thawing of an above average snowpack.

Although Bevington recommends a shut-down on the project, he also recommends that two irrigation diversions removed during the project, one by mistake and another to prevent flooding, be replaced. Peck said if their replacement is approved by FEMA, they will be installed with no determination made as to the diversion of the water.

"That," she emphasized, "is a matter for the State Water Resources Board to decide."

[Challis Messenger; February 2, 1984]

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CLAYTON SCHOOL WILL MOVE TO NEW LOCATION

By Molly O'Leary-Howard

Monday, February 6, will be moving day for the Clayton Elementary School. The move to the old Yankee Fork district office building south of Clayton is a result of post-earthquake inspections of the hills surrounding the school. The school was damaged during the October 28th quake by a two by three foot boulder which bounced off of a hill and into the building, leaving a foot by foot-and-a-half dent.

Parents' Concern Prompts Inspection

The concern of the Clayton school children's parents prompted the school board to request an investigation into the future safety of the site. An initial report by Federal Emergency Management Agency Public Assistance Specialist LaRue Bevington, following a December 14th FEMA team inspection, identified the site as "extremely hazardous." A subsequent report by Bureau of Land Management geologists George Babits and Dan Bartholme, does not refute Bevington's report, however, neither does it suggest that there is any "imminent hazard."

"Because of the nature of the geologic processes, it is impossible to make any definite statements as to whether or not another earthquake would cause additional rockfall. It is probable that just the natural weathering processes pose an equal hazard," they wrote. The report continues to say that, "There is no visible evidence suggesting that the recent earthquake has in any way reduced the overall stability of the cliffs above the school. Perhaps one of the best indicators of the hazard is what has happened in the past. The site has sustained the shaking of two major earthquakes in the past 25 years without injury or serious damage."

Bartholme and Babits suggest in their report that judgment on the potential for future threatening rockfall be reserved until after the spring thaw when a thorough examination of the rocks and the effects of the thaw can be made.

The two BLM geologists further suggest in their report that, "While there is no way that the reoccurrence of the rockfalls can be anticipated, there are several things that can be done to help reduce the possibility of injury from the falling rocks."

Preventive Measures

Preventative measures they suggest include surrounding the school with an eight foot high chain link fence, with straw bales stacked halfway up the fence along the uphill side to absorb the impact of large rocks; removing threatening rocks by blasting or barring them down every two years or so; and rock bolting chain link fence to unstable areas.

Bartholme and Babits caution, however, that the cost effectiveness of any preventative measures should be carefully evaluated before initiating them.

Local School District Superintendent Dr. Terrell Donicht, said Monday that the BLM geologists' report was "more positive than I expected. They gave no indication of any urgency whatsoever."

According to Donicht, the school's equipment will be moved to the Yankee Fork district building Monday, with classes for the 39 kindergarten through third grade students resuming on Tuesday.

Wait and See

The school board will then assume a "wait and see" position until after the spring thaw, Donicht said.

"We'll have somebody go up there in the spring," Donicht said, "and examine the area closely and make recommendations at that time."

"We're being cautious about abandoning the building," Donicht added, "and taking all the steps we feel we can and should take before we completely abandon the site."

[Challis Messenger; February 2, 1984]

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MACKAY WILL GET A NEW SCHOOL

By Molly O'Leary-Howard

A new high school is in the offing for Mackay following last October's earthquake. The present school, which housed 137 students in grades 7-12, was damaged during the quake which rocked Custer County October 28. Initial inspection of the building by federal engineers indicated that the building was not irreparably damaged, and \$1.3 million was allocated by the Department of Education for repairs.

Aftershocks Take a Toll

Continued aftershocks, however, have taken their toll on the brick facility built in 1955. It was announced last Thursday that a subsequent inspection by federal engineers has resulted in condemnation of the main portion of the facility.

The auditorium and library, added on in 1980, survived the quake without significant damage. The steel construction addition will be left intact with the new school built on. Mackay School District Superintendent John C. Meek called the recent DOE decision "a wise one", adding that the initial offer of \$1.3 million for repairs was merely a "band-aid approach" to the problem.

"I think it's a wise decision--it needed to be. Our building is in bad need of repair and the cracks just keep getting wider," he said. "The expense of fixing the building is much greater than building a new one, considering the end results."

A Smaller School

Based on federal regulations and state guidelines, Meek said the present structure of approximately 25,000 square feet will be replaced with a smaller facility. Federal regulations dictate that a new building must either be equal in size to the former structure or meet the state's 130 square feet per student requirement, whichever is lesser.

Meek estimates that a new high school can be built for approximately \$1.6 million, just \$300,000 more than had previously been allocated for repair of the structure. According to Meek, the \$1.6 million figure is based on a construction estimate of \$60 per square foot. August 1985 is the target date the district is shooting for to complete the new building--if all goes well. The district is presently looking into the leasing of mobile classroom units to house the students until the new school is finished. In the interim, students are attending classes in the high school library and auditorium, the elementary school, the LDS church and "just about anywhere we can put them," Meek said.

[Challis Messenger; February 9, 1984]

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AREA RESIDENTS GET RUDE AWAKENING

By Molly O'Leary-Howard

Custer County residents were rudely awakened early yesterday morning by a 5.2 tremor that was felt as far away as western Montana and Spokane, Washington.

Just as area residents were beginning to settle into "quake complacency"--having felt few if any aftershocks in the last couple of months-- Mother Nature decided to give everyone a jolt. Few residents can claim to have slept through her pre-dawn antics, and the general alertness of those that can is highly suspect.

Although preliminary information has established the magnitude of the early morning tremor at 5.2, several sources believe it will be upgraded to a 5.5--6.0 once all the data are in.

Near Lime Creek

The first tremor was felt at 3:46 a.m. and was centered approximately 10 kilometers beneath the earth's surface near the mouth of Lime Creek, about 10 miles southeast of Challis on US Highway 93. The epicenter of yesterday's main tremor was along the Lost River Fault. Two other significant aftershocks occurred yesterday morning--one at 3:53 a.m. that measured 4.0 on the Richter scale and another at 7:34 a.m. that checked in at 3.6.

Up to 14 Aftershocks

Area residents report feeling anywhere from one to seven of Wednesday morning's tremors, while several individuals report evidence of up to 14 aftershocks based on home "quake-ometers" (hanging plants, rattling windows, fine china quivering, etc.). In fact, Ricks College earthquake expert Ed Williams reported that one to two aftershocks per minute were being recorded by seismographs there.

Effects Minimal

Effects of yesterday's tremors appear to be minimal. Both Wise Buy and Village Square grocery stores in Challis report minor damage with only a few items having crashed kamikaze-style to the floor. Several people report broken dishes, bottles, and other knick-knacks, and a few rocks managed to tumble down the cliffs on Challis' northwest edge. Clayton Silver reported a slight increase in the flow of water into the mine's underground shafts, but nothing in comparison to the deluge they experienced after the October 28th quake. According to Bureau of Land Management geologists there is no apparent change in the flow of Lawson and Sulphur Creeks in the Pahsimeroi Valley, both of which were notably affected by last year's quake.

Tim Ingram, Warm Springs Ranch, reported that the warm springs water had a milky appearance, but no further increase in its flow was apparent.

Aftershock

To the surprise of many, yesterday's tremor is considered an aftershock of last October's quake. The magnitude of the October 28th earthquake has been adjusted upward to 7.3. In comparison yesterday's aftershock of 5.2 was only .79 of one percent as intense.

[Challis Messenger; August 23, 1984]

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CUSTER COUNTY CONTINUES TO QUIVER AND QUAKE

By Molly O'Leary-Howard

Custer County's most recent tremor activity has geologists intrigued, and once again seismographs are being strategically placed along the faultline.

According to Anthony Crane, a geologist with the United States Geological Survey (USGS), ten portable seismographs have been placed from Double Springs pass on the south, to the northeast side of the Lost River range in the Pahsimeroi Valley on the north. Additional seismographs have been positioned in the area by University of Utah geologists. Seismographs placed in the area immediately following the October earthquake were removed before the onset of last winter.

40-50 Per Hour

According to Crane, as many as 40-50 aftershocks per hour are being recorded on the newly stationed seismographs. Although aftershock activity following the October 28th 7.3 earthquake is expected to last for some time--up to five years according to some sources--last week's main tremor is considered unusual, Crane said.

"It isn't clear what has stimulated this new burst of activity," Crane said. "The pattern is unusual. The common pattern one expects is fairly large aftershocks immediately following the main tremor, which diminish in size and intensity with time. It is unusual to have such a strong one so long after the main earthquake."

Crane was quick to add, however, that the only predictable thing about earthquakes seems to be that they are, at best, unpredictable.

"It's like weather forecasting," Crane said. "You're never sure exactly what's going to happen. All you can do is make an educated guess. Each earthquake is entirely different, but hopefully if you study enough of them you might be able to at least know what different types of patterns can be expected."

Scarp Mapping

Crane was camped near Double Springs Pass when last week's 5.2 tremor rattled county residents awake. According to Crane, who was sleeping on the ground, the tremor felt there lasted approximately 10-15 seconds. Crane has been in the area the past couple of weeks working with a team of USGS geologists mapping the Lost River Fault scarps in detail.

"We're doing careful measurements in certain places that we'll keep track of over a period of years so that we can get a better idea of how scarps erode and change with time," Crane said. "The reason for that is, there are other old scarps throughout the western United States and, if we can have a better idea of how these new ones are modified by geologic processes, then it may give us an idea how young or old some of the other ones are."

According to Crane, no significant afterslip has occurred along the Lost River Fault as a result of aftershock activity.

Unique Study Opportunity

Recent geologic activity in Custer County has been a veritable "gold mine" of information to geologists that will be useful in understanding both past and future movement of the earth, according to Crane.

"This has been a real unique opportunity for scientists to have a much better understanding of the characteristics of fault movement in this part of the United States," Crane said. "It's like paleontologists finding a fossilized dinosaur. If you found one, then

you wouldn't have to just look at bones and guess, you'd have a whole, fresh specimen to study.

"The last opportunity we had was in 1959 at Hebgen Lake in Montana, 25 years ago," Crane continued. "This earthquake is probably going to be the most intensely studied and monitored earthquake in the world by the time all the work is completed."

[Challis Messenger; August 30, 1984]

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CLAYTON STUDENTS WILL GET A NEW SCHOOL

Clayton elementary students will have a new school by August, 1985, thanks to School District 181 patrons' overwhelming support of a \$100,000 tax levy override Tuesday. Of the 271 patrons who voted, 232 approved the override, while 39 were opposed. The site of the 60 year old frame and brick construction school, located at the mouth of Kinnikinic Canyon, was abandoned by the district as unsafe following last October's earthquake. Since then, the future of the 33 Clayton Elementary students has been up in the air. The board of trustees proposed busing them 60-plus miles round trip daily to Challis, while the parents strongly opposed that solution. In a special election July 24th, district patrons decisively supported keeping an elementary school located in the Clayton area, with the question of funding settled in Tuesday's override election.

Results Surprise Residents

"It tickled me to death to tell you the truth," commented Lisa Hurless, a Clayton parent. "I think it's great the people supported us the way they did. It was worth all the work."

Marilyn Brower, another Clayton patron, was surprised to hear the override had passed. She, like several others, had heard reports from Boise and Idaho Falls TV stations that it had been defeated.

"That's absolutely wonderful!" she said Wednesday morning when told the measure had passed. "I'm so proud of all the patrons. I was feeling pretty sad when we heard it didn't pass. Having a new facility will be great. I'm glad they used some common sense. This is something that everyone can live with."

Land Acquisition Comes Next

According to Superintendent Gary Henderson, efforts will get underway immediately to acquire land for a school site.

"I have to meet with Bruce Wright and Bill Satathite Friday," Henderson said, "and discuss the mancamp site. That appears to be the most logical site for the new school. Price-wise it's going to fit our bill better than any other."

January is the projected date for the letting of bids for construction of the new school.

According to Henderson, construction should begin in the spring and be completed in time for the beginning of the 1985-86 school year in August.

"I'm very happy about the election," Henderson said. "It shows the people in District 181 support the school system."

[Challis Messenger; September 13, 1984]

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Summary of Newspaper Articles

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Challis Messenger (Special Edition) – Challis, ID (last date searched 11/04/1993)

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- Headline: [Red Cross Offers Assistance](#)
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Headline: [Where Were You When The Earthquake Hit?](#)
Date: 11/10/1983
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Headline: [A Small Town Photographer Views The Big City Press](#)
Date: 11/10/1983
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Headline: [The Quake Of '83; Looking Back Ten Years Later](#)
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Headline: [Agencies Provide Disaster Relief](#)
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Headline: [Earthquake Recollections](#)
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[Info Categories:](#) E, H, P

Headline: [Ingrams Develop Hydropower Plant](#)
Date: 11/04/1993
[Info Categories:](#) A, G, I

Information Categories

A -- Aid:

provide medical services, shelter, donations, loans, advice, encouragement, implement safety measures

B -- Building Damage:

structure itself plus windows and chimneys (typically damage visible from outside the building)

E -- Earthquake Description:

where, when, duration, direction, sound, motion, number and timing of aftershocks

G -- Geologic Effects:

changes at the Earth's surface, fault scarps, rockfalls, landslides, ground cracks, ground subsidence, sand boils, water spouts; effects on springs, lakes, wells

H -- Humor:

I -- Impact:

changes in daily routine; rumors; influx of reporters, politicians, cost in dollars

L -- Lifelines:

effects on transportation: roads, bridges, railroads, airports

effects on communications: telephone, telegraph

effects on power, gas, water, and sewer lines

effects on dams

N -- Nonstructural Effects:

effects on plaster, furnishings (typically damage or rearrangement of furnishings visible inside a building)

P -- People:

effects on and responses to, during and after; deaths, injuries, near misses

R -- Recovery:

clean up, rebuild

S -- Scientific:

explanation of the day

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WHEN THE EARTH MOVES

By Jim Connor

The surface of the planet Earth is in endless motion. The rocks of the continents are made up of lighter stuff than the molten rocks of the mantle on which they float. Great heat and pressure within the mantle, miles below the earth's surface, cause the continents to move relative to each other. This motion seems very slow relative to a human lifetime, less than inches a century but planet Earth has a lot of time.

In places these forces tear the earth's crust apart and the molten rock, magma, moves to the surface from volcanos. Continental masses may collide head on, or bump and slide past each other. There are analogies to be seen in spring break-up of ice on a river or on a lake on a windy day. The ice cracks and breaks, wind causes great piles of ice on the windward shore. Eons ago India and Asia collided, and great heaps of rocks pushed up. We call them the Himalayan Mountains.

Similar forces are at work in Central Idaho.

Rock is an elastic substance. That means it resists being bent, twisted, stretched or compressed. If enough force is applied it suddenly breaks. When this occurs in a huge mass of rock in the earth, an earthquake is produced.

Faults

The zone of rock breakage is called a fault. If forces in the earth continue to act on the rock in a fault zone, it may shift again, either up and down or sideways, or both. Such faults are called "active faults." Some faults remain active for millions of years, producing earthquakes of large magnitudes many years or even centuries apart.

Faults are very common features in mountainous areas. One can easily count 100 faults on the geologic map of the Challis 2° Quadrangle published by the Idaho Bureau of Mines and Geology in 1979. Others are buried and have yet to be found. It is unlikely all these faults are "active" but many of them are. A number of small earthquakes reported from the Stanley Basin, Bull Trout Lake and Lowman areas this summer are the result of movement on faults in those areas.

The Mount Borah Fault

Some faults extend for many miles. The well known San Andreas fault in California is one example. Dr. Spencer H. Wood, geologist at Boise State University and other geologists believe a large fault extends along the western base of the Lost River Range

from Arco to north of Challis, a distance of 90 miles. This fault has not yet been named but the "Mount Borah Fault" seems likely. Monday evening Dr. Wood stated, "A very similar fault exists along the western base of the Lemhi Range in the Little Lost and Pahsimeroi Valleys. It is probable this fault is also active."

Prior to the major earthquake on October 28, 1983, the Mount Borah Fault was know to be active. Dr. Wood reports numerous small tremors of magnitude 3 or less have been recorded in recent years. "Such tremors are common to many fault zones," he said. They are too common to be used to predict a major earthquake.

The Epicenter

Were it not for friction, the forces acting on a fault would cause slow steady movement. Broken rock under pressure does not easily slip past itself. As tension builds on a fault, the rock is deformed slightly and finally at some point, the epicenter, the rock gives way. In a large earthquake cubic miles of earth suddenly moves. This creates shock waves far

greater than any explosive man has ever created. These shock waves may circle the earth several times. They produce what is experienced as an earthquake. As a general rule, the deeper the epicenter is located, the farther away is the earthquake felt. Hence, it can be concluded that the Mount Borah epicenter was at great depth, although its exact position is not yet known.

The Shock Waves

Several types of shock waves are generated during an earthquake. The primary wave is a compression wave. It is the type wave that a miner tries to create when blasting rock. It is "explosive," and moves through rock at a speed of four miles per second. When the energy of the primary wave escapes into the air, it produces the roaring sound many people report hearing during an earthquake. Primary waves pass directly through the earth and can be recorded on the other side.

Secondary waves cause up and down oscillation of the ground. These produce much of the shaking sensation people feel. Although many people report seeing ground waves, some geologists doubt they exist. Secondary waves move at the rate of two miles per second.

Two other waves are generated--Love waves, named after mathematician A. E. H. Love, and Raleigh waves, named after Lord Raleigh. Both these are complex surface waves which add to the vibrations felt

The Seismograph

An instrument of much value in studying earthquake intensity and behavior is the seismograph. The seismograph consists of a motionless pendulum, a rotating drum fitted with a sheet of paper, and a device to mark the paper. The pendulum resists motion when the ground moves in an earthquake, but the drum shakes with the ground. The marking device makes a trace of the relative motion of the drum on the paper. The amount of deflection from the center line on the drum is a measure of the intensity of an earthquake. Great accuracy in modern seismographs is obtained by mounting a mirror on the pendulum and reflecting a thin laser beam from the mirror to photographic paper on the drum. Modern seismographs are also fitted to a very accurate clock so instruments around the world can be correlated to each other.

A trained seismologist can distinguish the various type waves generated in an earthquake.

Locating Epicenters

Because the strong primary and secondary waves travel at different speeds, a single seismograph is sufficient to determine how far away an earthquake occurred. There is no information from what direction the shock waves come. From a single seismogram it can be determined an earthquake occurred at a certain time on a circle at a fixed distance from the seismograph.

A second seismograph placed at another location some distance away produces a second circle. This enables geologists to define two places where the earthquake may have occurred--the points where the two circles intersect. A third seismograph station enables geologists to pick the exact spot--the single spot where all three circles intersect.

With the aid of computers and satellite communications, dozens of seismograph stations may be used in calculating the epicenter, and the location is sent to television stations within minutes.

Earthquake Triggers

The causes of earthquakes are fairly well understood. What triggers them at a certain instant is, and has been, the subject of scientific study, intelligent folklore, myths and pure

bunk. It is possible, for instance, that a cow stomped her hoof and that tiny amount of energy was sufficient to trigger the Mount Borah quake. It is unlikely.

There are indications storm fronts with changing barometric pressures might trigger some of them. Dr. Peter Isaacson, a geologist at the University of Idaho, speculates heavy rains last summer might have triggered the Mount Borah quake. "Rainfall may have lubricated the fault zone," he said.

Dr. Nick Saum, a geologist from Golden, Colorado, believes the moon plays a role. The same forces that produce the tides act upon the land. Saum believes earthquakes are more likely to occur near new or full moon when the tidal forces are strongest. There seems to be some correlation to that, but on October 28, the moon was at the third quarter.

Seismographs "Off Scale"

Rumors persist the Mount Borah quake sent seismographs in Boise and at Ricks College "off scale."

The Richter scale has no upper limit. In that sense "off scale" is impossible. Near an epicenter the various waves are together, and reinforced echo waves bounce off nearby rocks. A seismograph near the epicenter would have yielded no meaningful information. The seismogram from Mackay would have been a crazed jumble of squiggles.

"Large earthquakes are rare," states Spencer H. Wood, geologist at Boise State University, "so some seismographs are set for increased sensitivity. This makes it possible for seismologists to study the small earthquakes that are always occurring. When a large earthquake, such as at Borah occurs, these instruments go "off scale." Other seismographs set at lower sensitivities are not affected."

A common example of the same thing is when a C.B. operator turns down the squelch dial and turns up the volume, he is increasing the sensitivity of his radio. He is trying to receive weaker signals. He also receives more static.

Should an overpowered transmitter begin to broadcast nearby, he would be blasted out of his rig. His receiver would have gone "off scale."

Hydrology

Perhaps one of the most significant aftereffects of the Borah quake will be the effect on springs and groundwater. The warm springs on the Ingram Ranch near Challis has completely dried up. If the flow does not return, hundreds of acres of hayground will be lost. Wells near Mackay have been reported to have up to 30% more water. Flooding on farmground near Chilly Butte has occurred.

The Mount Borah earthquake has changed the flow of groundwater in many areas. Some will benefit, others will lose. Complex legal questions are apt to arise concerning water rights. How does a rancher prove "his" water is producing the new spring on his neighbor's land? How would he get it back? Where did the Ingram Ranch water go? Perhaps it will return. Perhaps studies will find it. Perhaps it will remain a mystery.

The Quake: Some Benefits

Soil scientists from the Salmon office of the Bureau of Land Management and from the Challis National Forest have a 10 to 15 mile long scarp near Mount Borah on which to study the soils.

The fault area is easy to reach and is not in a heavily wooded region. Access to study will be fairly simple. From these studies geologists will gain more insight into the nature of major earthquakes. Prevention will remain elusive for many years, but prediction of major earthquakes will improve as a result of these studies.

Carolyn Wurts, one of 30 students from Boise State University camped on Doublesprings Road last weekend summed up the scientific importance of the Mount Borah quake, "It's a perfect example to see first hand what happens. It's great! I learned a lot from being here."
[Challis Messenger; November, 1983]

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EVANS SURVEYS DAMAGE IN CUSTER COUNTY

By Molly O'Leary-Howard

Governor John Evans arrived at the Challis airport at 2 p.m. Friday following the earthquake that claimed two lives here and shattered the town of Mackay. The governor surveyed the damage to Challis and then met with county commissioners Mel Meyers and Frank Marraffio. At 3 p.m. the commissioners passed a resolution declaring a county-wide state of emergency following the quake. Evans and the commissioners proceeded to Mackay from Challis to assess the damage there. Their first stop was the Mackay reservoir.

The Dam Is Safe

"The dam is safe," Evans reassured concerned residents. There had been rumors buzzing about all day that the dam, located just north of the town of Mackay, had a crack in it and was going to break.

"I met with Mr. Jensen who is the president of the canal company, and also with Norm Young who is our state water engineer division director and they both assured me that, even though there was some turbid water to begin with coming out from the toe of the dam and it worried them for awhile, it's now cleared up. The flows are uniform and even and it's what they would expect to flow from the toe of the dam," Evans said.

"Mr. Young showed me some of the cracks in the dam itself but reassured me that the dam was constructed many years ago far wider than was necessary and it's completely safe. We're going to have engineers monitoring that dam for the next several days to make sure that everything is all right. So we can assure the people of Mackay and the people of Arco and all of the people of Idaho that the dam is safe and will hold," Evans added.

I.N.E.L. Site Okay

According to Evans, Senator James McClure had been in touch with officials at the Idaho Nuclear Engineering Laboratory site, located approximately 40 miles south of Mackay, to assess possible damage there. Evans told reporters that McClure had reassured him that there was no serious damage at the site and no danger of contamination from nuclear waste stored underground.

Although Evans immediately declared the county a disaster area on the state level, he has not as yet asked President Reagan to declare a disaster on the federal level. According to the governor's press secretary Jean Terra, Evans will decide later this week whether or not to ask the president for federal disaster declaration, based on damage assessments presently being gathered.

Financial Assistance

Red Cross volunteers, the County Agent's office, the Agricultural Stabilization and Conservation Service, and the Small Business Administration, as well as other state agencies are working now to more exactly assess the damages from last Friday's quake. Initial estimates were set at \$2.5 million, with \$1.5 million being the figure for the Mackay area alone.

According to Evans, "There are certain programs that are available in a disaster circumstance even though we don't have a presidential disaster.

"They've changed those Federal Emergency Management Administration rules over a period of time and we're hopeful we'll be able to secure help to these businesses that are going to have to have some borrowing capacity to rebuild a business to get back into operation," Evans said.

"I'm optimistic that it (aid) will be done. I've been predicting that both the SBA and the Farmer's Home Administration would have resources available in this emergency, and our congressional delegation has done everything they can to assure us that they will trigger whatever help is available.

Public Facilities Are First Priority

"The first thing, of course, is to take care of the public facilities. We've had some substantial damage to our public buildings, our schools, and we're going to be helping them in every way that we can to assess that damage," he added. "That's where money may be available to help local governments rebuild if necessary their public facilities or repair those public facilities to make them safe."

"We particularly worry about our schools because of the critical importance to educate our children," Evans continued. "So we'll be working very closely with the local government and the Federal Emergency Management Administration and I understand they have a team of experts coming in right now to make the assessment of the damages and to determine what can be made available to the people."

[Challis Messenger; November, 1983]

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RED CROSS OFFERS ASSISTANCE

By Molly O'Leary-Howard

Red Cross disaster relief centers have been set up in Challis and Mackay to assist area residents affected by Friday's earthquake.

According to Bob Howard, information officer for the agency's disaster relief effort, a central disaster relief center has been set up at the Northgate Inn on U.S. 93, just north of Challis. In addition an auxiliary center was opened in Mackay on Tuesday at the American Legion Hall.

Howard said they are urging all residents who may need some assistance, financial or otherwise, to get back into their homes to contact the volunteers at the two disaster service centers.

In addition to any immediate help people may need, "We'll work with families to assist them in going through the federal process to acquire whatever aid they may need,"

Howard said in a telephone conversation Monday.

According to Howard, the preliminary survey figures indicate that as many as 200 area families may require assistance as a result of Friday's quake. The immediate area affected by the early morning tremors is estimated to be 87,500 square miles, he said.

"Because of the vastness of the area," Howard added, "it's very difficult to get a good definitive survey of the damage and the number of people affected. Everything is so spread out we need to get the word out so we can hear from those people who need help."

According to Howard, a multitude of assistance will be available to people and businesses in the area. Federal assistance will be co-ordinated through the Federal Emergency Management Agency. Loans to businesses may be available through the Small Business Administration, and assistance in the form of recovery of taxes paid out in past years may be available through the IRS. Low interest loans may also be available through the Farmers Home Administration.

The Red Cross has been collecting data from area business people and residents in an attempt to facilitate efforts to obtain federal disaster assistance for the area.

The Mackay Red Cross disaster center will be open from 9 a.m. to 5 p.m. through the end of this week. The Challis center will continue to remain open after that to provide any additional assistance people in the area may need. The number to contact in Challis is 879-2423.

[Challis Messenger; November, 1983]

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FRIDAY MORNING EARTHQUAKE JOLTS COUNTY

By Molly O'Leary-Howard

The strongest earthquake to hit the continental United States in nearly a quarter of a century, rocked through Custer County at approximately 8:06 a.m. Friday.

The quake, measuring 6.9 on the Richter scale, left millions of dollars of damage in its wake and two small Challis school children dead.

Killed were Tara Leaton, 7, and Travis Franck, 6. The two were killed instantly when debris from a stone building on the northwest end of Main Street fell on them as they were walking to school.

A Mackay woman, Eleanor Williams, received severe bruises but no broken bones when she was hit by bricks falling from a building in Mackay.

Williams had just parked her car behind the Idaho First National Bank in Mackay when the quake hit. She reported she got out of her car when bricks began showering her vehicle and headed for safety. She was injured by the flying debris which struck her in the back and legs. Williams' car was demolished.

Heavy Property Damage

The town of Mackay was the hardest hit in terms of structural damage. Mackay Mayor Oval Caskey estimated that approximately 80% of the businesses there were severely damaged. Initial estimates of the destruction place the figure at \$2.5 million county wide, with \$1.5 million being the estimate of damage in Mackay alone.

Challis received considerably less damage than Mackay, with boulders from surrounding hillsides wreaking the most havoc.

The northeast corner of the old Challis high school crumbled at the top, sending mortar and stone to the ground. The stone smokestack of the old building received extensive damage when the mortar was knocked loose by the quake. Large cracks can also be seen in the building's stone facade.

Visible damage to the inside of the building amounted to cracked and fallen plaster, displaced ceiling tiles, light fixtures hanging down from the ceiling and broken glass in the trophy case. According to Dr. Donicht, the overall structural damage to the building was extensive.

Several homes in the Challis area received heavy damage when boulders from adjacent hillsides sloughed off with the tremors.

Homes belonging to the Harry James family, Rob and Pam Markley, and the John Austins and Loyd Todds, all built at the base of large bluffs, were struck by airborne boulders. A house rented by Georgia Smith, just across from the Markley residence, narrowly escaped serious damage when a huge boulder landed in the front yard, just grazing the porch. The Bill Yacomella family lost four of their six pigs when a boulder bounced into the pig pen, killing three instantly.

Along with dishes and knick-knacks "jumping" off of shelves in people's homes, a few thousand dollars worth of groceries crashed to the floors in local grocery stores. Estimates of inventory losses alone were \$3 5,000 at both Wise Buy and Village Square stores, with the Garden Creek store reporting total losses of between \$500-1,000 for both of their locations.

Mine Damage

No serious damage has been reported by Cyprus Thompson Creek mine, but Joyce Rovetto estimates that a third of the Clayton Silver mine has been flooded by water.

According to Rovetto, three times the normal amount of water has surged into the mine's underground shafts and they have been flying in pumps from "all over" to help alleviate the problem.

Fortunately, no one was underground when the quake hit. According to Rovetto, the crew was running late and would normally have been underground by 8 a.m., six minutes before the tremors began.

Highway Closed

U.S. Highway 93 was temporarily closed immediately following the quake when several cracks in the road surface were discovered. The road was opened to light traffic around 1 p.m. Friday, but heavy trucks are still being prohibited from travelling that route. Fissures were also discovered between the highway and the steep bank on its western edge at Willow Creek summit, resulting in one-lane traffic on that stretch of the road.

Geologic Scars

Besides the temporary damage done to homes and businesses in the area, considerably more permanent geologic scars have been carved in the earth's surface.

A 15 mile long fault along the Lost River Mountain range is testimony to the severity of Friday's quake. Starting at the epicenter of the quake near the base of Mt. Borah, the fault stretches northwest to Willow Creek Summit, and southwest to within approximately 15 miles of Mackay.

The Double Springs Pass road just north of Borah has a 20-foot wide "crack" in it, with a measured displacement drop of approximately eight feet. Geologists in the area speculate that the Lost River Valley may have dropped an average of 10 feet overall. It is thought that Borah Peak, the highest mountain in Idaho, gained approximately 15 feet in elevation as a result of Friday's activity.

In addition to visible changes on the earth's surface such as the fault line, many less visible underground changes occurred as well.

Aquifer Changes Noted

A change in the earth's aquifer is evident from the complete disappearance of some water sources and the simultaneous emergence of others.

Chilly Butte, located across the highway southwest of Mt. Borah, sprang several "leaks"--initially gushing several feet in the air. Underground artesian springs burst through the earth's surface near the butte causing severe flooding of ranches in the area. That water has since subsided.

In addition to water springing up out of the earth in the Chilly area, a warm springs located on the Will Ingram ranch has completely disappeared into the ground without a trace.

The effects of Friday's quake will be felt by this area for years to come, not just in terms of material damage to homes and businesses which can be repaired, but far more devastatingly in terms of the tragic loss felt by all of two innocent lives.

[Challis Messenger; November, 1983]

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QUAKE CLAIMS TWO IN CHALLIS

By Molly O'Leary-Howard

The lives of two small Challis school children were claimed by last Friday's quake. The children, seven year old Tara Leaton, and six year old Travis Franck, were killed instantly when debris from an old stone building on the northwest end of Main street fell on them as they were walking to school.

Darlene Coates was on her way to work at the Custer County Bank, just down the street, when the tragedy happened.

"I had gone to City Hall," she said, "and was driving down to the bank. Tara started across the street in front of me and then Travis called her back. I continued on then and got as far as the liquor store when the quake hit and the mountains started tumbling.

"I glanced back and the building toppled and there was nothing I could do," she added gravely. "It happened so fast--it was over before you could think."

Mrs. Coates ran to the bank for help, and others ran out from surrounding buildings after the tremors had quieted.

Clayton Severe, a bank employee, was one of the first to arrive at the scene to help.

"It was a terrible task," he said. "Everything was done without thought except to get to those two kids. It's been very hard on the families--Tara was my niece."

"I thought afterward, when I had time to collect my thoughts, that it was really great the number of people that responded and helped," he added. "I guess that's part of being from a small town--everyone pulls together."

Allen Hardman, a Challis businessman, was another of the many who responded to the fear that the children had been buried by the fallen debris.

"We came out of the building and there was a lady hollering that there were some kids buried there," he said. "Both the mothers were looking for their kids and knew they should be somewhere near because they had just left home."

According to Dave Delimont, who had been with Hardman at Challis Transportation just across the street from the shattered building, 15-20 people ran to the scene and immediately began throwing rocks out of the way. One witness said she was amazed afterwards at the speed with which everyone worked and the size of rocks they moved by hand.

"We were all hoping against hope that they weren't there--that it was all a terrible mistake," Hardman said sadly.

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A HISTORICAL TREASURE OR A MENACE

The Old Rock Building

By Peggy Parks

When does a building cease to be of historical significance and become a public nuisance? The collapse of the front of the old rock building in Friday's earthquake poses such a dilemma.

The owner of the building maintains that the building is registered with the historical society and, therefore, should be preserved.

A local contractor, who was on the scene Friday, maintains that the building violated many contemporary building code standards, and that if the city had a building code on its books, the building would have been condemned and torn down years ago.

Original Townsite Is a Historical Site

According to Mal Spooner, director of the Challis Museum, the top part of town, from Seventh Street up to First Street and north and south from Garden Creek to Butte Street, the original townsite of Challis, has been classified as a historic site. Any building 50 years old or older is considered of historical interest. The old rock building is one of 22 in this part of town that has been registered with the historical society.

The rock building, constructed in 1879, is one of the oldest buildings in Challis. It was first owned by George Shoup, who later became the first governor of the Territory of Idaho. The stones used in the building were quarried from the bluffs north of town. This same rock was used in several other buildings in town--the old high school and the building housing the Challis Museum are two examples.

In 1916 the U.S. Geological Survey placed a survey marker in the left cornerstone of the building marking the elevation at 5281 feet above sea level. This marker is still listed as a reference with the U.S.G.S.

Friday's Damage

With Friday's quake the top front of the building collapsed, and there is a vertical crack on the west wall of the building where the front face has separated from the rest of the structure.

In a special meeting Friday afternoon the city council declared the front of the building a public hazard. This allowed the city maintenance crew to remove most of the remaining blocks from the building's front. It was an action that was necessary to assure public safety in the event that aftershocks knocked more blocks loose.

A History of Disasters

Friday's damage to the building is the latest of a series of events that have altered the building's integrity over the years.

Twenty to 30 years ago a truck owned by Challis Transportation lost its brakes, rolled downhill and crashed into the west side of the building. A large portion of the rock on that side of the building was knocked loose. Rockwork was replaced, but close inspection shows that the replacement rock was not totally identical to the original.

Fifteen or twenty years ago the rock wall on the east side of the building collapsed of its own accord. The Messenger, which is located next door, formerly had a window in the wall facing the rock building. According to Dick and Lou Swindell who owned the Messenger at that time, rocks and debris came cascading through that window onto the floor when the east wall of the rock building came down. Fortunately no one was hurt in that incident.

After the collapse of the east wall, all of the original rockwork was removed and the entire wall was replaced with cinderblock.

Seven or eight years ago the front room of the building was being used for storage and several freezers were being kept there. The freezers apparently overloaded the circuits of the old wiring and a fire broke out, which gutted the inside of that portion of the building. The inside front room was subsequently remodeled.

Other changes in the building's original state can be noted. A cinderblock addition was built onto the back at some time in the past, and the iron doors that originally were used to cover the doors and windows at night have disappeared. The roof is corrugated steel attached directly to the arch supports. It's unlikely that corrugated metal was around in 1879, so the original roof was probably replaced in recent years.

Now the building stands virtually stripped of its original historical splendor. Most of the original outside rockwork is gone, and much of the interior has been changed.

The rock building is one of the oldest in town, but it's hard to think of it without remembering the old story about George Washington's hatchet. A man claimed to have the hatchet that George Washington used to chop down the cherry tree. Over the course of the years the head had been replaced twice and the handle three times, but otherwise it was the original hatchet.

Should the Building Be Saved?

The rock building is listed in the National Register of Historic Places. According to Don Watts, an urban planner for the Idaho State Historical Society, the listing means that the building has historical interest, but the historical society does not presume to dictate to the owner of such a building what he can or cannot do with the property.

Several years ago the Idaho Historical Society circulated information to owners of old buildings in this area that told how to get the buildings listed in the National Register. Once listed, the owners were eligible for a 50% reimbursement for money spent to restore the building. In order to qualify for funds certain guidelines had to be followed, and the Historical Society had standards that had to be met before any remodeling could be approved.

According to Watts, the state has no funds for restoration projects this year. The Historical Society will probably send someone to Challis within the next week or two to look at the building, but even if they do determine that it is structurally sound and of interest to the society, there is no money available for restoration.

Rebuilding Is Expensive

The owner of the rock building has several options. He can totally restore the building, he can just put on a new front, he can tear the building down or he can just let it stand as it is. Restoration of a building, if it is to be done right, is expensive--very expensive. Dr. Terrell Donicht, Challis School Superintendent, estimates that it will cost almost as much to repair the damage done to the old high school as it would cost to build a totally new building.

The damage done to the front of the rock building in Friday's quake is highly visible. It is yet to be determined if the rest of the building is structurally sound. I have second thoughts about the remaining west wall, especially considering that fact that the east wall had a fault that caused it to spontaneously collapse a number of years ago.

Whether the building is restored in a manner that would meet the approval of the Idaho Historical Society or just remodeled to meeting 1983 building standards, the project will be extremely costly. Since there are no matching funds available for historical restoration, it is unlikely that the owner will choose this option.

It would probably be cheaper for the owner to just tear the building down and put up a new one. If the Historical Society decided that the building is still of interest to them, the alternative would probably be met with cries of protest from people interested in preserving historical buildings.

More than likely what will happen--what usually seems to happen in Challis--is that the building will either continue standing in its present state and decay further, or at most it will receive a few cosmetic patches.

The owner can if he wishes, put a new front on the building and patch any cracks in the plaster. The City of Challis currently has no building code that regulates either new construction or remodeling. A lot of things can be done relatively cheaply that will improve the superficial appearance of the building, but there is nothing that says that the building must be rendered safe.

There is also nothing to prevent the owner from allowing the building to stand as is. If it is of historical interest, it probably won't be restored because of the expense involved. It may not be torn down either because of its historical interest. Without a city building code, there is no way to condemn the building and require the owner to tear it down.

Building Code

The city council has been approached before to adopt a building code, but the move has met with resistance in the past. The county recently adopted the Uniform Building Code, which is a national standard, but according to County Building Inspector Ron Bloxham, he has no authority to enforce the code in incorporated areas.

Preserving our country's history is a noble cause. Things that are part of our heritage, once destroyed, are gone forever. But, allowing a building to stand just because it is of historical significance is a crime. Making cosmetic improvements to an old building without giving any thought to the soundness of the basic structure is also undesirable.

The deaths of the two children when the front of the rock building collapsed Friday were tragic. We were fortunate that more people weren't involved. The tragedy emphasized the need, like never before, for the city to work toward establishing standards that might prevent future accidents of this type.

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CHALLIS IS A STALWART TOWN

By Mal Spooner

It was early Friday morning. The sun had just arisen in the rosy east. The air was still and the town was awakening to a new day.

Then a terrible rumbling and earth-shaking catastrophe struck with the speed of lightning. A large portion of a nearby cliff broke loose and cascaded from on high down into the town. Large boulders tumbled and rolled creating havoc in their paths, and coming to rest amongst the frail homes and some even crushing against the structures.

But the landslide wasn't the worst. A large stone structure shook madly and its heavy facade crashed to the street. Two innocent children, on their way to school, were too near the building, and the falling stones snuffed out their lives in a quick moment.

People rushed to the scene, tore at the stones, trying to rescue the children, but it was all too quick and too late. The scream of the ambulance and the sirens of the police told the townspeople that the earthquake was taking its toll.

In the following hours, people gathered at the corners, or stood mute in the street, exchanging meaningless small sentences of sorrow and compassion.

Then the helicopters, the planes, soaring just overhead, circling, their telescopic lenses reaching down taking the pictures of the disaster scene, the cameramen and television commentators posing and setting their scenic backdrops to prepare news items for the evening news, these new things in this quiet little town caused the shaken citizens to pause and watch, to answer a few questions, to wander off back to their homes to call loved ones, relatives, parents, and children in far away places to let them know they were all right, before the telephone wires got all jammed up with such problems as this nationwide news would generate.

It took a full day for the dust to clear from the air. It took a full day for the first shock of surprise and uneasiness to abate. It took more than a full day for the somber thoughts of the loss of two of our little people to really sink in.

Then Saturday was seen through. People were out looking over their chimneys, checking the foundations and other fragile parts of their homes. Some had little mementoes which now had to be thrown into the trash, too broken from falls from knickknack shelves, window sills, and places of honor. Picture frames needed cleaning of broken glass, and jars and cans had to be set aright in the cupboard.

The grocery store owners thanked the volunteers who came in to help set the myriad items back upon the display racks.

Sunday morning saw exceptionally large groups retiring to their churches to gather in prayer and deep common empathy for the grieved friends and relatives of little Tara and Travis.

When school re-opens two seats will be vacant. Young eyes will gaze at the vacancies and think and think and think.

Challis will go on. We will remember. We will rebuild. We will dry the tears. There was yesterday, and there is still tomorrow.

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TARA LEATON AND TRAVIS FRANCK

By Molly O'Leary-Howard

Long after the aftershocks of last Friday's quake are felt, the silent tremors in people's hearts for the families of Travis Franck and Tara Leaton will linger.

The community of Challis is deeply saddened by the loss of two of our children--our most precious resource. Such a tragic loss is felt by all in a small town like Challis, where family ties know no boundaries.

To all that knew them, Tara and Travis were like any children--full of life, full of laughter, and full of a love they shared with many.

Tara was a second grader at Challis elementary school, and a stranger to no one.

Evelyn Strand, Tara's teacher, described her as "a very special person."

"She just seemed to light up a place," Mrs. Strand said. "She just bounced through life with a smile for everyone."

Travis, a first grader, was described by those who knew him as a peacemaker. He was always the one to settle the disagreements that occurred between brothers and friends. Travis loved to read, especially about animals. One of his favorite pastimes was to go fishing with his dad. He was a quiet boy, one acquaintance remembers, but one who loved people and was loved by many in return.

There are no words that do justice to the loss shared by all in this community.

One woman echoed the thoughts of many when she said, "My heart just breaks for those parents. There's just nothing you can say that can compensate for the loss. Without a belief in God, it's awfully hard to accept something like that."

Another person summed it up by saying, "You just go crazy trying to answer the question 'Why?' "

**No man is an Island, entire of itself
Every man is a piece of the Continent, a part of the main
If a Clod be washed away by the Sea, Europe is the less,
As well as if a Promontorie were,
As well as if a Manor of thy friends or of thine own were
Any mans death diminishes me, because I am involved in Mankind
And therefore never send to know for whom the bell tolls
It tolls for thee.
John Donne**

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OLD HIGH SCHOOL ABANDONED AFTER QUAKE

By Molly O'Leary-Howard

The status of the old Challis high school building is still uncertain, but the prospects don't look good, according to District School Superintendent Dr. Donicht.

Brent Bailiff, an engineer with Bailiff and Associates, Pocatello, inspected the building Monday with Donicht, as well as the Patterson and Clayton elementary schools.

Damage to the two outlying schools was minimal. According to Donicht, the Patterson school suffered a few minor cracks, while the Clayton school was damaged by a boulder that left a foot by foot-and-a-half hole in the outside wall. Neither school will require major structural repairs.

The old high school, however, didn't fair as well.

Built in 1922, the building was not up to the shaking and rocking it underwent in last Friday's quake. According to Donicht, the entire stone front exterior is separating from the rest of the building. Fortunately, the two front wing walls were stabilized several years ago with bolts attaching it to the center of the structure. Cracks can be seen on the exterior and the northeast corner crumbled from the tremors.

Will Not Be Occupied Soon

Although the building has not actually been condemned, it is not occupiable, nor will it be without major renovation, Donicht said.

"The old high school is either damaged beyond repair, or damaged so badly that any repairs would cost a great deal of money," Donicht said. "No matter what we do, the old building will not be used this year," he added.

According to Donicht, Bailiff will prepare some estimates for the district based on Monday's inspection of the damage.

"He's going to give us some estimates on costs to either fix it so it'll be habitable, or to tear it down and replace it," Donicht said.

Donicht estimated that the figures for tearing the building down and replacing it with a 10 classroom facility for Junior High students would be in the neighborhood of \$1-2 million.

According to Donicht, "It would probably cost as much or more to restore the building if we had to bring everything up to code."

Asked where the money will come from to either rebuild or restore the structure Donicht replied, "I haven't the foggiest idea."

No Federal Funds in Sight

According to the superintendent, the fact that, as yet, Governor Evans hasn't requested that the area be declared a national disaster, means no federal disaster aid will be available to the district.

Donicht attributes the fact that the area has not been declared a federal disaster to a simple matter of dollars and cents. Initial damage estimates were set at \$2.5 million dollars--a "drop in the bucket" on a national scale. However, on a local, per capita scale the figure is overwhelming in terms of locally available resources for rebuilding.

Donicht expressed concern that, now that all the national news media have come and gone along with all the attendant excitement, the magnitude of the problem--other than to local people--has also diminished.

"When it was big news, everyone was right here," he said. "But now it's just old news as far as a lot of people are concerned."

"The bottom line seems to be that, just like everything else, the people of Custer County will have to piece everything back together themselves," he said. "But," he added, "I'd love to be wrong."

Junior/Senior High Students Move Into New Building

In the meantime, 360 junior high and high school students began the first day of classes in the new high school building on Tuesday, November 1. The new school had just been completed and was officially approved by the school board on October 23. Ironically, it was built due to anticipated increased enrollment as a result of the recent development of a molybdenum mine here by Amoco Minerals.

The high school students had been scheduled to start school in the building on Monday. The old high school was to have become the junior high facility. All of the students are now attending school in the new building, with the exception of two of the classrooms being located in the elementary school nearby.

The transition to the new building was already underway when the quake hit, although the move was far from being complete. Donicht attributed the relatively smooth transition amidst the surrounding havoc to custodial workers and teachers who put in lots of extra hours to get the job done.

"We couldn't have done it without the volunteer help of all the people," he said. "They put in a lot of hours and we're grateful for their help."

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UNINVITED GUESTS INTRUDE

Myrna Austin, Pam Markley, and Mona James all shared a similar experience. They all were either in their homes or had just run out the door when their homes were intruded upon by an uninvited guest--a bouncing boulder.

"Frightening" is the way Mona James described her experience.

"When the power went off I got up and then I could hear the noise. The noise is what really scared me," she said.

"My first thought was fear, and then the urge to run.

"I don't know why I ran out the front door, just instinct I guess. I remember seeing the rocks coming down by the Cyprus building and I ran away from it towards my mother's house."

Seconds after Mona ran out the door on the west side of the house a 6-7 ton boulder crashed into the doorway. Another boulder totalled the James' nearby car.

"It's more scary now as I look back and think what could've happened," she said.

"It's definitely changed my whole way of thinking and looking at the world," she added reflectively.

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INGRAMS LOSE WATER

By Molly O'Leary-Howard

The dust has settled, the clean-up is done, and the time to assess damages and rebuild is here.

Sounds simple, but for many it's not. Earthquake insurance is practically unheard of in this area and the victims of last Friday's quake are still trying to figure out where the money, if any, will come from to help.

Water Lost

The hardest hit in the Challis area in terms of material losses are the Will Ingrams. Their main source of water for their cattle ranch has disappeared without a trace.

According to Vangie Ingram, they checked the warm water spring at the south end of the ranch about two hours after the earthquake hit.

"There wasn't a drop of water at the source and not even a puddle left on the ground where the water ran," she said. "It seemed to have just gotten sucked right out of the bottom of the creek bed."

The loss to the Ingrams in terms of hay production capabilities and subsequent cattle raising capacity is staggering. Over 1300 acres, three-quarters of their hay production ground is virtually useless.

Although they have some winter stock water from the creek that runs through the ranch from Grandview Canyon to the south, they lose that water right to San Felipe ranches in the spring when hay production begins.

Needless to say, the land's real estate value has decreased accordingly.

Million Dollar Loss

Tim Ingram, a son of Will and Vangie, estimates the loss the first year alone at over a million dollars. The Ingrams had been running around 2100 head of cattle on the ranch. Tim estimated that they can now only handle around 1,000 head.

Other ranchers in the area downstream from the Ingrams depended heavily on the warm springs water for their winter stock water.

According to Glennis Chivers, whose husband Garth is one of those ranchers, they're not sure what they'll do now for water.

"Probably drill a well if it doesn't come back," she said. "We're just kind of waiting to see what might happen with it." The Chivers run between 450-500 head in the wintertime according to Mrs. Chivers.

Fish Loss

In addition to the loss in terms of cattle and hay production for the Ingram ranch, the Ingrams were gearing up to go into large scale catfish production. Tim Ingram had been experimenting with the idea of raising catfish in the warm water ponds built along the creek for some time.

According to Ingram, he and three others were preparing to form a corporation to invest in the project on a larger scale. Ingram estimates they would've been able to produce 350,000 pounds of the fish per year. Fortunately, there were only approximately 50 catfish in the ponds at the time of the quake, Ingram said.

According to Mrs. Ingram, they've contacted the University of Idaho, Boise State University, Idaho State Water Resources, the Colorado School of Mines, and the United

States Geological Survey to determine what, if anything, can be done. So far, to no avail. "Other than that," she said hopefully, "you just pray it comes back."
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MAYBE I'LL START FEELING SAFE TOMORROW

By Pam Markley

We still have our lives, but the earthquake took more than our home (temporarily or not). That little glow inside me, that sense of "all's right with the world" that was intensified with the birth of my son . . . that wonderful satisfaction with life has been replaced with an almost compulsive pondering of the hand of fate, and wonderment at what some human beings find entertaining.

Now that it's all over, I can't really say that one thing or another sticks out in my mind above all else. What I seem to have is a collection of hazy images that hopefully will sort themselves out enough to someday tell the whole story to my son, who slept through the whole thing.

The first thing I remember is the bed rocking violently. It woke me up and I realized the whole room was shaking. I called to my husband, thinking he was the cause. He came into the room and said, "It's an earthquake. We have to get out of the house. Hurry."

As I sleepily noticed the rumbling noise, he lifted Christopher from the bed and repeated, "Hurry." I grabbed a blanket and wrapped it around me.

I don't remember going down the stairs, but when I reached the living room Robb stuck his head in through the front door and urged me once again to move it. I noticed a mess in the kitchen as I turned to run out the door and paused. "There's a rock in there, don't stop to look," hollered Robb.

When I got outside, Robb's father and brother were there with scared, somber expressions. "Come home with us," they urged. The neighbors were getting into their cars. Everyone had dazed, almost silly looks on their faces. Gee, an earthquake!

Dust was falling, and I heard a siren. I was shaken from my stupor when Christopher began crying. I took him into the house to feed him. Robb went back upstairs to get us some clothes.

Soon we were on our way across town, like countless others, to make sure our friends and loved ones were safe. We came to Main Street and noticed a commotion up by the Messenger office. We had no idea of the tragedy that had occurred.

I spent part of the morning with a friend, listening for the still-scanty news reports on the radio and television. We went to see my mother-in-law. She had been standing in her kitchen on Main Street when she felt the tremor and looked out the window.

As she slowly realized what those rocks tumbling down the hill could mean, Dad rushed in and stammered, "Robb, Pam, Chris." He wouldn't let her go with him. They both feared the worst.

Later, she told me the only thing that held her through those awful moments was a conversation we'd had two nights before, when I expressed my total satisfaction with the way my life had turned out. "At least I knew you had been happy," she said with tears in her eyes.

At noon, I was making sandwiches when Robb's youngest brother came into the kitchen. "There was a reporter and a cameraman in your house a little while ago."

"What?" I stared at him in disbelief. "You're putting me on, right?" Mike is one of the most honest people I know, but it took me fifteen minutes to believe that someone would actually walk into my home without permission. I felt violated, sick, and ashamed that I, too, was a member of that profession. I haven't contacted them yet, but they know I know about it and they didn't use the footage.

I'd been feeling homesick all morning and decided it was time to go home and see the rock in my kitchen for myself. As Robb and I drove up the street, my neighbor Georgia was standing outside her house with a lot of other people--and a 30-ton rock. I honestly don't think I even noticed it earlier in our flight to safety.

We stopped to see if she was all right, and soon I realized that most of the people there were reporters. When they found out that I was the "lady with the rock in her kitchen" they asked if they could come and see it. I was still irate about the earlier intrusion, but I appreciated their asking permission (imagine feeling grateful to someone for asking if it's okay to enter your home!)--and being a newsperson myself, of course I said yes.

So we all trooped up the street. I felt like the Pied Piper with all these people at my tail, but the whole thing was still unreal. The impact hadn't hit me yet.

We got up to the house, and I stopped to talk to someone. I don't remember who. Robb let the news people in. When I got there, they had their microphones and cameras all set up, and for the first time I saw my kitchen.

The cameras rolled as I stared at the mess. Glass on the floor, dishes, pots and pans scattered, food containers spilled, the refrigerator door wide open . . . and a three-foot-high boulder in the middle of it all.

I don't remember my reaction too well. Robb told me the next day that he saw it on the news--me just standing there saying "Oh, my God." I looked up and around at the circle of cameras and microphones. No one said a word, they just looked at me with the tools of their trade pointed at me.

I felt a moment of extreme anger. "What do you want me to do, express my grief at the way my house looks?" That remark didn't make any broadcast that I saw! Then the reporters started asking me questions. Where were you when the quake hit? What were you doing? Is this the cradle where your baby was sleeping? What did you think? And on and on.

I was really, truly embarrassed when I watched the news that night. The camera doesn't lie. One channel caught me blabbering, "I thought it was the Russians!" On another, "I thought my husband was doing jumping jacks!" Thank heaven I didn't see all the news reports, but I heard about them. One friend asked me the next day if my wish had come true. What wish? "Well, gee, on the news you said you hoped another rock would come down and finish off the house!" None of the rocks that fell that day were big enough to hide my embarrassment.

That night I couldn't go to sleep as the many twists of fate kept running through my head. If I'd gotten up ten minutes earlier, I probably would have been standing in the kitchen where the rock came through. Christopher's bassinet could have been in the spot where the television crashed down off the cabinet. The rock that landed in Georgia's yard could have taken out our house with us in it. We were lucky to have been spared, but I kept thinking, why us? Why not Tara and Travis? Why, why, why?

We were told to expect aftershocks for two weeks, and that some could be as severe as the first one. But then, sometime over the weekend, it dawned on me that my uncertainty and insecurity would last a lot longer than two weeks. I realized I'd never feel safe in that house again.

I think of the peace we've known there. We were so proud of the solar house we'd built, proud of the fact that it heated itself by day and kept us safe and warm at night. People used to look up at the mountain and ask, "Don't all those rocks up there scare you?" "Oh, no," we gaily replied. The possibility of an earthquake never ever occurred to us. I felt safe tucked up against that mountain.

We spent Sunday afternoon with Georgia. It felt good to be in our own neighborhood, but by afternoon all the sightseers had worn me down. I could understand the local people's interest, but why would anyone drive all the way from Idaho Falls, or Blackfoot, or Boise, or Twin Falls, or Salt Lake City, just to view our devastation? Wasn't it enough for them to see it on television?

We still don't know what we're going to do with the house. The Red Cross people were up there today looking at it, but couldn't tell us anything. We have to have a structural engineer come and evaluate it. Even if he declares it sound, I feel like I'd be tempting fate to live there again.

But whenever I think that, I realize every time that we can't know what fate has in store for us. My first impulse was to go, anywhere, just to feel safe--but who ever thinks about fate when they're following a normal day's routine?

The intermittent waves of panic have subsided, and I've almost quit thinking about being in the right place at the right time or vice versa. I still believe God loves me and has a special reason for giving me life (so please don't call and tell me about it). I just don't feel really safe yet. Maybe I'll start feeling safe again tomorrow . . . or the day after, or the day after that. Right now I'm just grateful to hold my baby with my husband at my side.

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THE RICHTER SCALE Few People Understand It

Many writers and reporters quote values on the Richter scale just like they understood what the numbers mean. The numbers are an indication of earthquake intensity, but it is not a simple relationship.

A very large earthquake might be 100 million times as strong as a tiny one detectable on a good seismograph only. In order to avoid working with awkwardly large numbers in 1935 a geologist Charles Richter proposed a system which would use small numbers to measure earthquakes of all intensities.

In his system: 10 = 1; 100 = 2; 1,000 = 3; - - - 1,000,000 = 6.

In mathematics this is known as a logarithmic scale. An earthquake of Richter value 8 is not twice the intensity of one with a value of 4, it is 10,000 times as strong. A value of 3.3 is twice as strong as one of 3.0. In this system there is no zero and no upper limit. Some writers incorrectly believe it to be a "ten" scale.

The Mount Borah earthquake measured 6.9 on the Richter scale. An aftershock Saturday measured 5.5. A value of 5.5 would reflect a fairly large earthquake, but it would take 25 of those to match the intensity of the main earthquake the day before.

The famous San Francisco earthquake of 1906 is estimated to have had a Richter value of 8.3. Twenty five Mount Borah quakes would match that. The strongest earthquake ever measured had a Richter value of 8.9. Fortunately it occurred in the ocean. That earthquake was 100 times as intense as the one at Mount Borah!

Earthquake Power

People wonder how much power or energy is released during an earthquake. There are two problems in trying to answer that. On one hand no one really knows yet, but geologists are busy calculating. On the other hand the values are so awesome no one can really comprehend them.

In "Earthquake Country" (a Sunset book) author Robert Jacopi gives, with reservations, these examples of big earthquake power (Richter scale 8, for example): 100,000 atomic bombs, the energy to run a battle ship at full speed for 45,000 years, or the force needed to raise a cubic mile of rock 6,000 feet.

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'I SAW THE EARTH CRACK' An Eyewitness Account

By Molly O'Leary-Howard

"We were just in the wrong place at the wrong time." That's how Lawana Knox sums up her unique experience on October 28--the day the worst earthquake to hit the continental states in 25 years shuddered through Custer County.

Lawana and her husband Bill, who live along State Highway 75 between Challis and Clayton, were elk hunting just east of Willow Creek summit Friday morning.

Lawana felt lucky. She'd drawn one of the few available permits for prime elk hunting in the Willow Creek area.

"We'd gotten into the elk," she said, "and I'd shot a few times. The elk had gone up into the mahogany, and Bill went up above to flush them back down towards me."

As Lawana sat waiting patiently, watching some deer through her rifle scope that were feeding on some brush, she heard what she thought at first to be a terrible wind.

"I heard this horrible roar like a really bad wind," she said. "I remember thinking how cold it was already and all we needed was wind."

"I could see the shrubs start to wiggle, and it threw the gun right out of my hand. The power poles started bending and snapping. It felt like it was going to smash my face right into the dirt, so I grabbed a hold of a sagebrush."

"I looked up and I saw the earth start to crack--faster than my eyes could see it. It just kept breaking. I thought it was just going to keep breaking and circle me."

"It looked like someone had taken scissors to a piece of paper and just cut it," Lawana said, still not quite believing she'd actually seen geologic history being made.

"I was so amazed at watching the earth part I didn't have time to think about dying," she said. "I just thought it was going to keep on cracking right around me and if it did, I was going to sink right there."

"I was quite shaken, then I got worried about Bill. It was really quite scary."

"I wasn't scared right at first, but afterwards it hit me. I wondered how everybody else was, and I was worried we wouldn't get out," she said. "And then I was concerned that Challis wouldn't be there," she added.

Both Lawana and her husband reported severe headaches immediately following the quake. According to Lawana, her husband's eyesight was blurred by the quake.

"It made me sick to my stomach," she said. "Like motion sickness--bang!--just like that. Our heads still hurt from time to time, especially when there's aftershocks."

"It's all just like a bad dream now," she said. "I just hope it never happens again. I don't even like going back out there."

The excitement of seeing the earth split open has somewhat paled for Lawana in comparison to the ensuing attention she's received as a result.

"I just can't believe this is really me," she said, "especially when that call came from Australia."

Lawana has become somewhat of a celebrity due to her unusual experience--she's one of a very few to have ever witnessed such an event. She's been tracked by the New York Times; Globe Communications--

publishers of a weekly tabloid with a circulation of 2,000; an Australian broadcasting company; and, of course, the Challis Messenger, to name a few.

"I just can't believe all this--my husband is ready to run away from home!," she joked. "I told him he couldn't leave without me though," she added.

There's really only one thing that truly bothers Lawana, in spite of all the attention and the excitement--she didn't get her elk.

"I demand more time!," she said, with mock seriousness. "I didn't get my elk and I just know I'd have gotten one if it hadn't been for the earthquake."

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WHERE WERE YOU WHEN THE EARTHQUAKE HIT?

By Molly O'Leary-Howard

Long after the last tremors subside, the tales of area residents' experiences during the Quake of '83 will endure as local lore.

Buhl residents Bob and Carlene Thornborrow, and their two year old son, Sonny, were camped at the base of Mt. Borah when the earthquake rumbled through Custer County. The Thornborrows weren't sure what had happened.

"The camper bounced back and forth about six inches," Thornborrow said. "We didn't know what it was."

"We thought at first maybe the camper was rolling down the hill," Mrs. Thornborrow said. "But it sounded like an avalanche outside.

"I wasn't too scared--until we saw the road," she added.

The ground just below the camper cracked open making the Mt. Borah access road impassable. The Thornborrows were stranded on the other side of the fault.

When Custer County Deputy Darby Hinz 'rescued' the couple, they seemed relatively calm and seemingly nonplussed by their experience. That is until they heard that the earthquake measured a 6.9 on the Richter scale--and a look of astonishment of a similar magnitude registered on their faces.

Many Were Hunting

Many people were out hunting in the surrounding mountains the morning of the quake. David Fisher, Challis, was one of them.

"We were out hunting in the Anderson mountain area just west of Willow Creek summit," Fisher said.

"I was just walking along and I heard a noise and the ground just left me. I tried grabbing at the sagebrush but I couldn't hang on to anything.

"The ground was swelling up like it was going to burst, and the trees were laying half over and then they'd snap back up. The bluffs just let go as if you'd blasted them, and boulders half the size of pick-ups came down all around us," he recalled.

"It was something I don't want to go through again--I think I aged about 10 years in 5 minutes," he added.

On the Road

Magistrate Judge Arthur Wright was enroute to Challis from Mackay when the earth started to shake.

"I was about 200 yards past the Mt. Borah sign on the highway," Wright recalled. "At first I thought something was going wrong with my eyesight, and then I thought my wheels were coming off. I finally stopped and got out and checked my wheels. Then I heard the rocks rolling--it sounded like I was in a huge bowling alley. That's when I knew it was a quake." Wright chuckled and added, "You know, there was a car right behind me and I noticed they stopped, too. They were out checking their wheels just like me!"

Knocked Him Flat

Gilman Martiny, May, was outside working on his pick-up last Friday morning.

"I was reaching for the pick-up and it moved," he said, "and I landed on the ground. I got right up and thought, 'boy, that was a dandy!' The next thing I did was look to see if anyone was watching me and saw how clumsy I was!"

"My next thought was if the wife and kids were all right, and then I worried that there may have been fatalities somewhere.

"It was a savage thing this earthquake--to take those two kids' lives. It's beyond a man's understanding what awesome power there is in this world," he added solemnly.

I Thought We'd Been Bombed

Letty McCoy, Challis, was working on the books at Wise Buy grocery when the power went off.

"I thought the Russians had come," she said still shaken. "I thought we'd been bombed for sure. An earthquake was my last thought--I'd never felt one before.

"I knew I couldn't get the doors open quick enough to get out so I just huddled down here in the office. It was quite an experience, the lights were off and I could hear all the stuff falling from the shelves and breaking in the store. The noise was really scary."

"I was irritated at first when the power went off," she said, "but then I was sorry I'd said anything."

Having Fits

Marie Coburn, who lives at the Pioneer Court apartments for senior citizens, was in the bathroom washing up and getting ready to greet the day.

"The water started to splash and I could feel the ground move underneath me. I thought I was having a fit!" she exclaimed.

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A SMALL TOWN PHOTOGRAPHER VIEWS THE BIG CITY PRESS

By Sue Villard

As a photographer for a small "hometown" weekly I feel very privileged to be able to work closely with, and get to know many of the people in our community and in the county. I also feel lucky that my introduction to newspapering has been with The Challis Messenger, where accurate reporting, sensitivity, and journalistic responsibility is very important. (Not everyone in the community will agree with that statement, but one of the really neat things about being here is that when people disagree, they let you know--and you can learn from it.)

Last Friday, October 28, I was introduced to what the "real" world calls HOT NEWS. Briefly, I'd like to recap my reactions, which were somewhat typical throughout the county. It was Friday--at last--it was Halloween weekend, a great one for pictures. I wasn't on ambulance duty, the weekend forecast was great, and I was looking forward to finally planting my bulbs, and some leftover trees.

Suddenly there was a rumble. "Those damn Air Force jets flying over causing sonic booms," I thought. But there was no boom, and it didn't stop . . . I knew what was happening. I had been through it before in California, and it didn't bother me. It would stop . . . But it didn't. My brand new home was convulsing. I could see the ripples . . . Thoughts flashed through my brain--get under a door jam. I fell on my way. I wondered if I had insurance coverage for earthquakes. The south side of the house is all glass, and the windows were bulging with the rolling tremors. I thought of the basement--will the walls collapse? I've got to get out!

I did. I clung to my 1954 Chevy pickup because I trust it. My dog, my best friend, was panicked and was headed inside the house. I finally convinced her to stay outside with me. Feeling secure outside, with my truck and my dog, I looked around the valley, which I have a 360 degree view of. Dust was everywhere. The noise was still loud. It was like there were jets all over, there weren't. And then it stopped.

I saw the dust over town. "Oh, no," I thought, "Pam and her family live under that big cliff." I waited for the emergency call from the sheriff's office for EMTs as I got dressed. It didn't come, so I headed into town. (Later I found out it had been broadcast over the TV. I just missed it.)

I tend to overreact to a lot of things. Driving into town I hoped that I was doing it again. Unfortunately, I found out that it was real, and it was time to go to work--first as a concerned citizen and EMT, and as a photographer a distant second.

I dragged our reporter Molly, also in a state of shock, along with me. We checked on the Senior Citizens' home and walked around town. A report of severe road damage came in, and so we jumped into the cop car with one of the deputies and headed south.

It would take too long to describe all the things we saw after that, but when we finally got a chance to get back to Challis, we took it. We probably should have gone on to Mackay, but we didn't know that at the time. And our publisher-editor had no idea where we were.

When we got back to Challis, it was an absolute madhouse. But not with townspeople--with the press. They were all over! TV cameras, microphones, reporters, and still photographers. I'd never seen so many. It was an invasion. UPI was on our telephone, and I had a message to call Newsweek. Good grief--it had only been a couple of hours!

I should mention that our building is next door to the one that caused the unfortunate tragedy, and therefore was in the middle of all the commotion.

Anyway, we then found out that most of the reports going out across the country were that Custer County had been virtually annihilated.

Now, I'll get to the guts of my letter. Ethics in journalism has been a much talked about subject in the last year. Obviously it's been talked about, but people have forgotten to practice what they preach.

I'd like to know why reports of total destruction made it all the way to Europe. We had frantic relatives calling all the way from Italy wanting to know if their families were alive. Ma Bell reported more calls Friday than during the aftermath of the Teton Dam break.

Overkill is an understatement. Why were there so many press people here? Why was San Francisco, Los Angeles, New York and other far off places here just for an initial report? Why were they asking horrible questions like, "what was it like to unbury two little kids from under all that?" What the hell did they think it was like!

All emergency disaster plans emphasize that one disaster should not be turned into multiple disasters. There were so many fixed wing aircraft and helicopters in the air that everyone was afraid there was going to be an in-air collision.

But worse than that, helicopters were violating the FAA's 500 ft. rule and were flying right next to the already unstable cliffs above the clean-up crews. It was a miracle that more boulders did not come tumbling down on top of the people on the ground.

But, to me, the absolute worst, was outsiders coming in during my friends' time of grief and making things worse than they already were.

I am talking about press coverage of the funerals. I was told that at the first one the TV crews were asked to leave the cemetery grounds and they refused. A photographer and a reporter were at the second. The photographer was asked to leave the inside of the gym, and he did, but continued to take pictures outside. That is, until I heard on the scanner that they were there and went racing down to take a picture of them and expressed my great displeasure with their presence.

We've all been to funerals and have seen pictures of them. As far as I'm concerned, there is no intrinsic news value in them whatsoever. If the big news is that the majority of the town showed up, fine. There were two very simple ways to show that. One was to quietly walk in after everyone had gone inside and take one picture with a wide angle lens. The other was to take a picture of the cemetery from above Peck's Hill. Nobody would have noticed and any good scout could have found the spot.

I was very disappointed that when the "Big Story" was over, everyone left. The damage was not as great as everyone had been led to believe, especially in Challis. The press was bored, so they left. And behind them they left some of the best human interest stories ever. I was glad to hear that some of the press was interested in that angle, because the follow-ups should prove to be interesting as well as very important to people in earthquake prone areas.

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WHAT TO DO BEFORE, DURING AND AFTER AN EARTHQUAKE

The severe earthquake which struck Custer County and rocked five western states and three Canadian provinces is a reminder that we live in an area where earthquakes are possible.

While natural disasters like floods and windstorms are generally predictable and advance warnings can be given, this is not true of earthquakes.

Still, it is possible to make some advance preparations so the impact of the earthquake can be minimized, says the Insurance Information Institute. Here are some suggestions of what to do before an earthquake strikes which are agreed on by most authorities.

1. Have a family emergency plan and be sure that at least one member of the family has had first-aid training.
2. If you own your own home, verify that it is properly "tied" to the foundation. Extensive damage is often done to homes that shift and slide on the foundation during an earthquake. A contractor can advise you about this, as well as suggest whether lateral bracing of the house walls is feasible.
3. Be sure that water heaters and other gas appliances are properly bolted down or supported on the floor or wall.
4. Be sure that all members of the family know how to turn off utilities (gas, water and electricity) in an emergency.
5. Maintain fresh batteries in a portable radio and have at least one flashlight in good working order.

The Institute notes that it is better to know in advance what you are going to do than attempt to think after the floor has begun rolling beneath your feet. A few practical suggestions on which authorities agree are:

1. If you are inside a building, stay there. Stand in a doorway or get under a heavy table or desk. Stay away from windows or other glass that might shatter.
2. In a large store or other public place, almost everyone will try to hurry out, which means that doorways will probably be blocked. Don't add to the jam.
3. If you are outside, try to get into an open space, away from buildings that might have falling glass or cornices or chimneys. Keep clear of power lines that might fall. If you are in a car, stop as soon as you safely can and stay inside it.

When the earthquake shocks die away, there are still some active perils that may come.

Broken gas lines or appliances may cause a fire, and ruptured water lines can cause extensive damage. Here are some suggestions for what to do after the earthquake that the Insurance Information Institute has found authorities recommend.

1. First, check to be sure that no one in the family is injured. Start first aid immediately if injuries are found.
2. Check utility lines and appliances for damage. If you smell gas, open windows and turn off the main gas valve. Do not turn on electric lights or appliances until the gas has dissipated. Sparks might ignite the gas. If electric wires are shorting out, turn off the power.
3. Check to see that sewage lines are intact and working before permitting continued flushing of toilets.
4. Check chimneys for cracks or other damage before using them.
5. Stay off the telephone, except to report actual emergencies.
6. Do not spread rumors or go sightseeing. Stay away from beach areas because of the danger of possible tsunamis (seismic sea waves).

7. Be prepared for aftershocks, which are usual after earthquakes.
 8. Use your portable radio to get emergency instructions.
- [Challis Messenger; November, 1983]**

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THE QUAKE OF '83 LOOKING BACK TEN YEARS LATER

By Anna Means

Ten years ago the earth moved under Lost River and Round Valley residents' feet. After experiencing the 7.3 magnitude Mt. Borah earthquake, chances are that most people who lived in Custer County in 1983 are now aware of the natural process by which mountains grow and valleys widen (basin and range theory).

Lives changed and two ended from the phenomenon that was hailed as the strongest quake to hit the continental U.S. in 25 years. As a result of the earthquake, Custer County was put on the mental map of those living in the west, and residents of Mackay and Challis saw the outside world swoop in to their sleepy little towns looking for a story or for a way to help.

Statistics

On October 28 at 8:06 a.m. an earthquake with the epicenter near the base of Mt. Borah came waving through the country. The Mackay area was hit the hardest from the tremor, but Challis suffered a great emotional loss when two elementary school children were killed.

Meanwhile, back at the basin and range, the Lost River Valley floor dropped up to 7.5 feet in places and Mt. Borah grew about a foot. A 20-mile scarp along the base of the Lost River Range and sand boils near Chilly Butte and Lost River and Pahsimeroi valleys formed thus giving geologic sorts tons of material to study and analyze in their pursuit of scientific discovery.

Some reports in 1983 suggested the Borah Peak event affected 87,500 square miles, with impacts seen as far away as geothermal activity in Yellowstone Park and water well levels in Kalispell and Thompson Falls, Montana.

Aftershocks were in the hundreds, but Forest Service records indicate there were 46 aftershocks with magnitudes over 3.0 in the 65 days immediately following the initial earthquake. They recorded 140 events (again, over 3.0) in 1984 and ten in 1985. The largest scale aftershock was noted as 5.8 on the Richter scale.

Initial damage to property was estimated to be \$2.5 million, but once all claims were processed, it came to \$12.5 million. These were numbers calculated from Federal Emergency Management Act (FEMA) claims and do not include the work done by the Red Cross, Small Business Administration or private individuals.

Fatalities and Injuries

Seven-year-old Tara Leaton and six-year-old Travis Franck died when debris from a stone building on the northwest end of Challis' Main Street fell on them. There was a woman who saw the building front collapse and an emergency team was removing debris within minutes. Unfortunately, the children did not survive the incident.

In Mackay Eleanor Williams received severe bruises but no broken bones when she and her car were hit by bricks falling from the Mackay Drug Store. Williams had just parked her car and gotten out when the bricks came flying. Her car was demolished, but she walked away with an incredible story to tell.

And The Rocks Came Tumbling Down

Many of those lovely cliffs around Challis lost a few rocks when the waves hit, and a few homeowners and renters got a closer look at big chunks of Challis volcanics. Harry James had a six- to seven-ton boulder crash into his doorway, Robb and Pam Markley received

one in their kitchen and Lloyd and Sandie Todd had one try to come though the back of their log house. Sandie Todd was quoted as saying, "Thank God for log houses." The John Austins also had a rock or two roll their way. A large boulder came to visit the house rented by Georgia Smith, but stopped just at the porch. She later painted a jack-o-lantern face on it in the true spirit of Halloween.

The Bill Yacomella family lost four out of six pigs when a boulder bounced into their pigpen.

Grandview Canyon had a few rocks in the road, but the Department of Transportation had a look at the ever menacing Leaning Column of Grandview and announced on December 22 it was still safe.

Structural Damage

Practically every chimney within the quake's reach suffered damage. The Red Cross came to both Mackay and Challis to repair them.

At one point it was stated there were 20 buildings damaged in Mackay and the mayor at that time, Oval Caskey, figured 80 percent of the town's businesses had been adversely affected.

Grocery stores had thousands of dollars worth of goods fall from the shelves.

Both the Challis and Mackay high schools suffered irreparable damage.

Fourteen members of Company A, 116th Engineer Battalion of the Idaho National Guard came to Mackay and helped clean up the mess. By November 10 they had helped raze eight buildings (city hall, city jail, Lion's Club "Den," Mackay Drug Store and a storage building) and were waiting for permission to take down the old LLL Cafe, Custer Hotel and Pilash Tailor and Cleaner Shop.

One third of the Clayton Silver Mine had flooded. Fortunately crews were running late on October 28, so were not underground at the time of the earthquake. The mine was shut down for almost three months while they pumped water out of the works.

Water Course

Speaking of water, the earth's shift played a bit of havoc around the area.

Will Ingram took a break from the family's morning coffee conversation to see how the springs on his property fared in the ordeal. He discovered a heart stopping phenomenon--the water was gone. Without a trace, there was not a trickle of water in the old creek, not even in the low spots. It was like it had just been sucked dry. Dead fish were the only thing that remained.

At the same time Chilly Butte sprang a bunch of sand boils and sink holes as did areas in the Pahsimeroi and Lost River valleys.

Ground water in wells near the epicenter rose as much as 12 feet. Other wells in the area reported changes in temperature as well as changes in the amount of water.

Two days after the main event, a huge mudflow occurred in the Lupine Creek drainage. About 200,000 cubic meters of material moved.

On November 4 Ingram's noticed there was a slow return of their water and by the next week had more water than they knew what to do with. Ranches along Warm Springs Creek were soon flooded out.

Another interesting phenomenon was the formation of Quake Lake on Grouse Creek. A landslide created a lake about two acres in size. Oddly enough, the water did not ever flow over the new dam and the old creek bed did not see any more water.

In the spring of 1992 an unknown bulldozer operator breached the dam and it looked like maybe the lower part of Grouse Creek might once again see water. Sharon Bradley, with the Challis National Forest, said that the last time they looked at the lake, there was some

water spilling through the cut, but the creek carries the water only a few feet before the liquid disappears to an unknown destination.

Support

Disaster relief centers were established immediately by the Red Cross. The organization set to work to determine what was needed and proceeded to provide relief. They brought in a psychologist for those who needed to unburden their minds.

Governor John Evans arrived at 2:00 p.m. on the 28th with a full contingent of experts. Evans and company and county leaders traveled to Mackay immediately, and engineers evaluated the status of the Mackay Dam.

Engineers determined the dam was stable and a huge sigh of relief was heard from those living downstream of the structure.

At 3:00 p.m. the county commissioners declared their county a disaster area and the governor followed suit shortly thereafter. Then began the wait for President Ronald Reagan to declare a disaster so federal relief monies could be made available. The president did so on November 22.

A retiree from Chicago, John Ainlay, heard of the central Idaho disaster and packed his overnight bag and came riding into town like a mythic Western novel character. He brought with him the tools to test gas tank leaks, which was something he picked up during his career with the American Petroleum Institute. His work showed that most of the gas tanks (made of galvanized steel) endured the earthquake with no problem.

The Forest Service sponsored an informational meeting a couple of weeks after the earthquake to educate interested parties in what scientists know about the earth moving and what type of fault existed along the Lost River range front.

Picking Up The Pieces

By the time all the furor had settled, Mackay got a new city hall and high school. Challis received flood control mitigation on Warm Springs Creek and a new junior high building. The entire county developed an earthquake disaster plan and the state's Bureau of Disaster Services got a new department.

People of this area now know a seismic activity when they feel one and life goes on with a renewed respect for the forces of nature. Of those who remember the madhouse of activity and confusion ten years ago, there is not one who does not comment on how the individuals in Mackay and Challis pulled together and helped one another deal with the crisis. There is also a great deal of evidence to suggest the people of the "outside" world extended their hearts and resources to this part of central Idaho.

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TEN YEARS FROM TRAGEDY

By Darlene Ward

A decade has passed since the 1983 earthquake that took the lives of seven-year-old Tara Leaton and six year-old Travis Franck.

A lot can change in ten years. Grief has many stages and the pain of losing a loved one might diminish slightly as the years pass, but the loss of a loved one leaves a void that is never filled.

Sally Gassman, mother of Tara Leaton, talked about her grief and the strength that she has found to cope with tragedy.

"I've come to terms with it. The biggest help was my husband Ron and my family. My coworkers at the bank were kind and gentle for a long time," said Sally.

This mother has had to accept the loss of her child, but ten years later she still misses Tara every day. "That's the worse thing. That never goes away. It's intense. I miss her more than anything."

A Strong Faith

Sally explained, "I sought a reason for her death for a long time. There is no reason. You can't out think the universe. I have a strong faith. I don't know how people make it through without faith. I was never mad at all."

Sally recalls that the media was very invasive and "horrible" during her loss. She was shocked by it. Ten years ago Sally wrote a letter to the editor commenting, "Losing my daughter Tara was hard enough but sitting and listening to the planes, seeing the photographers with their cameras, and the reporters knocking on the door and calling seemed to compound the grief."

In the same letter Sally commended the staff of The Messenger for their accuracy and consideration and also thanked the sheriff's department.

Tara's grandmother Donna Leaton has endured the loss of family members during these past ten years. Donna said a friend recently asked her about getting over the loss of a loved one and Donna told her, "You never get over the loss. It gets easier, but you never get over it."

Donna finds it painful to talk about Tara explaining, "It brings back too much. You relive it and it makes you wonder what would've happened. You learn to live with it but you never get over it. You can't forget."

People Care

As news of the tragedy spread far past Custer County, and folks in Boise decided to hold a benefit for the families of Travis and Tara. On November 20 a "People Care" benefit was held there. The event raised \$1200 for the families.

Travis' mother Janet Franck, who was able to attend the benefit said at that time, "I just couldn't believe that strangers in a different town would do something like that. It has made me realize that people all over the country care about people. You don't have to know someone to care."

At that time, Sally said, "I have learned so much because of Tara's death. Not just because of this one incident, but because of so many acts incorporated into one. I realize now that people must help and love each other to ever make it through this life."

Memorials

The memory of Tara and Travis lives on in the hearts and minds of Challis residents.

Scholarship and memorial funds were established. The ProAm Trophy company donated a

plaque that is displayed at Challis Elementary School along with photos of Travis and Tara. The Challis City Park has a memorial bench. The Challis Public Library recently hung a plaque to commemorate the landscaping that was donated by the Gassmans in memory of Tara.

Forging Into the Future

One major change occurred seven years ago for the Gassmans. They adopted a baby. Thomas, now an active seven-year-old second grade student, has brought smiles to the Gassman household.

There are some more changes for the Gassman family. They are moving to Oregon. Sally said that it will be such a change to be known just as "Sally"--not Tara's mom or Ron's wife or Thomas' mom. She welcomes the change, and bravely forges into the future while maintaining the strength to accept the past.

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THE EARTHQUAKE LEFT ITS MARK ON COUNTY SCHOOLS

By Peggy Parks

The October 28, 1983 earthquake took its toll on county schools. Both the Challis and Mackay high schools were damaged beyond repair and were replaced, and Clayton Elementary School was abandoned due to its unsafe location.

Challis School

Built in 1922, the old Challis Junior High / High School on Main Street was not up to all the shaking and rocking it underwent during the quake. Part of the exterior wall in the northeast corner crumbled and the entire stone front exterior began separating from the rest of the building. Inside, plaster crumbled and the stairway wobbled.

Fortunately for Challis, the new high school, built to accommodate the anticipated influx of students due to development of the Cyprus mine, had just been completed, and high school students were scheduled to begin classes there Monday, October 31. The old building was to have housed the junior high. Instead, all 300 junior high and high school students moved into the new facility and began classes on Tuesday. Two classrooms in the elementary school were also used to accommodate upper division classes.

The new junior high building was completed August 15, 1985 but its use as a school building was short-lived. Due to declining enrollment and budget problems, the building was closed at the end of the 1986-87 school year. It remained totally boarded up for two years, then opened on a limited basis so that the auditorium could be used. Currently, the building houses the school district office and the district leases office space to several non-profit organizations. The auditorium and other classrooms are used when needed for school functions and are rented out periodically to various organizations.

Mackay School

Mackay was not as lucky as Challis when it came to alternate facilities, and students and faculty endured two years of split shifts and trailers before a new school was completed. Both the high school and the elementary school sustained damage during the quake. The elementary school building was an open structure with cinder-block walls separating it into classrooms. After the earthquake, the walls were wobbly and deemed unsafe. In the high school the only damage noticed at first was that the gym wall had cracked away from the rest of the building. It was initially assumed that the school was otherwise sound.

Officials taped off the entrance to the gym and a week or two after the quake, the high school building was reopened with split sessions--high school students attended in the mornings and the elementary school was in session in the afternoon.

When the state inspectors arrived to look at the buildings several weeks later, they assessed things much differently. Teacher Rula Smith recalls that in the middle of a school session one day students and faculty were told to leave the building immediately. They weren't even given time to take books or get things out of lockers. Furniture, books and personal effects were moved out later by the safety crew.

The elementary school was deemed to be safe, so the double sessions were resumed in that facility. Smith said that due to overcrowding, some classrooms were split. She said she taught math and English in half of one classroom, while typing class was held in the other half. Gym classes and several others were also held at the LDS Church.

Mobile classrooms for the high school were brought in for the 1984-85 school year and placed in the high school parking lot. The construction area was roped off, but students could see the demolition of the old building and building of the new as they changed

classes. "It was not a happy time," said Smith. "There were a lot of memories connected with the old school, and it was hard to watch it being torn down."

The auditorium and library of the old building were built later than the original structure. These were saved and the new school built around them. The "M" in the middle of the gym floor was saved and is currently in the commons area of the new school. The new school was completed in time for the 1985-86 school session.

Clayton Elementary

Clayton Elementary School up Kinnikinnic Creek was damaged when a boulder from the hill above left a one by one-and-a-half foot hole in the outside wall. Students were moved to temporary facilities in the Yankee Fork Ranger Station until safety of the site was determined. Many Clayton parents felt bussing along the river road to Challis posed more of a danger to students than the possibility of another rock falling on the old school. Although the school was not severely damaged, geologists subsequently determined that the geologic condition of the hillside and the possibility of future earthquakes made the location of the building unsafe and recommended that the school be abandoned or moved. The school board voted to abandon the school, but Clayton parents protested moving the children to Challis. The matter was put to the patrons in a district-wide election July 24, 1984. The vote was an overwhelming 480 to 49 in favor of keeping a school in Clayton. On September 11, 1984 a \$100,000 tax override was approved by patrons. That amount, along with \$115,000 in school district land sale funds was used to build the new school, which was completed in the fall of 1985.

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AGENCIES PROVIDE DISASTER RELIEF

By Anna Means

County Clerk Ethel Peck took office in January of 1983 and by the time she sort of got the hang of the job, the October 28 earthquake hit. She received an entirely new sort of education and went from not even knowing what FEMA (Federal Emergency Management Administration) meant to learning how to fill out mountains of federal paperwork and seeing something come of it.

First Things First

Peck recalls that the first thing she did after the tremblor came through town was to respond as an EMT to the disaster that claimed two children's lives. While at the medical clinic, she was informed that the governor was arriving in an hour and she and the county commissioners had to take him on a tour.

That afternoon was spent taking the governor and his experts on a trip to Mackay, inspecting the dam, talking to the people and assessing the damage.

Day Two saw the clerk taking inspectors around to look at what had to be evaluated for safety and damage. After the inspectors were out of her hair, then began the long and not always pleasant process of figuring out who was going to pay for what damages.

Controlled Chaos

Peck said the county courthouse was a total zoo for the first two weeks after the earthquake and leveled off to controlled chaos for another month before things settled down to normal.

The Red Cross, in Peck's memory, was one of the best organized and most helpful groups to come into town after the disaster. She said they checked in at the courthouse, figured out that neither housing nor food was an issue, but heat was and took off to fix chimneys. They also brought in a psychologist for use by those who wanted one.

Flood Control

Two weeks after the earthquake the flooding in the Hot Springs area began. This brought many people to the commission chambers requesting that something be done. The inevitable question of, "Who's going to pay for it?" came up and the commissioners asserted it wasn't the county's place to pay for private land problems. This brought about considerable and heated debate that continued for a few weeks.

FEMA would pay 75 percent of the costs for flood control mitigation measures, but the county balked at having to pay 10 percent (the state was expected to kick in 15 percent). At one of the meetings it was suggested the Army Corps of Engineers would fix the flood and build something to prevent further flooding at no cost to the county or the state. The commissioners voted to go with that option.

The Corps showed up, did their fieldwork, designed a plan and were ready to turn the first shovel of dirt when a call came from Walla Walla headquarters saying no work could be done until the state and county coughed up a third of the costs. Back to the drawing board everyone went and the end result was FEMA would finance the project. The county had to come up with 10 percent of the cost, but they figured that 10 percent was better than 16.5 percent.

Work began that winter, which just happened to be a cold one with more than one day seeing 40 below zero weather.

Peck noted that at the time there were a lot of landowners who weren't getting along for various reasons and this presented a problem in the flood control plan. Because the work

was being done on private property, each individual had to sign a release for crews to come onto their land. Peck said that despite individual differences, every one of the landowners signed a release rather than allow their neighbors to be flooded out.

Just a Few Forms

FEMA financing required that the flood control project be channeled through the county as the sponsoring entity. Before any of that happened, the county had to show that repairing all earthquake damage was a financial burden beyond the capabilities of county and state coffers. Then, all the paperwork for design, request for bids and awarding of bids and ensuing reports had to be generated from the courthouse. Peck and crew complied with all the federal requirements until they were blue in the face and eventually the project was on track.

Peck gets a glazed look in her eyes when she recalls her office being the center of activity for the Corps, FEMA and contractors. Ever an optimist, she recalls that this period of time was when she was finally able to convince the commissioners to install a second phone line into her office.

Claims submitted to FEMA totalled \$12.5 million when all was said and done. Ten million dollars of that was to demolish and build schools in Mackay and Challis. Initial estimates of damage came to \$2.5 million, but that was before anyone knew two school buildings had to be replaced.

Five million dollars in individual claims had to be processed by the State Bureau of Disaster Services. Peck said her office's role during that time was directing people to the correct agency and helping individuals understand federal paperwork. One problem, said Peck, was many people had the misconception that FEMA money was free. They did not understand the money came in the form of low interest loans or tax credits for damages fixed. Those claims did not include assistance provided by Red Cross or the Small Business Administration.

End Result

Federal Disaster Relief monies paid for repairs to public buildings and also paid 90 percent of the cost to build Mackay's city hall. The Challis Junior High and Mackay High School were financed 100 percent by these monies, which were offered by FEMA.

Peck said Custer County was probably the first county to have an earthquake emergency plan on file with the State Bureau of Disaster Services. This plan was completed within a year after the earthquake.

Stephen Weiser, Earthquake Program Coordinator with the Bureau of Disaster Services said his job was a result of the Borah earthquake. Because FEMA money was used, the state is required to develop emergency procedures in the event another major earthquake hits.

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EARTHQUAKE RECOLLECTIONS

By Darlene Ward

Custer County residents shared their memories of where they were and what they were doing on October 28, 1983 at 8:06 a.m.

Many people were already at work or on their way to the office when the earthquake struck. A few former Californians and/or non-early risers, may have rolled over and gone back to sleep. But most folks have a story to tell.

Perhaps the stories have been embellished or polished with the time-worn tradition of telling tales, but isn't that what makes a story become a legend?

KEN MEHRTENS

Safety First

Ken Mehrtens, known locally as "The Bush Doctor," was working for a mine on top of Sunbeam Mountain, which is now Hecla. Ken explained, "There were nine of us at a safety meeting on top of the hill when everything cut loose. Scott Brower was standing across from me and he kept jumping up and down like he was on a pogo stick. Every time he bounced back to the ground he said, 'Oh, shit.' He looked like a cartoon."

Ken continued, "Then Scott started running--in place, more or less. I asked him where he was going and Scott replied, 'I dunno, but I'm getting the hell outta here!'"

Ken said what when things settled down later on, the superintendent told the crew he was going to schedule another safety meeting. Ken told him that he'd have to miss the next one because, "You hold rough safety meetings!"

ANONYMOUS

Lucky Day

A gentleman requesting anonymity, "Mr. Lucky," told his story about being out hunting with his grandsons that fateful day. He thought the world was coming to an end when the earth began to shake. Apparently, he took it as an omen to cease hunting. This Challis native reacted instinctively and decided if one isn't hunting, one might as well be fishing. So, off they went fishing at Mosquito Flat Reservoir.

From where he was hunting there were two roads to get to the reservoir. One of the roads was blocked by slides. Mr. Lucky had chosen the clear road. How was the fishing? "Never better. I couldn't believe how the fish were biting. I caught my limit," he said.

Seems Mrs. Lucky was concerned about her spouse and sent a plane out looking for him. He laughed as he recalled the plane flying so low over the reservoir, not realizing they were looking for him.

EVELYN BRADSHAW

Clayton Connection

Clayton resident Evelyn Bradshaw was on the phone visiting with her sister-in-law, DeLoris Bradshaw, who was living about six miles above Clayton when the earthquake hit. Evelyn remembers that DeLoris quit talking when the dishes rattled across the phone connection.

"She was too scared to talk," said Evelyn. "I offered to drive up there but we knew there would be rocks on the road, so I didn't," she continued. The women stayed on the line and Evelyn said it took some time to determine that DeLoris was all right since she wasn't

speaking during the shaking. Evelyn recalled that it was a good thing she didn't drive since rocks were rolling on the road.

MIKE PIVA & BOB SAVAGE

Safe in the Safes

Bob Savage, Custer County Assessor, was in the courthouse vault. "I had just poured a cup of coffee. When I came out, everybody was out of the courthouse. Then we closed it down and sent everyone home," said Bob.

"The thing I remember more than anything about the earthquake is that the media caused more problems than anything else--the low-flying planes and they kept the phone lines tied up so no one could get through."

Mike Piva was working for Cyprus Thompson Creek and happened to be in the vault at the administration building. He heard the noise and thought it was a jet. Did he stay safe in the vault? "Nah," Mike said, "I went out to see what was going on."

HARRY & MONA JAMES

Rock the House

Mona James was watching television about to leave for work when the power went off and the house began moving. She ran out the door and to her mother's home next door. In those seconds when Mona was running, huge rocks tumbled into the yard and one massive boulder smashed her car and went through the wall of her home.

"It's something we live with every day. It is never out of our minds," explained Mona. Now a porch has been added on and a travel trailer parked on that side of the house.

"I read every account of earthquakes elsewhere. It attracts me. I know the terror they live through," said Mona.

Financially it was a hardship for Harry and Mona James, who did not have earthquake insurance. The loans were available, but "nothing's free," said Mona. "We were so fortunate. It could have been so much worse. It's unbelievable," she recalls.

When asked if they've thought about moving Mona replied, "At first we thought about it but you don't just pick up your house and go. If I'm supposed to go that way, it will happen. We live with that idea. You have to or you couldn't keep your marbles together."

GYNII GILLIAM

Jumping Cereal

Gynii Gilliam laughed when she recalled events during the quake. Her son Jon was in a high chair eating cereal off the tray. On the wall over his head was a huge moose head. Gynii said that when things started to shake, she tried to get from the opposite side of the kitchen counter to grab Jon before that moose head tumbled off the wall on top of him. In the time it took her to run around, she could see her son enjoying batting at the pieces of cereal jumping off the tray.

"He was happy. I guess he thought I'd given him a new jumping cereal," she said.

NIKKI DOLL

Valley of Dust

Nikki Doll was working at the School District Office when she noticed the power went off. Then she heard the noise, "the roar" and the building began bouncing. Nikki started to walk to her daughter who was nearby and recalls, "I went to put my foot down and the

ground wasn't there." They went outside to the football field and watched rocks roll down off the cliffs. "The whole valley filled with dust," she said. "The noise was the biggest surprise. I didn't expect the noise."

DAVE FISHER
Grabbing Sagebrush

Dave Fisher was hunting on Anderson Mountain just west of Willow Creek Summit when the quake hit. His wife Roberta tells the story of Dave being slammed to the ground and grabbing at sagebrush to get a hold of something stable. She said, "The next wave hit. Dave was in the air with a handful of sage so he let go and grabbed another bush, then back in the air with just the bush in his hand till he could let go of that one, land and grab another."

Ten years ago when Dave was interviewed he said, "The ground was swelling up like it was going to burst, and the trees were laying half over and then they'd snap back up. The bluffs just let go as if you'd blasted them, and boulders half the size of pickups came down all around us." He concluded, "It was something I don't want to go through again. I think I aged about ten years in five minutes."

PAM MARKLEY
Being Spared

"What stands out the most is the overriding feeling of having been spared," said Pam Markley. Robb and Pam Markley lived in a home at the base of the mountain that sent massive boulders tumbling into town.

The morning of October 28 found Pam in bed with her infant son Chris while Rob was in the bathroom. Pam recalls hearing the noise before running out of the house.

One massive boulder chose to crash into the kitchen of their house, knocking the wall apart and wreaking devastation in the room.

At that time most mornings, Pam would be standing at the kitchen stove waiting for the water to boil. It was fate that kept them all out of harm's way. Pam points to the other coincidences that placed them out of danger that day. The television was placed high on a cabinet just over where the baby's bassinet was located in the bedroom. When the television came crashing down on the bassinet, the baby was safe in her arms.

The Markleys did not return to live in their house until August and then they only stayed for two weeks. They remained nervous and jumpy when the house brought back memories of being unsafe.

ART & BETTY JO FENWICK
Between A Rock and A Hard Place

Art and Betty Jo Fenwick were driving out from Meyers Cove along Silver Creek Road when they came to a rockslide across the road. They turned the car around to head home and encountered another slide. They walked four miles to get back to their cabin where everything was secure.

Betty Jo said they encountered some California hunters standing by their car who said they had not felt any earthquakes that strong before.

When they returned to take pictures of the slides, the rocks were moved. A man who was in the area to clean out culverts had cleared the boulders on the road.

Both Betty Jo and Art are grateful for the timing that found them caught safely between a rock and a hard place and not under the slide.

[Challis Messenger; November 4, 1993]

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INGRAMS DEVELOP HYDROPOWER PLANT

By Anna Means

The 1983 Borah Peak earthquake had a long lasting impact on Will and Vangie Ingram and to their credit, they can laugh about most of it.

Two hours after the earthquake Will took off to see how the springs on their property had fared. What he saw got him mighty excited because he discovered the creek no longer held water. Will said it looked like it had just been sucked dry of every drop. For a week the Ingram family tried to stay calm and calculate how they might manage their 900 or more acres of irrigated land without water. On Vangie's birthday, November 4, Will took note that the springs were beginning to come back.

Their sighs of relief turned into cries of dismay in another week when the water returned with a vengeance. Running at about 12 cubic feet per second (CFS) before the earthquake, the spring began producing gangbusters at triple its normal rate and eventually peaked at 60 CFS. Headwalling began and the Ingrams watched as the stream banks and their farming ground was devoured by the water as it coursed downstream into the Salmon River.

The Idaho Department of Fish and Game tried at first to rock in the banks to stem the tide of erosion, but to no avail. The Soil Conservation Service studied the problem and gave Ingrams a few options, the cheapest one being to build a canal and at a point, drop it down a pipe that would dissipate the water's energy. This plan's projected cost was a little over \$100,000 and the Ingrams decided to go with it.

The winters of 1984 and 1985 were devoted to diverting those flooding waters into a channel to mitigate the sediment impacts. Vangie said that two years after the earthquake Warm Springs Creek continued to muddy Salmon River waters all the way to ..?..

While the Ingrams worked on the headwaters of the creek, the Army Corps of Engineers worked downstream mitigating flood control on Ingram's as well as others properties.

Will figured if he had to spend all that money fixing the water situation on his place, he might as well get some sort of return on his investment. He called an engineer and began scheming to build a hydroelectric plant on his property. That, he said, was the beginning of a real nightmare and if he had to make that decision again, he wouldn't. In July of 1984 the Ingrams started the application process and two long years later they were on line and in production.

Aside from the mountains of paperwork associated with applying for an hydroelectric license from the Federal Energy Regulatory Commission, the Ingrams had to make two appearances before the Public Utilities Commission to get Utah Power to buy their electricity.

Obtaining the license was not too complicated other than having to complete one application and another additions-to-the-original and having to bear with any group with an objection to the plan.

Will said the power plant was ready a year before Bonneville Power Administration (BPA) and Utah Power actually signed a 35-year contract for Ingram power. His understanding of the delay was that BPA and Utah Power were having a procedural/political argument and the Ingrams happened along about the time the two decided it was time to make their point. The delays caused by this power struggle cost the Ingrams a great deal of time which was money.

Finally, on the day the contract was to be signed Vangie drove to Pocatello to meet with BPA and Utah Power officials. Everyone at home waited with held breath for the phone call to say it was a done deed. Vangie met the two gentlemen to sign on the dotted line and discovered the BPA official had brought the wrong contract. Vangie said the Utah Power representative "had a fit" and made the BPA man cross out the wrong words and pen in the right ones and the contract actually got signed that day.

Ingram's hydroelectric project and all the flood mitigation measures were paid for privately. They did not qualify for any substantial federal loans because they were planning to ultimately make money on the stream modifications.

Will and Vangie figured construction costs were doubled due to canal complications and political delays. Building the canal started out simple enough until they ran into solid rock for a fair stretch along one hillside.

Will figures that if the water holds out, the project will have paid for itself in another five years. The spring leveled off at 25 CFS about three years after the earthquake and has held steady at that level.

There is a 300-kilowatt generator at the upper plant where the water drops 185 feet from the above hillside. A second generator, installed in 1988, produces 500 kilowatts from a 320-foot drop coming down into the flats near Hot Springs Road. Both of these plants generate a little less than a megawatt of power, which is sold to Utah Power.

The Ingrams have learned a great deal about the power business, such as that turbines aren't produced in the United States and equipment has to be made specifically for the situation. Even though there were gaggles of scientific sorts around the place for months to study their water-no-water-then-lots-of-water phenomenon, they never have found out why it happened.

[Challis Messenger; November 4, 1993]

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Summary of Newspaper Articles

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Deseret News – Salt Lake City, UT (last date searched 11/02/1983)

Headline: [6.9 Earthquake Kills 2 Girls In Challis, ID](#)

Date: 10/28/1983

[Info Categories:](#) B, E, G, I, N, P

Headline: [Utah Sways But Escapes Without Injury Or Damage](#)

Date: 10/28/1983

[Info Categories:](#) I, N, P

Headline: [Idaho Quake Cuts A Swath Of Death And Destruction](#)

Date: 10/29/1983

[Info Categories:](#) B, E, G, I, P, R

Headline: [Utah Seismologists, Red Cross Head North To Earthquake Area](#)

Date: 10/29/1983

[Info Categories:](#) A, E, S

Headline: [Tightly Knit Challis Stunned--2 Of Its Children Are Dead](#)

Date: 10/29/1983

[Info Categories:](#) P

Headline: [Quake Of Size That Hit Idaho Could Kill Many On Utah Fault](#)

Date: 10/29/1983

[Info Categories:](#) I, S

Headline: [Quake Victims Surprisingly Cordial As Reporters Converge On Towns](#)

Date: 10/29/1983

[Info Categories:](#) I, P

Headline: [The Minds And Terrain Of Central Idahoans Still Feel Aftershocks](#)

Date: 10/30/1983

[Info Categories:](#) B, E, I, P, R

Headline: [Quake Forced Hunters To Leave The Area On Foot](#)

Date: 10/30/1983

[Info Categories:](#) A, G, I, L, P

Headline: [TV News Crew Was More Upsetting](#)

Date: 10/30/1983

[Info Categories:](#) G, I, P

Headline: [Notify Geologists If You Know Of Any Damage From Idaho Earthquake](#)

Date: 10/30/1983

[Info Categories:](#) I

Headline: [Minor Shocks Continue In Central Idaho](#)

Date: 10/31/1983

[Info Categories:](#) A, E, G, I, S

Headline: [Idaho Quake: Residents Continue Cleaning Up Amid Warnings Of Aftershocks](#)

Date: 11/01/1983

[Info Categories:](#) A, E, G, I, R

Headline: [Trees Split, Boulders Were Hurlled As Shocked Hunters Ran For Cover](#)

Date: 11/01/1983

[Info Categories:](#) A, E, G, P

Headline: [Friends, Neighbors, Teachers Pay Last Respects To First-Grade Boy](#)

Date: 11/01/1983

[Info Categories:](#) I, P

Headline: [Utahns Snap Up Earthquake Insurance](#)

Date: 11/01/1983

[Info Categories:](#) I, N, P

Headline: [Quake Remnants Include A Crumbling Gym, Flooded Mine](#)

Date: 11/02/1983

[Info Categories:](#) B, I, P, R

Headline: [Rock 'N Ghouls Star](#)

Date: 11/02/1983

[Info Categories:](#) H, R

Information Categories

A -- Aid:

provide medical services, shelter, donations, loans, advice, encouragement, implement safety measures

B -- Building Damage:

structure itself plus windows and chimneys (typically damage visible from outside the building)

E -- Earthquake Description:

where, when, duration, direction, sound, motion, number and timing of aftershocks

G -- Geologic Effects:

changes at the Earth's surface, fault scarps, rockfalls, landslides, ground cracks, ground subsidence, sand boils, water spouts; effects on springs, lakes, wells

H -- Humor:

I -- Impact:

changes in daily routine; rumors; influx of reporters, politicians, cost in dollars

L -- Lifelines:

effects on transportation: roads, bridges, railroads, airports

effects on communications: telephone, telegraph

effects on power, gas, water, and sewer lines

effects on dams

N -- Nonstructural Effects:

effects on plaster, furnishings (typically damage or rearrangement of furnishings visible inside a building)

P -- People:

effects on and responses to, during and after; deaths, injuries, near misses

R -- Recovery:

clean up, rebuild

S -- Scientific:

explanation of the day

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6.9 EARTHQUAKE KILLS 2 GIRLS IN CHALLIS, ID

Shockwaves Buckle Roads, Crumple Buildings, Trigger Slide

By Vaughn Roche

An earthquake, registering 6.9 on the Richter scale, sent shockwaves rippling early Friday from near the tiny town of Challis, Idaho, throughout the Mountain West, killing two children and causing several injuries in central Idaho.

The deaths were the first attributed to an earthquake in the United States in 12 years. The shockwave crumpled buildings and triggered earthslides in central Idaho and sent workers fleeing from cracking buildings in Boise. The quake was felt as far north as Edmonton, Alberta, Canada, 1,025 miles from Boise.

At least 15 aftershocks were measured within two hours of the initial quake, said Jim Bapis, a spokesman for the University of Utah Seismology Center. The strongest of the aftershocks came at 9:14 a.m. and measured 4.4.

In Salt Lake City, the Metropolitan Hall of Justice and the Salt Lake City-County Building, where coat hangers flew off racks, were evacuated for an hour and 20 minutes. Buildings swayed, stomachs churned and loose objects swung and flew. But neither injury nor serious damage was reported.

No injuries were reported in Utah, but two girls, 6 and 7, were killed by falling debris in Challis as they walked to school, said Diane Wren, administrative assistant for the County Sheriff's Department. Challis, a town of 758 people, is about 13 miles north of the earthquake's epicenter.

Two nuclear test reactors shut down immediately and automatically at the Idaho National Engineering Laboratory, 50 miles west of Idaho Falls. One came back on line 45 minutes later. Officials reported no damage to any of the federal facility's 15 reactors--13 of them turned off at the time--but said two administrative buildings were damaged slightly.

One woman in Mackay, a town of about 540, was injured when a wall fell on her, but the extent of her injury was not immediately known. Lost Rivers Hospital officials in Arco reported one injury but gave no details.

Wire service reports said the quake rattled and cracked buildings throughout several states. But details were not immediately available.

The Idaho State Police closed U.S. 93 between Mackay and Challis and Idaho 75 between Clayton and Stanley after boulders blocked lanes and buckled the roadway.

Minor damage was reported in Pocatello from the quake, estimated as lasting 30 seconds to a minute.

Custer County Sheriff Ken Bowers said there was no damage to the Mackay Reservoir, six miles northwest of Mackay. Little Wood Dam, east of Hailey, also escaped damage.

No injuries were reported at Moritz Community Hospital in Sun Valley or the Idaho Falls hospitals, those closest to the quake's epicenter. However, a flood of telephone calls kept reporters from reaching officials in towns closest to the quake's origin, about 120 miles east of Boise and 110 miles northwest of Pocatello.

Officials at the National Earthquake Center in Golden, Colo., said the quake hit at 8:06 a.m. Boise State University officials said the epicenter was near Clayton, along the Challis-Stanley fault.

Bill Richins, a seismologist with the University of Utah Seismograph Stations, termed the disturbance a major quake.

"It's the largest quake in the intermountain region since 1959, when the Hebgen Lake, Mont., earthquake measured 7.1 on the Richter scale," Richins said.

The Richter scale is a gauge of the energy released by an earthquake, as measured by the ground motion recorded on a seismograph.

An Idaho State Police official said buildings were cracked in Boise, where office workers fled outside when the quake rolled through the city.

The earthquake was felt in eastern Oregon, eastern Washington and all of Idaho, as well as in parts of Montana, Wyoming and Utah.

"That's a very solid quake," said Leroy Irby, geophysicist with the National Earthquake Center. "The famous one that hit San Francisco was in the 8 range. But so far we have no reports of injuries or great damage."

In Challis, firefighter Ed Reimann reported building fronts crumbled, windows shattered and drivers were forced off roadways as the quake thundered through the area.

Mackay Fire Department officials said all buildings in the central business district were damaged extensively. At least one collapsed as a cloud of dust enveloped the town.

The quake reportedly extended into the Spokane, Wash., area and as far north in Idaho as Moscow. It also was felt in Rexburg, St. Anthony, Caldwell, Marsing, Rupert, Blackfoot, Sandpoint, Grangeville, St. Maries, Burley and other areas of central and southern Idaho.

Residents of northern Salt Lake County, Logan and Hyrum in Utah also reported feeling the ground swaying beneath their feet, and the quake was also noticed in Jackpot, Nev.

In Burley, alarmed residents fled from a downtown coffee shop when the windows began rippling.

In Boise, elevators swayed, plaster fell and motorists reported their cars rattled with the pitching of the ground under the shock waves.

Idaho Gov. John Evans was in his office when the earthquake struck, but a spokesman said everyone in the Capitol stayed calm.

Idaho residents said the earthquake caused chandeliers to sway up to 3 feet and shook water in water beds with wave-like motions. Trees shook as if under the force of heavy winds.

Diners in a downtown Boise hotel scurried away from shaking light fixtures in fear.

State Prison Warden Darrol Gardner said he felt the quake at the corrections facility south of Boise. He said there was no damage and no reports of inmate problems.

Don Finley, a spokesman for the U.S. Geological Survey in Reston, Va., said the quake was "the strongest ever recorded in that part of Idaho."

However, he said it was not as strong as the quake that occurred 140 miles to the northeast Aug. 17, 1959, at Hebgen Lake, Mont. That quake killed 28 people.

"Friday's Idaho quake also was the strongest in the 48 states since the Hebgen Lake quake in 1959," Finley said.

He said it has been 12 years since anyone died in an earthquake in the continental United States.

"The last time anyone was killed by an earthquake in the 48 states was the San Fernando Valley earthquake in California Feb. 9, 1971. This was a 6.5 magnitude earthquake that killed more than 50 people."

[Deseret News; October 28, 1983]

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UTAH SWAYS BUT ESCAPES WITHOUT INJURY OR DAMAGE

Swaying buildings were evacuated, hangers flew off coat racks, chandeliers swayed, stomachs churned, but neither injury nor serious damage was reported in Utah as its residents braced against an earthquake that struck Idaho a killer's blow just after 8 a.m. Friday.

About 1,000 people were evacuated from the Salt Lake City-County Building, the Metropolitan Hall of Justice and the county complex at 2100 S. State as a precaution immediately after the 8:06 a.m. quake. But workers were sent back to work about 9:20 a.m. after engineers determined aftershocks would present no danger.

"This place was really swaying," said John Inch Morgan, administrative assistant to Salt Lake County Commissioner Tom Shimizu as he waited outside the building. "The large chandeliers were really swaying, and the coat hangers were flying off the racks."

The quake, registering 6.9 on the Richter Scale, was centered near Challis, Idaho, where two girls, ages 6 and 7, were killed by falling debris as they walked to school. Several injuries were reported in Challis and in Mackay, 80 miles away. Their severity was not known.

In northern Salt Lake County, Logan and Hyrum, residents reported feeling the ground sway beneath their feet.

In Wendover, Sgt. Ken Bryant, with the Utah Highway Patrol's port of entry in Wendover, described the quake as a "subtle rocking. It felt as though we were on a boat. It went on for about 20 seconds. All of a sudden it felt like we were floating. It didn't seem as if it were ever going to end."

Olivia King of Oakridge Village, Farmington, said, "I was combing my little girl's hair in the bathroom, and the lamps started to sway, and then we went into the kitchen and the lamps were swaying and the chandelier. It wasn't like a roar. It was just swaying. It went on for 40 seconds. I came out to tell my neighbor, and he thought he was having a heart flutter because he felt the movement in his home."

Lance Aagard, an auditor with the tax commission in the Heber M. Wells Building, 160 E. Third South, Salt Lake City, said, "I'm on the sixth floor, and I felt a swaying back and forth. It wasn't shaking, just moving back and forth. It gave me an almost sickening feeling. You just feel yourself swaying back and forth. Kind of an exciting reaction, but no panic."

Victor Morris, 935 S. 10th West, said his doorbell chimes banged together and rang as his kitchen chandelier swayed.

Salt Lake County Commissioner Bart Barker said he and Commissioner Shimizu decided to evacuate the county buildings, fearing that aftershocks could cause more extensive damage.

Britton said seismologists have detected numerous tremors, imperceptible to humans, since an earthquake struck the Salt Lake Valley Oct. 8 and an aftershock hit Oct. 11. The quakes were centered two miles south of the Salt Lake International Airport and registered 4.25 and 3.0, respectively, on the Richter Scale.

Barker said officials feared the quakes could be "swarming," leading to a major quake somewhere along the Wasatch Fault.

Barker and Shimizu, in the Emergency Operations bunker beneath the Hall of Justice, permitted workers to re-enter the three buildings after the 4.4 aftershock, the strongest of 15 centered in Idaho, caused little ground movement in Salt Lake City.

Shimizu, a structural engineer, said the Hall of Justice swayed one foot during the

earthquake. There was some minor damage to exterior concrete blocks. The blocks were chipped when they rubbed against each other during the quake.

Shimizu said some interior hairline cracks also were found in the building, but they may be old cracks. Employees in the building's upper floors said the swaying sent papers and other office supplies flying.

Phil Erickson, city general services manager, said he found no new damage to the City-County Building. Cracks from the last earthquake were not enlarged.

Employees in the 89-year-old structure said the motion during the earthquake was not violent, but many felt the floors rolling and became sick to their stomachs.

Deputy sheriffs were asked to evacuate the buildings, but a transient, fighting to stay inside, played cat and mouse with them for several minutes before being ushered out.

Recent studies predict the City-County Building's clock tower would partially collapse during a local earthquake of between 5.0 and 5.5 on the Richter scale. A 7.0 to 7.5 earthquake occurring locally would collapse the building.

City and county crews are attempting to shore up the building.

No damage was found in the four-story county complex at 21st South.

LeRoy W. Hooton, director of city public utilities, said his crews also checked the condition of the 60-year-old Mountain Dell Reservoir in Parleys Canyon and found no damage.

A spokeswoman in the offices of the LDS Church said the quake was seen more than felt in the church's 28-story building, Salt Lake City's tallest. She said hanging plants and signs swayed.

Kay Heaps, a secretary on the eighth floor of the Hall of Justice, said workers became light-headed and nauseous. "There was quite a bit of motion," she said.

[Deseret News; October 28, 1983]

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IDAHO QUAKE CUTS A SWATH OF DEATH AND DESTRUCTION Towns Tackle Rescue And Repair Of Declared Disaster Area

By Glen Warchol and Brett DelPorto

Central Idaho is distinctive for craggy mountains and barren lava fields, evidence of ancient forces that still dwell beneath the high desert. Those forces returned Friday, in an earthquake that changed surface features once again and left two children dead.

Residents in the quake-ridden towns of Mackay and Challis began rescue and cleanup operations Friday evening in the wake of the killer quake that toppled buildings, sent boulders crashing into homes and released geothermal springs from mountainsides.

Idaho Gov. John Evans, who spent six hours Friday touring the carnage on a National Guard airplane, estimated the damage at between \$4 million and \$5 million.

Evans, clad in jeans with a western tie and shirt, said Challis was not as seriously damaged as was at first feared, but he said eight out of 10 buildings in Mackay will have to be replaced.

He said residents of both towns are beginning to clear away the debris. He commended the camaraderie and courage residents have shown, which, he said is reminiscent of the Teton Dam disaster in 1976, when eastern Idaho residents worked together to clean up after the dam collapsed and flooded the area.

"They're in good spirits. We couldn't ask for better," the governor said shortly after returning to Boise. "I'm very proud of everybody today."

Residents of Custer County, where the quake centered, were being asked to boil domestic water through Saturday, when state health inspectors will check for possible contamination, Evans said.

Earlier in the day, Evans declared a state of disaster in Custer County, where the quake's epicenter was located, 110 miles northwest of Pocatello near Mackay and just west of Mt. Borah, Idaho's highest point.

He was earlier considering sending National Guard troops into the quake area, but no decision was immediately reached.

Tara Leadon, 7-year-old daughter of Sally and Frank Leadon, and 6-year-old Travis Franck, died when a store front collapsed in Challis and covered them with four feet of debris.

The quake which officials estimate was between 6.9 and 7.2 on the Richter scale, injured several people and damaged buildings in the mountain towns of Challis, Mackay and Clayton as the quake struck at 8:06 a.m.

"It felt like Paul Bunyan picked me up and shook me," said Cloyd Olsen of Mackay.

A few blocks away, a massive boulder slipped down a mountain and landed in front of a home, knocking down a tree and a power line. Neighbors said no one was in the home.

A collapsing wall crushed a Mackay woman's car as she stepped out of it. She was taken to a local hospital, suffering a broken leg, said Mayor Oval Caskey.

Caskey said a butte 20 miles north of the epicenter spouted water when a fissure appeared along its face and the base of Mt. Borah. He said nearby Mackay reservoir was being watched for fear of the new water supply causing it to overflow.

Deputy Sheriff Darb Hinz, in Mackay, said nearly every building in the town was damaged. Almost every home was shorn of its chimney. Newsmen and residents stumbled through streets littered with brick, concrete and wood debris.

"There was a big rumble. I ran out," he said. "The building had already fallen."

Several Challis houses were damaged by large rocks that tumbled from a sheer ridge only 300 yards from Main street. The town's high school was closed for fear that any aftershocks would topple the old building.

The earthquake caused ceilings and some walls to collapse in mines in the central Idaho. The Cypress-Thomsen molybdenum mine 30 miles west of Challis is a surface mine cutting into a mountain. The shaking dislodged small slides causing the area to be evacuated.

"We were all dodging rocks," said David Jarvis, a mining engineer. "But no one was hurt." Jarvis said his biggest worry was the earthen dikes that hold the tailings slurry from the ore.

"Our slurry ponds are built to withstand 8.1 on the Richter scale, and they rode it out well," he said. There are chemicals in the slurry that would have gone into the Salmon River that would cause serious ecological damage."

At the Clayton Silver Mine near Clayton, Idaho, miners miraculously escaped injury when they were called above ground for a meeting shortly before the quake hit, collapsing some of the mine ceilings.

"They were lucky," Jarvis said. "I'm sure they would have had some injuries had they been down there."

The earthquake caused destruction hundreds of miles from the epicenter. The chimney on the Beaverhead County, Mont., courthouse collapsed and brick walls of the Ravalli Republic newspaper offices in Hamilton, Mont., cracked, said editor Steve Fullerton. The Federal Building in Butte was temporarily evacuated and cracked plaster and a light fixture broke loose.

Students in a seven-story dormitory building at Boise State University suffered more scare than damage when the building began to shake and shimmy in the quake and its aftershocks. Some thought their schoolmates were playing a prank.

"The first time I knew it wasn't Grace (Blood, her roommate) shaking the bed was when things on the wall started shaking," said seventh-floor resident Cindy Finch.

Larry Burke, director of university relations, said school buildings were evacuated until they could be checked for structural damage. But by late morning, campus activity was just about back to normal.

Idaho State Police Cpl. Ron Hoodenpyle said although local residents were shaken by the incident, he thought out-of-state hunters showed more fear.

The experience was especially unpleasant for one California sportsman who said he was used to earthquakes, but had come to Idaho "to get away from all that."

A Mackay bank executive said the intensity of the quake released a loud noise that rumbled throughout the small, isolated town.

"At first I thought it was a sonic boom, but then all hell broke loose," Idaho First National Bank Manager Larry Hogg said. "At that point, I was as scared as I have ever been in my life. I really thought my home was going to crumble on me."

In nearby Lemhi County, Sheriff Bill Baker said the moving earth pushed a dump truck down a small cliff, slamming it into construction equipment at a local gravel pit.

Department of Energy spokeswoman Anne Hosford said the Idaho National Engineering Laboratory near Idaho Falls escaped damage. There were no reports of any radiation leakage.

She said two of the facility's 15 reactors were running at the time of the quake, but were automatically shut off by seismographic monitors.

Ms. Hosford also said there was no damage to the facility's nuclear waste disposal site.

Most of the dams in Idaho seemed to be holding their own, but John Keys, regional Bureau of Reclamation director in Boise, said the Mackay Dam five miles northwest of Mackay has a problem.

"The structure itself is in pretty good shape but there is a crack in a spillway with a visual and muddy discharge" issuing out, he said. He said the discharge meant there had been some movement within the structure, but he had no other details.

The quake also triggered a geothermal hot spring along Idaho Highway 75, which was closed due to rockslides and cracks in the pavement. U.S. 93, the other major route, also remained closed, with a 6-foot drop reported for one section of highway.

Seismologists said the quake, which lasted 30 to 60 seconds, was the worst to hit Idaho in a century and the most severe in the Mountain West since 1959. Besides Idaho, the quake was felt in Utah, Washington, Oregon, Nevada, Wyoming, Montana and North Dakota and in the Canadian provinces of Alberta and British Columbia.

It was the strongest in the region since the 7.2 quake that occurred 140 miles to the northeast Aug. 17, 1959, at Hebgen Lake, Mont. That quake killed 28 people.

The largest earthquake in Utah recorded in historic times was a 6.6 Hansel Valley earthquake in 1934.

Roughly 65 aftershocks had been recorded by late afternoon. The largest aftershock, following the principal 8:06 a.m. quake, occurred about 1:51 p.m. and had a magnitude of about 5.5. A magnitude 4.4 aftershock occurred earlier at 9:14 a.m. Aftershocks of this size are not considered unusual following earthquakes such as this.

[Deseret News; October 29, 1983]

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UTAH SEISMOLOGISTS, RED CROSS HEAD NORTH TO EARTHQUAKE AREA

By Lee Davidson

The earthquake in Idaho Friday shook University of Utah seismologists into action, but made most other Utahns simply tremble and wonder if more earthquakes are coming. Six University of Utah seismologists took two trucks of equipment, including 12 portable seismographs, to the epicenter near Mackay, Idaho, Friday to gain more information about they call "the most significant event in 25 years."

"The extra equipment will help us get a more detailed look at what's going on underground. It should tell us how deep the earthquakes are and give us more clues about what is causing them," said Tom Owens, who is working on a doctorate in seismology.

Meanwhile, other Utahns from local disaster relief organizations were also heading north with medical supplies, food and emergency services.

Don Cobb, director of public affairs for the Salt Lake chapter of the American Red Cross, said several local members left late Friday for Idaho.

He identified the workers as P. Landon Rich, supervisor of the Salt Lake Disaster Action Team; Ted Powell, volunteer director of Disaster Operations and Planning; and Carl Balsley, educational coordinator for the group's blood services and nursing.

Cobb said the Red Cross Western Operational Headquarters in California is sending 20 disaster specialists to headquarters in Boise. He said the Utah Red Cross workers will assist other members from Idaho and surrounding states in the effort.

"We're going to be gearing up for mass care in Boise," Cobb said.

He said that because many of the roads into quake torn areas are blocked, workers are prepared to carry needed supplies in on foot if necessary.

"My guess is they'll probably have to hike a lot of this stuff in," Cobb said.

He said Utahns who want to contribute to relief effort can send money to the American Red Cross, P.O. Box 8687, Salt Lake City, Utah, 84108.

Don LeFevre, spokesman for The Church of Jesus Christ of Latter-Day Saints, said no aid had been requested by local church leaders in areas close to the epicenter of the earthquake.

"If they need help, we always have a semi-truck loaded with tents and other emergency equipment standing by at a central bishop's storehouse in Idaho Falls. We haven't received any word from local priesthood leaders on whether they need help, so they may be able to handle things themselves."

Spokesmen for the State Division of Comprehensive Emergency Management said they had not received any requests for aid from Idaho either, but were standing by to help if necessary.

Owens was one of the students left in charge of the university's seismology station while professors and other students traveled to Idaho. Seismology director Walter Arabasz was on vacation.

"We don't know a lot about what causes earthquakes in this area. This earthquake is the biggest since the Hebgen Lake, Mont., earthquake measured 7.1 on the Richter scale in 1959, and it should offer a wealth of information."

Owens said the university will work with other seismologists and geologists from Boise State University and the U.S. Geological survey to study the aftershocks. He said the university will keep personnel in the field as long as good size aftershocks continue.

The U. of U. seismology station says 65 aftershocks have been recorded as of 3:45 p.m. A 5.5 aftershock, the largest yet recorded, occurred at approx. 1:51 p.m. A 4.4 aftershock occurred earlier at 9:14 a.m. Aftershocks of this size are not considered unusual following earthquakes of Friday's magnitude.

"The aftershocks could continue for weeks, months or even years. The Lake Hebgen earthquake may have had aftershocks as late as the early 1970s, but seismologists argue whether those later earthquakes were actually aftershocks or just separate events." Owens said the Idaho earthquake was not caused by the same stresses that forced smaller earthquakes recently in the Salt Lake Valley.

"However, we have the same types of faults here, so we could have an earthquake just as big here in the future."

Owens also said the Idaho quake was so far away that there is little chance it could trigger additional activity along the Wasatch Fault. "If it did, it would only be at the northern end of the fault. The likelihood of that is very small though."

He said Utahns living on the valley floors more likely felt the earthquake Friday than those living in bench areas.

"The sediment left by old Lake Bonneville in the valley seems to amplify the ground movement more than rocky or bench areas."

The earthquake led to the evacuation of the Salt Lake City-County Building, the Metropolitan Hall of Justice and the county complex, 2100 S. State--all located on the valley floor.

Only the Metropolitan Hall of Justice tower sustained any damage when decorative exterior blocks rubbed against each other and chipped while the building swayed from the ground motion.

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TIGHTLY KNIT CHALLIS STUNNED -- 2 OF ITS CHILDREN ARE DEAD

By Glen Warchol

CHALLIS, Idaho--The deaths of Travis Franck and Tara Leadon--the only two fatal victims of Friday's earthquake--was shocking and puzzling to residents of the small, tightly knit mountain community of Challis.

The residents were stunned as word spread of the coincidences involved in the deaths of 6-year-old Travis and 7-year-old Tara.

Tara and Travis always stopped in Alan Hardman's dry goods store on Main Street and met Jessica Savage on their way to school. For some reason they didn't Friday and were crushed beneath tons of cut stone when the front of the Bargain Barn, a second-hand shop, collapsed.

Jessica, who was late, was spared. Her mother, however, saw the children disappear in a cloud of gray dust caused by the crumbling mortar. When men from a nearby cafe cleared the rubble, the children were found in the gutter dead.

"They usually stop in the store and wait for the other kids," said Jan Hardman. "This morning they didn't. We don't know why."

"The girl started to cross the street away from the building, but the boy hollered for her to come back," said Hardman. "He saw a car coming. That's when the building fell."

The second-hand shop, built of massive stone blocks 75 years ago as an ice house, was the only building to collapse onto the half-mile stretch of Challis' Main Street.

"It was a freakish thing," said Bev Bowers, who works in Hardman's store. "It was the only building on the street that collapsed. They just happened to be there."

When Mrs. Hardman and Mrs. Bowers first arrived in Challis Friday afternoon, they were terrified that it had been their own children crushed under the rubble.

"We heard the reports that two children were killed," said Mrs. Hardman, sobbing. "But we didn't know if they were ours or not."

The relief lasted only a few seconds before being replaced by grief for the two children.

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QUAKE OF SIZE THAT HIT IDAHO COULD KILL MANY ON UTAH FAULT

If Friday's Idaho earthquake had occurred along the Wasatch Fault in Salt Lake County, property damage would approach \$1 billion and, depending on the time of the day of the quake, hundreds of people would have been killed, U.S. Geological Survey geologists predict.

Buildings astride the fault would be ripped in half. But most of the damage would occur on the valley floor, where shock waves would rumble through soft dirt, like waves on a pond. The wave effect is actually more destructive to buildings than earth cracking, geologists say.

Friday's earthquake, which killed two children, is a grim reminder of life in an active seismic zone, scientists said.

Utah and Idaho are the second most active earthquake areas in the West, ranking behind only California.

The Mountain West earthquake zone runs from southwestern Utah to southwestern Montana. Since 1850, when settlers inhabited Utah, there have been 127 earthquakes registering 4.0 or greater on the Richter scale in the state.

Many smaller earthquakes, some undetectable by humans, often occur.

But the big quakes are well remembered. In 1959 a 7.1 earthquake rocked the Hebgen Lake area of Yellowstone Park, creating a new lake. In 1975 a 6.0 earthquake rolled along the Utah-Idaho border, causing about \$1 million damage.

The early morning Oct. 8 earthquake that woke Utahns from sleep was only 4.25 on the Richter scale, 100 times weaker than the 6.9 quake that rocked Idaho.

Robert B. Smith of the University of Utah seismic station has tracked hundreds of small Utah earthquakes occurring since 1909. He said the Wasatch Fault near Ogden and Provo hasn't moved in a number of years. That's not good, since earthquakes happen when massive pressures deep in the earth build up to a breaking point.

The more small earthquakes, the less likely the chance of a really large quake. There are sections of the fault 20 miles long that have been locked up for some time. A shift along a 20-mile stretch would be at least a 7.0 on the Richter scale--a major earthquake, Smith said.

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QUAKE VICTIMS SURPRISINGLY CORDIAL AS REPORTERS CONVERGE ON TOWNS

By Glen Warchol

CHALLIS, Idaho--The sky above the towns of Challis and Mackay, Idaho resembled Chicago's O'Hare International Airport in miniature as the news media's jets, helicopters and airplanes circled, waiting to land.

Television choppers and smaller planes caused disaster workers and residents to duck as they swooped in shooting aerial footage of tiny Mackay's crumpled storefronts.

Mackay's short, rutted airstrip was unable to handle the television networks' Lear jets, forcing the rental of helicopters and smaller aircraft.

With no ground controllers at the blacktopped airstrips, pilots worked out landing and takeoff etiquette among themselves. Reporters doubled as lookouts, spotting competing aircraft to avoid air collisions that could have caused several times the casualties of the earthquake itself.

"It's a real zoo down here," a pilot on the ground radioed the Deseret News' chartered pilot. "Don't park on the ramp. When you land, roll over to the hangers and we'll squeeze you in."

Reporters and photographers hitched rides to and from the towns in the beds of local residents' pickup trucks. In Challis, Sylvia Markley, a Custer County sheriff's dispatcher spent her day shuttling news personnel over the two miles from airstrip to town.

Ironically, the problems of damaged telephone lines in Central Idaho were exacerbated when thousands of calls placed by reporters from all over the country jammed into the system.

The Idahoans' response to the crush of newsmen from the three major networks, Western and local newspapers, radio and television was surprisingly cordial. They were willing to tell their stories of the quakes and pose before rubble and crushed automobiles for photographs that will be seen throughout the country.

Mayor Oval Caskey of Mackay patiently allowed himself to be dragged from one damaged building to another by television crews and photographers, repeating for the hundredth time that the situation was "stable," every chimney in town had toppled and only one of his 550 neighbors was hurt, but "she's darn lucky to be alive." Two children were killed in nearby Challis, however.

All in all, Caskey said, the invasion of media was less disruptive than the earthquake.

"You can always shut the press off if you have to," he said. "Earthquakes are another thing altogether."

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THE MINDS AND TERRAIN OF CENTRAL IDAHOANS STILL FEEL AFTERSHOCKS

By Pam Wade

Central Idaho residents concentrated this weekend on dealing with the emotional and geological aftershocks of a massive earthquake that rocked eight western states, leaving two children dead.

Residents of the small Idaho towns of Challis and Mackay, hardest hit by the quake, cleaned up debris from the quake that toppled buildings and sent boulders crashing into homes. Four major aftershocks, including two Saturday evening, and hundreds of smaller ones continue to shake the area.

Meanwhile, searchers combed Idaho's vast forests to ensure no hunters or campers had been trapped or injured.

The quake, estimated at between 6.9 and 7.2 on the Richter scale, was centered 110 miles northwest of Pocatello, just west of Mt. Borah, Idaho's highest point. Damage estimates ranged up to \$5 million.

While residents mourned the loss of two area children and took personal stock of the disaster, state and local officials set in motion the mechanisms that will lead to community rebuilding.

The Mackay City Council met Saturday to declare an emergency--a legal requirement to spend city funds on the cleanup--and assess the damage in the city of 550 residents. Mayor Orval Caskey said state officials reported 20 buildings in a three-block area of Mackay sustained major damage estimated at \$1.5 million. While the only deaths occurred in Challis, about 50 miles away, the greatest structural damage occurred in Mackay. Caskey said Mackay's streets and sidewalks have been cleared, but no buildings have been torn down.

Residents are calm, and everything is under control, he said. "We're going to rebuild. We're a very hardy group of people in Mackay."

Challis resident Jan Hardman said Saturday that residents did what immediate cleanup was required, but then attempted to spend the weekend quietly.

"I think the town is kind of in shock and trying to rest today."

Two Challis school children were killed when a building front crumbled and the youngsters were crushed beneath tons of stone.

Tara Leaton, 7, and Travis Franck, 6, died when they were buried by the rock front that fell from J.P.'s Bargain Barn as they walked to school.

One woman in Mackay was hospitalized with leg injuries and a few others were treated for minor injuries.

Mrs. Hardman said workers bulldozed the rest of the Bargain Barn front to prevent any more accidents. That building and the local high school were roped off.

A home hit by a boulder shaken loose during the quake has been boarded up.

"We're pretty well stunned and shocked over the two little ones and kind of sitting back trying to grasp the situation," she said.

Salmon River Stages canceled its bus run through Challis because officials were preventing any heavy traffic from crossing Willow Pass between Challis and Mackay, said Mrs. Hardman, who, with her husband, runs the Challis Transportation Co.

Tim Reimann, Mackay assistant fire chief and head of the emergency medical command during the disaster, said residents were organizing Saturday to help clean up businesses downtown, where most of the damage occurred.

"Both grocery stores were hit real hard. We're trying to get them open to serve the community," he said.

The emotional state of the residents is mixed, he said, and it's been traumatic for most.

"We haven't ever been through anything like this."

Several psychiatrists said in interviews that Idahoans caught in the earthquake could suffer anxiety and stress.

Dr. James Cooper, Boise, said that in some cases people who witnessed injuries or extensive damage could develop post-traumatic stress disorder, a mental disturbance affecting some combat veterans.

He said people suffering from the disorder may experience flashbacks, isolation from the outside world, heightened sensitivity, sleep disturbances and feelings of guilt.

Experts said some people developed similar post disaster symptoms after the 1976 Teton Dam disaster.

"When we feel that we don't really have control, anxiety starts to skyrocket," said Dr.

Thomas Kruzich. "I think all of us are going to be a little sensitive for the next few days."

Kruzich said people upset about the quake should talk to others about their worries, and parents should try to comfort their children by explaining earthquakes.

While residents were still being asked to boil water as a precaution, most community services were running back to normal Saturday, Reimann said. An ambulance run, unrelated to the earthquake, was made Saturday morning, along with a response to a false fire alarm.

In Challis, Custer County Sheriff's dispatcher Sylvia Markley said officials were searching the back country for any missing hunters or campers. She said the sheriff's office had received numerous inquiries from Idaho and elsewhere from people concerned about the safety of relatives and friends.

Authorities were watching for looters in the damaged downtown areas, but said no looting had been reported.

The Rev. William Mai, minister of the Mackay Community Church, said most church members he has spoken with were not too upset by the events of the past two days.

Mai planned no special earthquake-related message in his Sunday sermon, although he did plan to discuss attitude, a subject he said could apply to the situation in which the residents have found themselves.

"We're confident it's in the Lord's hands."

Steven W. Tibbitts, president of the Moore Stake of The Church of Jesus Christ of Latter-day Saints in the Mackay area, said local church members were thankful there were no more injuries or deaths than there were.

Most of the damage to homes was in toppled chimneys. Church buildings received minor or no damage, he said.

"The people are taking it pretty well. The people are quite resourceful, and they already have plans to build back. In a little time you'll never know what happened."

Initially, residents were quite concerned with the aftershocks, Tibbitts said, but now they seem to be taking it in stride.

Meanwhile, a spokeswoman for the seismograph station at Ricks College in Rexburg said aftershocks were running at the rate of one a minute on Friday. Saturday the temblors, most imperceptible, were averaging one every three minutes.

The spokeswoman said residents should not be overly concerned about the aftershocks because they are the natural settling of the earth after an earthquake.

Seismologists at the University of Utah Seismograph Station said Saturday they had recorded more than 150 aftershocks since the major quake hit at 8:06 a.m. Friday. Dr. Jim Pechmann, research seismologist, said all but four of them were 4 or less on the Richter scale. One measuring 4.4 occurred at 9:14 a.m. Friday and one at 5.5 at 1:51 p.m. Friday. On Saturday, an aftershock measuring 5.5 occurred at 5:29 p.m. and another measuring 5.1 occurred at 5:40 p.m.

Pechmann said the discrepancy between the Utah and the Idaho numbers of aftershocks resulted because the Utah station was recording from equipment farther away from the epicenter and only counting those quakes over 1.5 on the Richter scale.

He said the exact location of the aftershocks has not been pinpointed, although most of them would likely have been in the vicinity of a 14-mile-long scarp cut by the earthquake. Scientists in aircraft spotted the scarp Friday afternoon on the southwest flank of the Lost River Range, 20 miles northwest of Mackay. The scarp's maximum height was about two meters, Pechmann said.

Scientists were not surprised that an earthquake of the magnitude of Friday's quake occurred where it did, Pechmann said.

A quake with a magnitude of 7.1 occurred in Montana in 1959 and one estimated to be in the upper 6 range occurred near Helena, Mont., in 1925. Abundant geologic evidence also indicates large earthquakes in the past along many mountain fronts in the Mountain West, he said.

Despite that, there was very little seismographic equipment in the immediate area.

Six U. of U. seismologists were in Idaho Saturday, setting up portable equipment to better record the aftershocks.

Scientists from other centers, including Boise, Rexburg and California, were also at the scene.

People attempting to find out about relatives in the quake-struck areas also had problems. Telephone lines became overloaded in what Mountain Bell officials described as the highest use of lines in Idaho ever.

Spokesman Steve Guerber said about 750,000 long distance calls were placed around the state Friday, compared to Idaho's normal peak long distance demand of about 630,000 calls during a 24-hour period.

Guerber said the telephone company's switching equipment was overloaded much of the day--as many callers learned when they received recorded messages saying their call could not be placed.

Jeanne Terra, press secretary to Idaho Gov. John Evans, said state workers from several departments, including the Idaho adjutant general, were in the quake ravaged area to assess damages.

Evans declared the area a disaster Friday, allowing state workers to assist in the local cleanup and rebuilding. Evans estimated damage at between \$4 million and \$5 million.

Ms. Terra said a primary concern is the condition of the Mackay Reservoir. "There are no problems so far, but we're going to pull the water level down five feet to relieve the pressure a little."

She said all roads were open in the area, although traffic was limited on some.

Evans planned to decide after the weekend assessment whether he would seek declaration of the area as a national disaster.

"We estimate quite a few of the buildings will have to be replaced in both Mackay and Challis," Ms. Terra said.

Officials found no injuries at either of the area's two major mines, one underground and one an open pit.

In Grand View, the quake caused some settling of soil covering abandoned missile silos used for storage of hazardous waste, but there was no indication the quake caused damage or spills of the waste, said Steve Provant, Environmental Protection Agency team leader, Boise.

No damage was reported to any of the 15 nuclear reactors at the Department of Energy's Idaho National Engineering Laboratory about 12 miles southeast of Mackay.

Anne Hosford of the Department of Energy said the two reactors operating at the time automatically shut down when the quake occurred. One was returned to operation and the other remained down for routine test analysis. She said two administration buildings had cracks but no serious damage.

[Deseret News; October 30, 1983]

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QUAKE FORCED HUNTERS TO LEAVE THE AREA ON FOOT

CHALLIS, Idaho (AP)--Hunters were forced to leave their vehicles behind in the Borah Peak area of the Challis National Forest when Friday's earthquake opened a large fissure in a back country road near Chilly, preventing them from driving past.

Other hunters, unable to get past boulders or trees that have fallen onto other roads, also walked out of the forest, said Earl La'Orange, public information coordinator for the Forest Service.

"But they're apparently all safe, and there have been no injuries," said La'Orange. License numbers on the vehicles were collected, and telephone calls were made to confirm no one was hurt.

Numerous roads in the Challis forest are impassible due to fallen trees or landslides, and travel on open roads in the forest is not advised, said La'Orange.

"The forest has not been officially closed, as such. But what we are trying to do is simply encourage people not to go into that area."

La'Orange said he was unable to make direct contact with Challis administrators because of telephone disruptions, but he has been kept advised of the situation by the regional office in Ogden.

"We are discouraging people from traveling in the adjacent forests, and the Fish and Game Department is discouraging hunters from going into that area for at least the next week or so.

"There is always the potential of a second major tremor or quake," said La'Orange.

He said the Forest Service is particularly concerned about the large number of fishermen being drawn to the Salmon River and its tributaries by the steelhead season.

"We are suggesting that people not camp under trees or near mountains, with rockslides or landslides possible," he said.

He noted that the popular Corn Creek and North Fork of the Salmon "have very few places to actually camp," and officials recommend against entering those areas.

Dick Hauff, Salmon National Forest supervisor, said the quake's most noticeable effects in the forest are rock falls, slides and fallen snags.

He said there is a probability of more strong shocks over the next two weeks. He said visitors should take two precautions:

- Keep watch while camping, parking or stopping for any length of time, and stay away from dead trees, the bottoms of steep slopes and bottoms and sides of bluffs.
- Travel forest roads cautiously, keeping watch for possible rock slides.

The Sawtooth National Recreation Area has not been closed to vehicle traffic, said Allan Ashton, supervisor.

He said the eastern part of the Salmon road was temporarily closed, but the debris has since been cleared.

One of his crews flew over the area Friday and found no major blockages on the recreation area's roads, except some rocks in the Big Boulder Creek area. And a crew visited an isolated mining operation on the Silver Rule Creek to make sure miners were safe, he added.

"There was no problem in the Yankee Fork Ranger District (of the Challis), which is the nearest to the SNRA," said Ashton.

[Deseret News; October 30, 1983]

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TV NEWS CREW WAS MORE UPSETTING

CHALLIS, Idaho (UPI)--A Challis resident caught in Friday's earthquake says she was more upset with a pushy television news crew than she was with a 400 pound boulder that crashed into her home.

Pam Markley says the news crew strolled into her damaged house to take a look at the damage when nobody was home.

"I can't believe they just walked in here without anybody in the house," Ms. Markley said.

"They sure have a lot of nerve. Just who do these people think they are?"

Ms. Markley quickly became a news celebrity as journalists converged on her heavily damaged home.

Dozens of reporters from Idaho, California, Washington, Oregon, Montana and Utah swarmed to Mackay and Challis Friday to get a firsthand look at the damage.

From San Francisco came a television network correspondent, at least two film crews and a reporter for a San Francisco newspaper.

When asked if she was scared, Ms. Markley replied, "Sure. I had been hearing a lot about the Russians, Beirut, and Grenada, and I first thought we were being invaded."

Some Challis residents said they were worried that another disaster would occur in the air as several helicopters and airplanes filled the sky above the mountainous central Idaho town.

When a small jet carrying reporters roared over Mackay, some residents said they feared the noise from the aircraft's engines would knock over some unstable buildings.

The plane also upset local pilots when it temporarily blocked a runway.

"Just who do they think they are?" one local pilot asked.

[Deseret News; October 30, 1983]

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NOTIFY GEOLOGISTS IF YOU KNOW OF ANY DAMAGE FROM IDAHO EARTHQUAKE

Utah geologists are asking for help in determining the effect Friday's Idaho earthquake had on Utah.

Bruce Kaliser, chief of the hazards section of the Utah Geological Survey, said Utah residents who have information about effects or damage from the quake should let his office know.

Information can be sent to: Bruce Kaliser, I.Q., Hazards Section, Utah Geological Survey, 606 Black Hawk Way, Salt Lake City, 84108.

Kaliser said geologists are looking specifically for ground effects, such as cracks on slopes or river banks and in sidewalks. He also is interested in damage to any structures.

Residents should also report any effects on springs or wells, which may include cloudy water or a change in flow or level.

Kaliser said his office also is interested in reports of objects moving on shelves or the floor. Personal accounts of how it felt during the earthquake or of such minor things as swaying of light fixtures are not needed.

Reports of these effects helps scientists in studying earthquakes, he said.

[Deseret News; October 30, 1983]

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MINOR SHOCKS CONTINUE IN CENTRAL IDAHO

CHALLIS, Idaho--Aftershocks continued to rumble in central Idaho over the weekend in the wake of Friday's killer earthquake, and Boise police tried to track down a crank caller who told a radio station a quake was about to rock the capital city.

The Friday quake, measuring 6.9 on the Richter scale and felt in eight states, collapsed buildings in Mackay and Challis and killed two Challis children who were crushed by tons of rock from a collapsing building as they walked to school.

Searchers continued to comb the mountains surrounding the quake area Monday for hunters reported overdue, but authorities believe most of them have now left the area. It appeared many delayed returns were caused by difficulty in getting vehicles out of quake fissured areas.

Custer County deputy sheriffs received reports of more than a dozen hunters at least 24 hours overdue as of Sunday afternoon, but dispatcher Joy Roark said most had returned by nightfall from the Lost River Mountains and the wilderness surrounding the Salmon River.

She said no new calls asking about hunters' whereabouts had come in Monday.

"It looks like it's going to quiet down here," said Mrs. Roark, one of several dispatchers who fielded waves of telephone calls concerning hunters who ventured into a maze of trails and roads near the quake's epicenter.

Conservation agent C. W. Welch said authorities planned to search on horseback for any hunters or anglers who remained within about 50 miles of the epicenter on the flanks of Mount Borah.

Welch said officials won't know with certainty for several days whether anyone was hurt or trapped by crashing trees or hurtling rocks during the quake on Friday or aftershocks still rumbling through the region.

University of Utah scientists said nearly constant tremors continued to ripple through the Challis and Mackay areas Monday, but all were of low intensity.

Several weekend aftershocks shook buildings and rattled windows in the towns hit hardest by the quake. One temblor at 7:59 p.m. Saturday measured 4.6 on the Richter scale, but none over 4 has been recorded since then.

U. of U. seismic analysts said quakes were occurring every few minutes Sunday night.

Analyst Linda Sells said the largest of Sunday morning's aftershocks came at 8:55 and measured 3.8. Officials said that remained the day's record late Sunday night. No damage was reported from any of the aftershocks.

In Boise, police learned that someone posing as a U. spokesman called KBBK-FM to announce an earthquake measuring 7.5 on the Richter scale would shake Boise between 2:30 and 3:30 p.m. Sunday, police said.

Switchboards at the police dispatch desk lit up with calls from anxious listeners. Police called the university and the National Earthquake Center in Golden, Colo., and were told the time of earthquakes cannot be predicted.

The university said no one from the seismology center made the call.

Damage to downtown Mackay, hit hard by the quake, has been estimated at about \$5 million. State engineers and a team from the Federal Emergency Management Agency were assessing the extent of the damage.

Officials said junior and senior high schools in Challis were closed Monday. Students will be moved Tuesday to a new school that had been scheduled to open Monday.

Mackay schools will be closed all week, officials said.

Mackay Superintendent John Meeks said the quake caused structural damage to the high school building, and to its coal-fired furnace.

When classes resume next Monday in Mackay, a nearby church will be used instead of the high school.

But Mackay elementary school children will be back at their usual classrooms next week, because the grade school building suffered only minor damage.

Portable seismograph stations were set up near the quake's epicenter, located near Mount Borah, Idaho's tallest peak at a previous height of 12,662 feet above sea level. There is a 10-mile-long gash on the flanks of the mountain and its sisters in the Pahsimeroi range.

The quake raised the mountain about 15 more feet above the valley floor, but officials said they would not be sure if the valley is lower or the mountain is higher until the area is resurveyed.

Residents of the area were advised to boil their drinking water until tests determine if it was contaminated by the shifting in the earth's crust.

Scientists said the quake has drastically altered the "underground plumbing" of a river valley, creating a lake and tripling a small town's water supply.

Spencer Hall, a Boise State University geologist, said the upheaval reconstructed the valley's natural water system.

"The underground plumbing in that whole region near the epicenter has been changed dramatically."

On Chilly Butte, overlooking the west side of the wilderness valley, a lake has formed from spring water percolating to the top. The butte was dry, barren range before, Hall said.

Oval Caskey, mayor of the quake-stricken town of Mackay, said the volume of water gushing from city wells tripled after the quake.

University of Idaho geologist Peter Isaacson said the earth's crust may be more active in central Idaho than scientists had thought.

"There are some mountain ranges that are literally rising straight up out of the crust, and adjacent basins are dropping," he said.

Another U. of I. Professor, hydrologist Roy Breckenridge, said the epicenter of the quake lies a few miles east of a huge cluster of historic epicenters.

Isaacson said the quake may have been triggered when heavy rainfall this year lubricated the valley's fault zone. He also said the fact that the quake was felt in several Western states and Canada indicates it may have emanated from a fault deep beneath the earth's surface.

A graveside service was held Monday afternoon for Travis Franck, 6, and services are scheduled Monday night and Tuesday morning for Tara Leaton, 7, the first victims of an earthquake in the continental United States since 1971.

[Deseret News; October 31, 1983]

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IDAHO QUAKE: RESIDENTS CONTINUE CLEANING UP AMID WARNINGS OF AFTERSHOCKS

Associated Press

CHALLIS, Idaho--As aftershocks continued to ripple through central Idaho, residents here buried two children killed in Friday's earthquake and continued the chore of cleaning up.

Meanwhile, experts were warning of the potential for continuing aftershocks, some perhaps violent. As a precautionary measure, the level of the Mackay Reservoir was lowered and a 24-hour watch put in effect, although the dam is still structurally sound.

About 200 of Challis' 800 residents gathered in the cemetery on the outskirts of town at a graveside service Monday for 6-year-old Travis Franck, who died along with 7-year-old Tara Leaton when part of a wall collapsed on them while they were walking to school.

Rosary was recited for Tara Monday night and a funeral Mass was held Tuesday morning at the Challis High School Gym, followed by burial in the Challis Cemetery.

Schools in Challis were closed Monday as volunteers and school employees emptied students' lockers at the old high school in preparation for the move to a new school across town on Tuesday.

The move to the new \$4 million structure had been planned for later this year but was speeded up because of safety concerns about the old building.

Students were not even allowed in the old high school to get their possessions for fear of further damage from aftershocks, which continued to roll through the area at the rate of one every two to three minutes Monday.

Rose Johnson, chairwoman of the Challis Joint School District's board of trustees, said the old high school building was to be converted into a junior high, but now its fate is uncertain. "It's not worth one kid's life to keep it open for a day unless we can determine that it is safe," Ms. Johnson said.

Meanwhile, schools in Mackay, about 40 miles from Challis, will be closed all of this week while buildings are inspected for safety, officials said.

Mackay was the town hit hardest by Friday's earthquake, but there were no fatalities there.

The quake measured 6.9 on the Richter scale and was the largest earthquake in the continental United States since 1959. It was felt as far away as North Dakota.

Damage estimates from the quake, earlier placed at \$5 million, were revised down to \$2.5 million Monday.

Jean Terra, Gov. John Evans' press secretary, said disaster officials estimated damage at \$1.5 million in Mackay, \$500,000 in Challis and \$500,000 to roads.

In Boise, a geologist on Monday repeated warnings that a major aftershock could follow the earthquake.

"There is certainly reason to expect a Magnitude 6 earthquake to occur in that area in the next several weeks, or possibly even months," Boise State University geologist Spencer Wood told a news conference.

BSU geophysicist Jack Pelton said most of Monday's aftershocks measured less than 3 on the Richter scale. Pelton said that while the number of tremors is expected to decrease with time, he expects "significant levels of aftershocks for many years to come."

Pelton said an aftershock of Magnitude 6 "would be sufficient, I'm sure, to bring down any building that is already on the verge of coming down."

Wood said Idaho could be the second most active earthquake belt in the continental United States, next to California's San Andreas fault. He said a Magnitude 6.0 earthquake

might be expected in California every seven years; whereas in Idaho an earthquake of that force will likely occur once every 40 years.

Geologists from several states spent the weekend at the base of Mount Borah in central Idaho, near the fault line, taking measurements they hope will enable them to predict with more accuracy when and where other earthquakes will occur.

The Friday quake created a fracture in the earth 12 miles long, created a new lake and stream and lifted a mountain.

[Deseret News; November 1, 1983]

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TREES SPLIT, BOULDERS WERE HURLED AS SHOCKED HUNTERS RAN FOR COVER

CHALLIS, Idaho (UPI)--While searchers probed central Idaho's earthquake-stricken back country Monday for stranded or injured hunters, sportsmen who emerged from the isolated mountains said they were awed by the tremor's destructive force.

Challis native Rick Frost, 23, said he was hunting below a jagged cliff at Willow Creek Summit when Friday's earthquake ripped through the Lost River Mountains between Challis and Mackay, hurling boulders down steep canyons and shearing trees on heavily timbered slopes.

"That's the closest to death I've ever been in my life," Frost said after returning a second time to hunt for deer several miles from the quake's epicenter along the flanks of Mount Borah.

"My first instinct was to get out of there, so I took off on a dead run. There were boulders coming on both sides of me, so I got behind a tree."

Frost said he and his brother raced off the summit and headed for home, where aftershocks rumbled through the weekend.

Other hunters said they didn't initially realize that what sounded like sonic booms was actually the most violent earthquake in the lower 48 states in 24 years. The rumblings measured 6.9 on the Richter scale and were felt in seven Western states and part of British Columbia.

Howard Worcester of Twin Falls said he was hunting on horseback about 30 miles northwest of Challis--where a toppling storefront killed two children--when he heard rocks and trees break loose.

"We were coming down a canyon and it sounded like somebody was setting off dynamite all around the mountain," Worcester said. "My horse started prancing around like it was on hot coals. I've never felt so small."

Worcester's companion, Everett Messner of Twin Falls, said it was several seconds before he realized he was in danger.

"Sitting on your horse, you can't feel anything," he said. "The horse feels it all. All of a sudden, the trees started shaking, and the horse turned around and started going backwards."

Leonard Parent of Pontiac, Mich., and Berl Stevenson of El Cajon, Calif., who were hunting with the Idahoans, said rocks careened down the Camas Creek Canyon, and trees snapped from the force of the quake for more than 10 minutes.

Steelhead fisherman Chuck Major of Twin Falls said he was nearly 100 miles northwest of Challis when he awoke to the sound of crashing rocks.

Major said he arrived after dark Thursday near the Middle Fork of the Salmon River and slept under a ledge on a seldom-used dirt road.

"I knew what it was when I heard the rocks," he said. "They were going over me about 10 feet away. There were some half the size of a pickup truck up and down the road."

Except for Frost, all the sportsmen resumed their expeditions.

[Deseret News; November 1, 1983]

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FRIENDS, NEIGHBORS, TEACHERS PAY LAST RESPECTS TO FIRST-GRADE BOY

CHALLIS, Idaho (AP)--The skies were gray and a crisp autumn wind blew as about 200 people gathered in the Challis town cemetery to remember a quiet, well-behaved boy who became an indelible part of the largest earthquake to hit the continental United States since 1959.

Six-year-old Travis Franck was on his way to school Friday with his regular companion--7-year-old Tara Leaton--when the earthquake struck and a wall collapsed on the children. They became the first earthquake fatalities in the lower 48 states since 1975.

On Monday, Travis' friends, neighbors and teachers paid their last respects at a graveside service.

A funeral Mass for Tara was conducted Tuesday in the Challis High School Gym, followed by burial in the Challis Cemetery.

Robert Lisonbee, an LDS bishop and principal of Challis Elementary School, said Travis was well behaved, a good student and had a love for people and nature.

"His favorite hobby was fishing. He could sit and talk to his father for hours about it. He didn't care how big they were or even whether he caught any. He just liked to fish."

The boy's love of books and learning also was remembered.

Lisonbee said that when the school librarian read to the children, he remembered Travis listening intently to every word.

"He was usually very sober, but during the reading last week of 'The Ghost With the Halloween Hiccups,' Travis was one of the few students who really caught the humor in it."

"Travis was a boy who was filled with kindness, patience and love," said his first-grade teacher, Patty Millick, in a tribute read by Lisonbee at the service.

"Travis was always there to remind me of the things I had forgotten. It may have been the pledge of allegiance or a story I said I would read," Ms. Millick said. "But thanks to Travis it always got done."

[Deseret News; November 1, 1983]

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UTAHNS SNAP UP EARTHQUAKE INSURANCE

By Glen Warchol

A month ago, Utahns would have been as likely to insure their homes against meteorites as earthquakes.

But after temblors rattled furniture and nerves in the Salt Lake Valley on Oct. 8, 135 Utah homeowners rushed out to buy catastrophic disaster insurance. And by Tuesday--four days after an earthquake of 6.9 on the Richter scale ripped through central Idaho, a 300-mile stone's throw away--another 140 new applications for calamity coverage had crossed Marie Fratto's desk.

"Friday, the phone never stopped," said Mrs. Fratto, flood and earthquake insurance representative for Trustco Inc. "And the mail Monday morning was so heavy that you knew exactly where it came from. It's definitely a result of what happened in Idaho."

Trustco apparently offers the only separate earthquake home insurance coverage in the state. And the Homeowner's Catastrophic Insurance, underwritten by Lloyd's of London, seems tailored to meet the fears of Utah homeowners. It covers practically all natural disasters--earthquakes, floods, mudslides and avalanches--all of which have stomped, slopped and rumbled through the state this year.

"I suppose if we ever had a volcano erupt in Utah, Lloyd's of London would cover that, too," Ms. Fratto said.

The high risk nature of catastrophic insurance makes it expensive, however. It about doubles the normal cost of insurance on a home. The Lloyd's of London insurance is \$82.80 for \$35,000 of coverage--regardless of whether the home is brick or frame (or straw)--and can be increased in \$5,000 increments at \$10.40 per increment to \$530 a year, which provides \$250,000 of protection. The insurance is on the basic living structure only, said Mrs. Fratto, with minimal coverage of garages and patios. As for the swimming pool and tennis courts--you're on your own.

The only other way homeowners can get earthquake protection is to add earthquake "riders" to their existing homeowner policies. The riders, or endorsements, cost about \$7.75 per \$1,000 coverage for brick to \$1.75 per \$1,000 for frame, depending on your insurance company, Mrs. Fratto said. It works out to being considerably more expensive than the catastrophic coverage and doesn't protect against the full range of nature's rages as does the Lloyd's of London policy.

Barring communication and transportation breakdowns in event of an earthquake, Mrs. Fratto said, claims on the policy will be handled in six weeks or less. Payment on claims of less than \$10,000, which don't require Lloyd's of London approval, take less time.

Some 2,600 policies worth \$200 million have been written in Utah in the eight years the catastrophic insurance has been offered, Mrs. Fratto said. Seven earthquake claims for minor damage are being handled after the Oct. 8 quake.

But in Idaho--where estimates of the earthquake damage in the mountain towns of Challis and Mackay are running in excess of \$5 million--no natural catastrophe insurance is available at this time.

Although Trustco hopes to offer the Lloyd's of London insurance in Idaho sometime in the future, currently the only protection available is the more expensive and limited earthquake rider.

Moreover, until the seismology of Idaho settles down after last week's quake, Idahoans can forget getting any earthquake protection whatsoever.

"Our company (and all other Idaho insurance companies) put a two-week moratorium on earthquake insurance--until the aftershocks subside," said Dave Peterson of Pacific Insurance Co. in Boise. "Writing earthquake insurance now would be like insuring half the house while the other half is burning."

Although Peterson said independent agents have been calling with questions about earthquake policies, he doubts in the long run that many Idaho homeowners will buy the riders to their policies.

"It's very expensive insurance," he said. Earthquake damage is rare enough that most people just don't feel it's worth it."

Peterson estimates that before the earthquake, almost no Idaho homeowners had any kind of earthquake insurance. "A small percent of a percent, at most, had that kind of coverage."

[Deseret News; November 1, 1983]

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QUAKE REMNANTS INCLUDE A CRUMBLING GYM, FLOODED MINE

Associated Press

BOISE, Idaho--In the aftermath of Friday's violent central Idaho earthquake, silver miners continued Wednesday trying to clear gushing water from an underground shaft in Custer County, and a high school gymnasium in Lima, Mont., damaged by the quake, was declared unsafe.

In Boise, government workers returned to their jobs at City Hall after crews completed emergency repairs to a support beam thrown off-center by the quake.

Gov. John Evans has asked the federal Small Business Administration to declare Custer County a disaster area to make residents and merchants eligible for low-interest loans.

The governor said preliminary inspection shows that more than 250 homes and businesses were damaged in the massive earthquake that registered 6.9 on the Richter scale and killed two Challis children as they walked to school.

He said 39 homes and 11 businesses in Challis and nearby Mackay sustained major damage, while 200 homes and numerous businesses received moderate to minor damage. Damage is estimated at \$2.5 million.

But residents said the property damage means nothing compared with the deaths of two children killed when a wall in Challis collapsed on them. Seven-year old Tara Leaton was buried here Tuesday, following a funeral Mass attended by about 150 people.

Speaking at the Mass, the Rev. John O'Sullivan said her death and that of 6-year-old Travis Franck were a reminder of the frailty of human existence.

While conceding that words were not sufficient to console a family that had lost a child, O'Sullivan said Tara had returned to "a place where there is no suffering."

She was buried in the Challis Cemetery, where funeral and graveside services were held for the Franck boy Monday.

At the Clayton Silver Mine about 25 miles from the quake's epicenter, employees have been working round the clock with rented pumps trying to stop the flooding in the 1,100-foot-deep shaft. Mine officials said more than 100 feet of water has poured into the mine since the quake.

The flooding has shut down mining and milling.

None of the mine's 38 employees were inside the mine at the time of the quake, which also sent rocks and landslides to within a few feet of the mill and other buildings.

"Everyone is still a little scared and shaky, and they're getting tired," said mine superintendent Roland Rovetto.

An underground spring had been pumping about 500 gallons per minute into the mine shaft before the earthquake, but officials said the flow increased to 1,000 gallons per minute after the quake. It had slowed somewhat Tuesday afternoon.

A high school gymnasium in Lima, Mont., has been roped off and declared unsafe after inspection showed quarter-inch cracks in each corner of the building and in supporting pillars.

School superintendent Bob Smith said there are also cracks in the roof and plaster of the concrete-block gym which was added to the high school in 1957. He said a new gym might have to be constructed if it can't be repaired.

In Boise, about 50 municipal workers got a half day off Tuesday because a beam in the south wing of the Boise City Hall shifted after the earthquake.

Workers shored up the beam Tuesday night and city employees were back at their jobs Wednesday.

Tim Hogland, director of the city building department, said City Hall has flexible joints designed to expand and contract with temperature changes, tremors or other effects. He said the expansion occurred as it was supposed to, but for some reason the joint did not return to its normal position.

Evacuation of employees was a precautionary measure, but with the beam out of place another earthquake or severe aftershock could cause a second story floor to collapse. Hogland said inspections revealed that Boise buildings seemed to withstand the earthquake well, with only some glass breakage, a cracked brick chimney and a collapsed retaining wall.

Meanwhile, geologists continued to monitor aftershocks from the quake, which registered 6.9 on the Richter scale, making it the strongest earthquake in the contiguous states since 1959.

And local residents marveled over some of the geologic changes brought by the earthquake.

A spokeswoman at the University of Utah Seismology Center said nearly 110 aftershocks were measured over a 24-hour period from Monday to Tuesday. About three had a magnitude as high as 3.0, she said.

[Deseret News; November 2, 1983]

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ROCK 'N GHOUL STAR

As Custer County, Idaho residents continued to clean up from the aftermath of last Friday's killer earthquake, one woman ended up with a decorated memento. Georgia Smith returned to her Challis home from work last Friday to find a boulder almost the size of a house in her front yard. The boulder had fallen down a hill behind her home during the quake, just missing the house itself. The boulder is still in the front yard. But now, in honor of the Halloween holiday earlier this week, it sports a grinning Jack-O' Lantern face!

[Deseret News; November 2, 1983]

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Post-Register – Idaho Falls, ID (last date searched 10/28/1984)

Headline: [Earthquake Rocks Idaho; Strongest In Continental U.S. In 25 Years](#)

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Headline: [Debris Kills 2 Children In Challis](#)

Date: 10/28/1983

[Info Categories:](#) B, P

Headline: [Aftershocks Expected; No Damage Predicted](#)

Date: 10/28/1983

[Info Categories:](#) A, E

Headline: [Parts Of Mackay Become Rubble](#)

Date: 10/28/1983

[Info Categories:](#) A, B, N

Headline: [FEMA Team Enroute To Idaho](#)

Date: 10/28/1983

[Info Categories:](#) A

Headline: [Red Cross Sends Teams To Challis](#)

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[Info Categories:](#) A

Headline: [Moving Plates Underneath Continent Cause Quakes](#)

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Headline: [Challis Weighs Loss, Unaccustomed Fame](#)

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Headline: [Governor Declares Custer Emergency](#)

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Headline: [Post-Register: Free Copies For Quake Area](#)

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Headline: [Mackay Gets Big Damage](#)
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Headline: [Hunters Stranded Near Peak](#)
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Headline: [No Time Wasted In Custer County--Cleanup Started](#)
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Headline: [State Hustles To Get Relief Money](#)
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Headline: [Challis Residents Bury Victims Of Earthquake](#)
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Headline: [Mackay Reservoir Filling Faster](#)
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Headline: [Idaho Residents Show True Grit Following Quake](#)
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Headline: [Tremors Felt Near Challis](#)
Date: 11/07/1983
[Info Categories:](#) E

Headline: [Quake Damage Estimates Climb](#)
Date: 11/08/1983
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Headline: [Idaho Quake Shakes Minds--As Well As Matter](#)
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Headline: [Challis Looks At New Junior High](#)
Date: 11/09/1983
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Headline: [Mackay Schools Prepare For Reopening On Monday](#)
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Headline: [Earthquake Loans](#)
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Headline: [Earthquake Insurance Could Get Cheaper](#)
Date: 11/21/1983
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Headline: [Water's Return 1 Man's Joy--Another Man's Grief](#)
Date: 11/21/1983
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Headline: [Quake Emergency Office Opens Tuesday In Challis](#)
Date: 11/23/1983
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Headline: [Quake Victims Get Disaster Aid](#)
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Headline: [Challis Settles Down In The Earthquake Aftermath](#)
Date: 11/27/1983
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Headline: [Disaster Relief Doors To Close On Tuesday](#)
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Date: 11/28/1983
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Headline: [Evans Asks SBA For Butte Disaster](#)
Date: 12/01/1983
[Info Categories:](#) A, I

Headline: [Quake Still Fascinates Scientists](#)
Date: 10/28/1984
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Information Categories

A -- Aid:

provide medical services, shelter, donations, loans, advice, encouragement, implement safety measures

B -- Building Damage:

structure itself plus windows and chimneys (typically damage visible from outside the building)

E -- Earthquake Description:

where, when, duration, direction, sound, motion, number and timing of aftershocks

G -- Geologic Effects:

changes at the Earth's surface, fault scarps, rockfalls, landslides, ground cracks, ground subsidence, sand boils, water spouts; effects on springs, lakes, wells

H -- Humor:

I -- Impact:

changes in daily routine; rumors; influx of reporters, politicians, cost in dollars

L -- Lifelines:

effects on transportation: roads, bridges, railroads, airports

effects on communications: telephone, telegraph

effects on power, gas, water, and sewer lines

effects on dams

N -- Nonstructural Effects:

effects on plaster, furnishings (typically damage or rearrangement of furnishings visible inside a building)

P -- People:

effects on and responses to, during and after; deaths, injuries, near misses

R -- Recovery:

clean up, rebuild

S -- Scientific:

explanation of the day

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EARTHQUAKE ROCKS IDAHO Strongest In Continental U.S. In 25 Years

The strongest earthquake in the continental United States in nearly 25 years has killed two Challis school children and rocked seven states, causing scattered injuries and extensive damage in central Idaho.

Two children walking to school near the earthquake's epicenter were killed when bricks flew from a collapsing building and at least four more people received minor injuries in Challis and Mackay, Custer County Sheriff Ken Bowers said.

The victims are Tara Leadon, 7, and a 6-year-old boy whose name wasn't available at press time.

Idaho Gov. John Evans declared a state of disaster in Custer County, clearing the way for emergency state and federal aid.

Evans was on a flight to Challis Friday to assess the damage. He had earlier considered sending National Guard troops into the area but a decision hadn't been made by early Friday afternoon.

The Custer County Sheriff's Office said it appeared there weren't further deaths.

The earthquake, centered in an unpopulated area west of Mount Borah, Idaho's highest peak, registered 6.9 on the Richter Scale and rumbled for 30 to 40 seconds at 8:06 a.m.

It was the largest earthquake in the 48 states since the 1959 quake in Hebgen Lake, Mont. Friday's quake swayed buildings and rattled windows and light fixtures but caused no major damage in most other Idaho cities.

The quake was felt in central and southern Idaho, northern Utah, eastern Washington, Oregon, western Montana, northeastern Nevada, Yellowstone National Park and along the Canadian border.

It registered higher than last May's quake of 6.5 in Coalinga, Calif., said Carl Stover, a geophysicist with the U.S. Geological Survey in Golden, Colo.

"It was a pretty large earthquake--one of the larger ones in the United States for quite some time," Stover said.

At least 15 aftershocks were measured within two hours after the initial disturbance, said a spokesman for the University of Utah Seismology Center.

Mackay Reservoir on the Big Lost River just southeast of the epicenter was undamaged and reports of a spillway crack are unfounded, said Norm Young of the Department of Water Resources.

A break wouldn't cause immediate danger because the spillway is not in use, Young said.

Forest Service and Fish and Game pilots were combing the mountainous terrain of Central Idaho after the earthquake to assess damage. The old Challis High School received some structural damage, officials said. Workers at Thompson Creek Molybdenum Mine in Challis weren't injured, Bowers said.

Unconfirmed reports said a lumber truck overturned in a rock slide three miles east of Stanley on Highway 75 and the quake caused a six-foot wide fissure near Double Springs Pass about 35 miles south of Challis.

Edmund J. Williams of the seismographic center at Ricks College called the earthquake one of the "big ones" and said it was too large to record precisely on the department's equipment.

Jackson Lake Dam, which scientists said could break in a severe earthquake, was undamaged, a Bureau of Reclamation official said.

Minidoka Project Manager Don Tracy said the earthquake didn't damage any of the dams on the Snake River and its tributaries. A bridge near Ririe was displaced about an inch but didn't receive structural damage, he said.

State Highway 75 west of Clayton and Highway 93 between Challis and Mackay were closed temporarily Friday morning after tremors sent rocks and dirt tumbling into the road, said Darrell Manning of the State Transportation Department. A minor slide along the Salmon River Road about 17 miles north of Salmon closed one lane of traffic late Friday morning.

A Pocatello geologist from the U.S. Geological Survey said the earthquake was probably caused by movement ..?.. running through Craters of the Moon National Monument. The quake was strong enough to break a seismograph instrument at the center in Golden, Stover said.

In Idaho Falls, emergency lines were flooded with phone calls but police and ambulance officials said they weren't aware of medical problems or structural damage.

Some residents said they noticed hairline cracks in the sides of their homes and others said books fell from shelves, stoves and refrigerators inched across the floor, and hanging plants swung wildly.

Nuclear reactors, designed to turn off at a quake registering 3.0, shut down automatically at Idaho National Engineering Laboratory. Experimental Breeder Reactor II was returned to operation after the quake but the Advanced Test Reactor remained down for routine test analysis, spokesman Anne Hosford said.

Two INEL administration buildings received cracks in walls but no major damage was reported, she said.

INEL officials said they would continue inspecting facilities Friday.

The assistant manager at an interior lighting store, where light fixtures were suspended from the ceiling, said the weights on grandfather clocks were still swinging almost an hour after the earthquake.

"It's a shaky experience. Everything was swinging," said assistant manager Scott Fell of Home Lighting Center in Idaho Falls.

A Carey woman said the quake shook her television to the floor and jolted dishes off shelves. She said she felt aftershocks several minutes later.

In other east Idaho cities, the earthquake took only an emotional toll.

"My whole system is still shaking," a St. Anthony woman said 45 minutes after the shock.

A U.S. Forest Service spokesman in the Sawtooth Valley work station said the quake rocked buildings but didn't cause serious damage in Stanley or to nearby resort cabins.

"When it hit, it was like a clap of thunder or a sonic boom coming from the Sawtooth range," spokesman Mose Shrum said.

In Ketchum, the earthquake damaged Trail Creek road over the Pioneer Range but Galena Summit Road north of Ketchum remained open late Friday morning.

Many residents in Idaho Falls said they feared they were having heart attacks but a hospital spokesman in Idaho Falls said the two facilities didn't receive any cases of quake-related illness or injury.

Idaho Falls Consolidated Hospitals were on alert Friday morning to take patients from damaged areas in central Idaho, the spokesman said.

Idaho Falls School District 91 officials said they would evacuate school children if aftershocks occurred.

Students in Bonneville Joint School District classrooms were out of class because of a

teacher's in service Friday and most District 91 elementary students were on their way to school when the quake occurred.

The quake didn't last long enough to evacuate students at Idaho Falls High School, Principal Steve Holtom said.

Mountain Bell telephone lines were jammed with calls, making it difficult to get an outgoing line. "It was everybody grabbing for a dial tone at the same time," a Mountain Bell spokesman in Idaho Falls said.

The State Office Building and Willow Creek headquarters for EG&G were evacuated moments after the shock began.

"This building just started to sway back and forth . . . the building kept swinging and swinging and it got worse and we just evacuated the building immediately," Supervisor Gary Andrus said.

Residents in the small community of Wilson, Wyo., said they felt the quake but tremors were less noticeable seven miles west in Jackson.

Most businesses in Idaho Falls hadn't opened for business at when the quake started but restaurant employees said chandeliers swung and customers became uneasy but didn't walk outside.

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DEBRIS KILLS 2 CHILDREN IN CHALLIS

By Mark Armstrong

CHALLIS--Two children died Friday morning in Challis when an earthquake felt across Idaho sent a building crashing down on them.

The Custer County Sheriff's Department confirmed that the two children, a 6-year-old boy and a 7-year-old girl, died when the upper story of a Main Street building collapsed.

Custer County Deputy Coroner Jim Van Ark identified the dead girl as Tara Leadon, 7, daughter of Sally and Frank Leadon, Challis. The name of the dead boy was being held pending notification of his family.

"God it happened so fast," said Darlene Coates, a teller at Butte County Bank who saw the building come down on the children.

The building, across the street from the bank, contains J.P.'s Bargain Barn, operated by Joe Plummer, a second-hand store.

The building, one of the oldest in Challis, is owned by Bob Ralphs, a Forest Service employee.

In the rear of the building are two apartments. Apparently the residents of the apartments were not at home and Plummer was not working when the front of the building collapsed.

"I opened the car door but I couldn't scream. I couldn't do anything," said Mrs. Coates, who was still crying an hour after the accident.

She said the two children were walking together on the sidewalk below the building when she felt the tremor shake her car.

The girl started across the street but the boy called her back and when she reached the sidewalk below the building, the cinder blocks came down, Mrs. Coates said.

Challis Maintenance Supervisor Dave Delimont said about 20 people started digging into the rubble when they realized the children had been buried.

He said it took about 15 minutes for paramedics and volunteers to dig them out--a time "that seemed forever."

Delimont said he had talked with city officials about the condition of the building, warning them of cracks in the walls.

"I had talked to the mayor one time about it," he said, noting the cracks in the blocks of rock that were apparent before the tremor.

He said the rocks were from an old rock quarry in Challis dug to build many of the town's first buildings.

According to Sheriff Ken Bowers, the children were killed instantly by the weight of the several tons of blocks.

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AFTERSHOCKS EXPECTED; NO DAMAGE PREDICTED

By Bob Black

Although eastern Idaho residents should brace for aftershocks from Friday morning's earthquake, a U.S. Geological Survey official said the tremors probably won't cause further damage.

"Aftershocks may be felt, but I don't think they will cause any damage," said Marvin Carlson, a USGS geophysicist at the national earthquake center in Golden, Colo.

"Normally aftershocks are just felt and don't cause damage. A lot of them would be too small to be felt."

The quake, which shook eastern Idaho at about 8 a.m. Friday, measured 6.9 on the Richter scale and Carlson said aftershocks will likely measure 3-4 on the Richter scale. A measurement of 5 will usually cause damage, although smaller measurements can be destructive if they are "shallow quakes" that rumble directly under a town, he said. Carlson said people living in or near Challis, the largest community near the temblor's epicenter, may want to remove dishes from shelves to keep them from rattling off during aftershocks.

As a rule, he said, a wood frame building is one of the safest buildings to be in during an earthquake because it can twist with the tremors.

Cinder block buildings, on the other hand, are among the most dangerous because they collapse more easily, he said.

Earthquakes are "not unusual" to that area, Carlson said, although they haven't been felt for several decades.

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PARTS OF MACKAY BECOME RUBBLE

By Jon Jensen

Downtown Mackay looked Friday like the victim of a tornado, with the east side of Main Street devastated and the west side only slightly damaged by the earthquake.

All types of emergency personnel--police officers, EMTs, firefighters and members of the newly formed search and rescue unit--went door-to-door asking about injuries.

Apparently the only person injured in Mackay was Eleanor Williams, who received a leg injury. She was walking from her car to the bank where she works when a wall of a building adjacent to the bank fell toward her, reportedly destroying her car.

She was reported in good condition Friday morning at Lost Rivers Hospital in Arco with an apparent severe ankle sprain.

Downtown, where damage was most severe, barricades kept people from getting too close to buildings and loudspeakers added to the warning.

The town's bank, city hall and a drug store on the east side of the street were damaged but not severely. It was another story across the street.

"The front of my building is down in the street," said Don Ivie, owner of Ivie's IGA Foodliner. "The fronts of several buildings are in the street."

Standing in his shattered store, he said, "Merchandise is probably about 2 feet deep in the aisles."

The marquee on the front of his store was on end amid rubble in the street. The store had just opened and there were no customers inside, he said.

"I was cutting meat when it hit. I had to grab the meat block to keep from falling down.

It's hard to say how long it lasted. When you're getting shook like that it's hard to keep track of time. I would say about a minute. Between the floor buckling and the walls twisting, I couldn't tell you how long. Too long."

Not Alone

And he is not alone.

"I would say that every business building in town has some structural damage," he said, adding that nearly every older house's brick chimney is toppled.

"There's a building across the street that looks like it has quite a bit of damage. The old hotel building has been abandoned for years. It has had a lot of bricks come out . . . It will probably have to be demolished," Ivie said.

He looked out the broken windows of his grocery store past the damaged town. "There's a dust haze all around the mountains where all the rock and debris came tumbling down."

He expressed concern about the dam at Mackay Reservoir, about 1 miles above the town.

"We're not wet, so it must have held," he said.

That was confirmed by Watermaster Eugene Gabert, who was at the dam when the quake hit.

There was no damage at the dam, he emphasized, although the walkway over the spillway is covered with rocks and gravel from adjacent mountains.

The city has no natural gas service.

School Closed

Mackay School District students had a day off Friday after Superintendent John Meeks determined that some buildings were unsafe.

The high school suffered extensive damage, he said. That includes a ruptured hot water tank in the kitchen, several thousand books shaken from library shelves, and a 15-by-20 foot section of veneer brick removed.

"I'm from California," said the superintendent in his first year at Mackay, "and I've never been in this bad of an earthquake."

Don Cain, custodian at Mackay Elementary School, said that building suffered no major structural damage, although ceilings separated from walls.

A power transformer fell from a pole behind the school, he said.

About a dozen children in the building were evacuated without incident, he said.

Most Mackay school children were still riding buses to school, he said, and school officials "just turned them around."

"I moved up from Southern California about 10 years ago," Cain said. "I was in a 7.5 (Richter scale). It's still scary, though. You could see the telephone poles wobble."

"It's going to take some time for Mackay to recover," he said.

While schoolchildren are safe, several Mackay families are worried about husbands and sons big game hunting in nearby mountains.

In Arco, Butte County School District officials also closed for the day until all buildings are inspected.

No damage was discovered in a check by officials, but it was decided to have experts conduct an inspection for unseen damage. Also, officials said they didn't want students in buildings if there were aftershocks.

"It hit with a jolt," said Nancy Carlson in Arco. "My family and I were sitting at the breakfast table. My son said 'It's an earthquake.' We went outside right away. When came back in, the lights over the dining table were swaying."

At Craters of the Moon National Monument south of Arco, Superintendent Cy Hentges said pictures fell off walls but there was no apparent structural damage. "We're kind of on a cinder field out here, so it's kind of a buffer," he said.

By coincidence, the earthquake came less than 24 hours after the same emergency personnel participated in a mock disaster in Arco involving a school bus accident. It had been the first drill for the newly organized South Custer Search and Rescue Unit.

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FEMA TEAM ENROUTE TO IDAHO

The Federal Emergency Management Agency sent a team to Idaho Friday afternoon to assess what federal aid should be sent to areas hard hit by the earthquake Friday morning. FEMA's response followed Idaho Governor John Evans' declaration that Custer County was a disaster area.

FEMA coordinates aid from various federal agencies following disasters.

Sens. James McClure and George Hansen said they are standing by to coordinate any assistance that may come federal agencies.

McClure described the earthquake as the worst that Idaho has ever had and said he has been in touch with the Federal Emergency Management Administration and other federal officials.

He said he immediately contacted the Department of Energy to determine if the Idaho National Engineering Laboratory was damaged and was reassured that it was not.

"I am still standing by to be of whatever help I can," McClure said. "If the governor declares a disaster area, I will help at the federal level."

Hansen is "being kept up to date with reports from his district offices," said a spokeswoman.

He also is standing by to offer assistance at the federal level, she said.

All state buildings in Boise were evacuated for a few minutes today as a precautionary measure after an earthquake rattled through Idaho.

Evans and Brooks, who is in charge of Idaho disaster services, told The Post-Register today they received reports of extensive damage in the Mackay and Challis areas as result of the earthquake.

The governor said he would wait for Brooks' official report later today before deciding whether to declare the area a disaster area.

"It appears the epicenter is at the base of Mt. Borah, Idaho's highest peak," said Evans. "It apparently hit hardest in the little town of Chilly and extending towards Copper Basin."

"It is fortunate the earthquake hit hardest in a remote area," said the governor, "or there might have been extensive damage if it had been nearer to Idaho Falls and Pocatello."

The governor said he was told the quake measured 6.9 on the Richter scale.

"I felt the earthquake myself as I was sitting in my chair and it began to shake," said the governor. "I come from an earthquake-prone area in Malad so I knew what had happened."

"We stood outside the Capitol Building for about 5 or 10 minutes until we found there were no aftershocks," said the governor.

Evans said there were some minor cracks at the Department of Transportation building on State Street in Boise and the Department of Employment building on Main Street.

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RED CROSS SENDS TEAMS TO CHALLIS

Two teams of Bonneville County American Red Cross disaster personnel were scheduled to leave for Challis Friday morning, while eastern Idaho Civil Defense members stood by to offer help if it's needed.

Red Cross workers planned to establish headquarters at the Challis National Forest office. Capt. T. J. Wadsworth, Bonneville County Civil Defense director, said Custer County officials have telecabled his office and said no help is necessary at this time.

Officials there were flooded with offers of help after the quake, which reportedly killed two people in Challis, rocked Idaho and parts of the Pacific Northwest, Wadsworth said.

He said Custer County Sheriff Ken Bower wired his office and said the condition at this point is under control. Bower also reported the community was having no water problems and there were a few minor rock slides.

Judy Mackley, American Red Cross chapter manager, said teams were scheduled to drive to Challis and Mackey Friday and "assess and survey" the situation to see what relief help is necessary.

"At this point there's no communication and we don't know how bad it is," she said.

The Red Cross can make available "anything they need," including cots, blankets, food and blood if necessary, she said. The supplies would be available to residents by Friday night if they need them, she said.

She said the office also has been in contact with national Red Cross officials and a team from Burlingame, Calif., was expected to fly into Challis Friday afternoon.

Clint Giese, Idaho Falls Consolidated Hospitals public relations director, said the staff has been placed on "alert," but as of Friday morning it had not engaged its disaster plan.

"We're just standing by until they need us," Giese said, adding if needed the hospitals will call in additional personnel to help with treatment.

The quake was felt in Idaho Falls at 8:08 a.m. Friday, but Wadsworth said there was no damage. He said he was reassured by Intermountain Gas officials all gas lines were intact.

He said communication into the area is poor because people are tying up the telephone lines. He advised residents to stay off their telephones unless absolutely necessary so local officials can have open lines.

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MOVING PLATES UNDERNEATH CONTINENT CAUSE QUAKES

By Bob Black

Most Americans live on what geologists refer to as the North American plate. It is one of about a dozen major plates and an equal number of minor plates that drift over the Earth's surface. They're similar to an ice flow on a river. They move back and forth, crack and shift. Occasionally two plates will build up pressure and, in effect, snap. That's how a Ricks College professor describes what is taking place. People who live on the "leading edge" of those plates have a higher risk of being rattled by earthquakes. In central and eastern Idaho, the Yellowstone National Park area of Montana and Wyoming and in Utah that risk is highest, said Roger Hoggan, geology department chairman at Ricks College.

Hoggan said the four seismographs the college has scattered throughout eastern Idaho records quakes daily. The quakes, many of which can only be felt by seismic equipment, are the result of stress release on the plates, Hoggan said.

Satellite photographs show the daily changes that people on the ground usually can't see. "As we crawl around on it, it seems like we're too close to the problem to see," Hoggan said.

Friday morning's quake that killed two Challis children was apparently connected to the plate shifts, although Hoggan said it's not certain. A Rick's geologist was flying over the area Friday morning to assess the fault activity, he said.

In Idaho, he said, most quakes are the result of vertical drops in the earth's crust that occur along with the plate shifts. He said the North American plate is shifting westward at a rate of 2-3 inches a year, while California's Pacific plate is moving northward.

"The plates are side-by-side and they just kind of interact, releasing energy that's been building up because of the plates moving," he said.

Idaho's valley floors in Idaho will often drop because of the shifts, he said.

If there's a bright spot to Friday's tragedy it's that the earthquake will probably mean the area will be spared a larger quake in the future. Hoggan said the quake probably means energy has been released and the land has stabilized.

That's often not the case in South America, where a significant quake can be a prelude to an even larger one, he said.

"This might be just the ticket to releasing the energy that was building up," Hoggan said.

On the other hand, he said the Wasatch Front in Utah has had little activity in recent years and researchers there fear it could lead to a major quake in the Ogden-Provo area.

The Snake River plain, because it lies between two active earthquake areas, appears to be immune for the time being.

"There doesn't seem to be a lot of pressure built up on the Snake River Plain," he said.

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CHALLIS WEIGHS LOSS, UNACCUSTOMED FAME

By Paul Menser

CHALLIS--The skies over Challis swarmed Friday with airplanes of all sizes, civilian and military. Helicopters, and even the roar of a Lear Jet broke the still, warm, mountain afternoon.

At the Unicom radio Pat Searles was busier than she'd ever been. "There were no white knuckles," she said. "But there were so many planes in the air that if I tried interjecting something it would be a disaster. I just let everybody talk to each other."

Mrs. Searles' calm spoke for the entire town. There was sadness at the death of two children, killed by a fallen stone facade on Main Street, but there was relief that everyone else had gotten off so easily.

Schools, businesses and government offices closed. On Main Street and the airport a carnival atmosphere took hold. Scurrying about with cameras, microphones, pads and paper, the scores of reporters provided the entertainment. Most people interviewed felt the attention overblown, but were willing to give their impressions of the earthquake.

"We got off lucky, considering the damage," Mrs. Searles said. "But when you have two little kids killed and a 6.9 . . . it demands attention--and respect."

"Aside from those two little kids getting killed, it's really nothing," said Gorgon Reid, information officer for the Challis National Forest. "Before the press arrived nobody was running around like they are now."

Reid said Friday afternoon the Forest Service was still concerned with hunters in the back country. "With the way the rocks were rolling, there is the potential that someone got hurt," he said, adding that rangers were patrolling the different districts.

Other than that concern, Reid said "we came through without any major damage. We had men go check the Mackay Dam right away and there was nothing wrong there. That could have been a threat."

Students at the old Challis High School evacuated in good time Friday morning, aided perhaps by the fact they were already moving to a new building. Now they will probably have company at their new school, scheduled to open next week.

The old school was set to be turned into a middle school, but it could well be condemned, according to Custer County Assessor Bob Savage.

Staying at the courthouse to answer phones, but taking in the warm sun on the back steps all the while, Savage said the old school--another building on Main Street with a stone facade--probably received the most structural damage. An architect will assess the earthquake's effect, and nobody will be allowed back in the building unless it's determined safe. Other than the school, material damage was not too serious, he added. "Other than the loss of those two kids' lives, it's just material," he said. "The face on the building that fell was doing nothing but hanging there."

Harry Myers, a heavy equipment operator for the Challis National Forest, helped dig the two bodies out of the rubble Friday morning. "We just started doing it by hand. The first thing I'd heard was that someone was buried under there, then we found those two kids." Myers said he expects to be clearing rocks off roads for a while. "It was quite a jolt. I went through one in California in '72 that did a lot more damage," he added.

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GOVERNOR DECLARES CUSTER EMERGENCY

By Mark Armstrong

CHALLIS--Gov. John Evans declared a state of emergency in Custer County Friday about six hours after the most powerful earthquake in 25 years ripped through Central Idaho. Evans arrived at about 2 p.m. at Challis Municipal Airport in a Army National Guard turbo prop where he was met by city and county officials and dozens of television and newspaper reporters.

"We're saddened and heartsick about the problems, and we want to do as much as we can," the governor said as he stepped down from the plane.

He was referring in part to the two Challis grade school children who were killed Friday morning when they were buried by a collapsing building while walking to school.

Evans said that declaring the emergency would trigger the "opportunity for federal and state agencies to use whatever resources needed to provide all available aid."

With the governor was Adjutant Gen. James Brooks, commander of the Idaho Army National Guard. Public works engineers and state health officials also were with him.

The team came to inspect the extent of the damage of the quake, which was felt as far away as California.

Evans said Friday the team would begin assessing damage in the county but said at present "it's too early to tell" what level of assistance will be provided.

"Fortunately this earthquake was in a very remote area of Idaho," Evans said, adding that he was "concerned about the welfare of the people," in Custer County when he learned where it was located.

The center of the earthquake was near Borah Peak, about 35 miles southeast of Challis.

"It's a sad event--we hate to see loss of life, especially children," Evans said after he was led to the building where the two children died.

Evans said the initial report that he received was that a school had collapsed in Challis, "which we later discovered was false."

The high school in Challis was one of the most severely damaged buildings in the town. Students reported that plaster was falling from the walls and ceilings when the quake hit before classes started Friday morning.

The building was later closed off and school was dismissed for the day.

The governor commended state emergency personnel who responded to the earthquake.

"We're very proud of them," he said.

According to Evans the earth dam at Mackay Reservoir was one of his earliest concerns after hearing of the earthquake.

The dam, on the south end of the reservoir, is only five miles upstream on the Big Lost River from the town of about 500.

A state engineer and a geologist inspected the dam Friday morning and said that it appeared safe, according to Evans.

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POST-REGISTER: FREE COPIES FOR QUAKE AREA

The Post-Register distributed free copies of Friday's newspaper to people in regions hit by the earthquake, which was centered near Challis and shook seven states in the early morning hours.

The Post-Register took copies of the afternoon edition to the areas hardest hit--Challis, Mackay and Arco, said General Manager John P. McDermott. Those areas usually receive the morning edition.

Extra copies of Friday's and Saturday's paper will be available at the front counter of The Post-Register, 333 Northgate Mile, Idaho Falls.

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MACKAY GETS BIG DAMAGE

By Dale Withington

MACKAY--Steve Ellis sipped coffee and leaned against the nickel-candy vending machines by the checkout counter of his Mackay grocery store.

At 5 p.m. Friday the store looked normal. The only sign that the largest earthquake in the continental United States since 1959 had sent merchandise crashing to the floor at 8:05 a.m. was the smell of pickles.

"We must have picked up 300 to 400 jars of pickles and every one was broken," he laughed.

Ellis lost more than hundreds of jars of pickles. He estimated he lost \$3,000 worth of merchandise. But unlike many other owners of homes and businesses in Mackay, his building didn't suffer any structural damage.

There were no early estimates of total damage, but bricks and debris from damaged buildings littered Mackay's Main Street and would take longer to clean up than Ellis' grocery.

Despite the damage and lack of earthquake insurance, most people were taking the earthquake calmly by Friday afternoon.

"Mackay has been through so many crises with mines opening and closing that everyone is pretty resilient," said Ellis. "Mackay will bounce back. It will."

According to Mayor Oval Caskey, "We'll have Main Street cleaned up by tomorrow morning."

"The town will never look the same physically, but the community spirit won't change."

Peggy Porter offered free coffee and snacks to passers-by and a horde of reporters and cameramen from San Francisco, Oakland, Portland, Seattle, Spokane, Salt Lake City, Denver and other cities.

"The airplanes and helicopters they came in did more damage to our glass than the earthquake," she joked.

When she heard Gov. John Evans was considering sending in the National Guard, she said, "We don't need them. We'll take care of this."

Evans arrived at 5:45 p.m. Instead of the National Guard, he brought confirmation that the Mackay Dam a few miles upstream from the town was in good shape and in no danger of collapsing.

Several people had said rumors about the dam breaking were the only things that worried people during the day.

According to Evans, the Federal Emergency Management Agency had an evaluation team en route to the area. FEMA coordinates federal aid to disaster areas.

Doug Flint, manager of the Mackay branch of Idaho First Bank, welcomed the news.

"We're going to need major aid," he said. "The economy here is very slow now and these businesses can't afford to be down a week."

Like most residents, Don Ivie, owner of an IGA Foodliner, said he would welcome low-interest government loans to help rebuild the town. Standing in a clutter of tumbled groceries, he said the earthquake caused about \$10,000 in structural damage, destroyed a \$4,000 marquee, and ruined thousands of dollars worth of merchandise.

But he said he would be open by Monday. And Ellis said he expected to open his grocery store on Saturday.

Friday afternoon's calm followed the scare everyone felt earlier that day.

"I had to hold onto the truck in order to stand up," said Victor Johnson. "I could see these cracks coming down the road toward me and ground rippling up.

"The trees were waving back and forth. Water was gushing up from the ground. You couldn't see the hills because of the dust from the slides, and there was a funny smell in the air, something like dynamite.

"I didn't know what the heck to do."

Hazel Lundberg, 94, said, "I got pretty excited when I heard the china falling out of the cupboard."

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HUNTERS STRANDED NEAR PEAK

By Ken Retallic

A group of hunters is stranded in the Borah Peak area of the Challis National Forest, unable to get their vehicles past a large earthquake-caused fissure in a backcountry road near Chilly.

Other hunters, unable to reach their vehicles or get them past boulders which have fallen onto other roads, also may be stranded and will have to spend the night in the forest, said Earl LaOrange, public information coordinator for the Forest Service.

"They're apparently safe and there have been no injuries," said LaOrange of the group stranded behind the fissure. A helicopter crew made a flyover and determined they were safe, he added.

Numerous road in the Challis forest are impassable due to fallen trees or landslides, but travel on open roads in the forest is not advised, said LaOrange.

"The forest has not been officially closed, as such. But what we are trying to do is simply encourage people not to go into that area."

LaOrange said he was unable to make direct contact with Challis administrators because of telephone disruptions, but he has been kept advised of the situation by the regional office in Ogden.

"We are discouraging people not to travel in the adjacent forests, and the Fish and Game Department is discouraging hunters from going into that area for at least the next week or so.

"There is always the potential of a second major tremor or quake," said LaOrange.

He said the Forest Service is particularly concerned about the large number of fishermen being drawn to the Salmon River and its tributaries by the steelhead season.

"We are suggesting that people not camp under trees or near mountains with rocks or potential landslides."

He noted that the popular Corn Creek and North Fork of the Salmon "have very few places to actually camp" and would recommend not going into those drainages.

Dick Hauff, Salmon National Forest supervisor, said the quake's most noticeable effects in the forest are rock falls, slides and fallen snags.

He, too, said there is a probability of further strong shocks over the next two weeks and visitors to the area need to take two precautions:

- Watch where camping, parking or stopping for any length of time and stay away from dead trees, the bottoms and sides of bluffs and steep slope bottoms.
- Be very cautious of traveling on forest roads due to possible rock slides.

The Sawtooth National Recreation Area has not been closed to vehicle traffic, said Allan Ashton, supervisor. He added that the eastern part of the Salmon road was temporarily closed, but the debris has since been cleared away.

One of his crews flew over the area Friday and found no major blockages on SNRA roads, except for some rocks in the Big Boulder Creek area. And a crew visited an isolated mining operation on the Silver Rule Creek to make sure they were safe, he added.

"There was no problem in the Yankee Fork Ranger District (of the Challis), which is the nearest to the SNRA," said Ashton.

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SOLONS PUSH FOR FEDERAL AID

By Ben J. Plastino

Idaho's U.S. senators, Jim McClure and Steve Symms, said Friday afternoon they would urge federal agencies to lend assistance in every way possible to the victims of Friday's earthquake in central Idaho.

McClure said as soon as he received word he contacted the Federal Emergency Management Agency to make certain it would be ready if the governor declared an emergency. Gov. John V. Evans did so early Friday afternoon after flying over the area. Following the declaration, the FEMA sent a team to Idaho Friday afternoon to assess what federal aid should be sent to areas hard-hit by the earthquake.

FEMA coordinates aid from various federal agencies following disasters.

"We also contacted the U.S. Corps of Engineers and the Bureau of Reclamation to make certain that dams in the area were safe," said McClure. "We received word none were damaged, including the Mackay Reservoir Dam nearest the epicenter of the earthquake." McClure said there was some concern over Jackson Dam but there was no damage. Palisades, Ririe and other smaller dams in the area also are safe, he said.

McClure said the Deadwood Dam on the Payette River also will be checked.

McClure, Senate Energy and Natural Resources Committee chairman, said he was advised by Department of Energy officials there was no damage at the Idaho National Engineering Laboratory.

"Those buildings were built to withstand such shock," said McClure. "The reactors also have devices that automatically turn off reactors and they worked."

McClure said he did not plan to come to Idaho until the following week, feeling he could help best by keeping in touch with federal agencies.

"By declaring the emergency it means people of the area will be given whatever assistance they need from state and federal agencies," said McClure.

Symms said as soon as he was informed of the quake, he contacted federal, state and local officials to assess the damage and express his concern, offering to help out in any way.

"My office has been in constant touch with Civil Defense, law enforcement and other emergency crews to monitor the situation," said Symms. "All of them have been doing a fine job and it appears that things are pretty well under control."

"We're probably lucky it wasn't worse."

"My hat is off to the Red Cross, Civil Defense officials, Bureau of Reclamation people and everyone else who has responded so promptly and professionally to minimize the damages and dangers involved. They've done a super job."

"My heart goes out to the victims of this quake and their families."

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NO TIME WASTED IN CUSTER COUNTY -- CLEANUP STARTED State Of Emergency

By Mark Armstrong

CHALLIS--Residents here wasted no time Saturday morning in starting to clear away signs of damage from Friday's earthquake. Several homes and businesses in the area suffered minor damage.

Structural engineers who came here with Gov. John Evans Friday have estimated damage caused by Friday's earthquake in Custer County at \$4 million to \$5 million.

Most of the apparent damage was to buildings in downtown Mackay. In Challis, the quake caused interior damage to the old high school and destroyed a building that housed a second-hand store.

There were numerous reports of minor damage to homes in the area.

Challis City Councilman John Walker said most of the damage caused by the earthquake in Challis was to homes and businesses.

After arriving in Custer County Friday, Evans declared a state of emergency in the county, opening the door for federal and state assistance.

Two state engineers remained in the county Saturday to continue appraisal of the damage. Challis School District Superintendent Terrell Donicht said the engineers would estimate damage at the high school either Saturday or Monday.

Walker said while most of the damage appears to be physical harm to private property, he added there could be problems that are not apparent.

"We haven't made any appraisal yet as to how much damage was done because there is no way of knowing what the extent of the damage that isn't apparent is," Walker said.

He said the engineers made "preliminary examinations" of city sewer and water systems Friday and could determine no problems.

According to Walker, the engineers were looking mainly for leaks in the sewer lagoons and sewer and water lines.

"We could have damage to a water line that isn't apparent at this time. We'll just have to wait and see."

Donicht said damage to the high school that was built in the 1920s appears heavy but he said an estimate has not been made yet.

He said at least two and possibly three of the interior walls shaken loose by the earthquake will have to be replaced. In addition, there was damage to ceilings and an outside, upper-story rock wall broke away from the building.

High school students had been scheduled to move into a recently completed \$4 million school Monday, and the junior high students were to remain in the old building.

Donicht said school will be cancelled again Monday and that both junior and senior high students will make the move together Tuesday.

He said state officials determined the old building a few years ago to be "a sufficient structure" that would be able to withstand almost anything but an earthquake.

Donicht said there was no damage to Stanley Elementary School and insignificant damage to Patterson and Clayton elementary schools.

Friday night, a thick layer of dust blanketed Challis until mid-morning Friday--a reminder of the earthquake that took the lives of two school children here.

Other reminders were women weeping on Main Street and the townspeople's somber faces. In a town of 750, two deaths--especially when they are children--are not easily forgotten.

People who were outdoors when the earthquake hit knew what it was when the ground shook below them and they saw the trails of dust and rock coming down the red, sagebrush-covered mountains.

Others were inside, getting ready for work and school when dishes and wall ornaments crashed to the floor. A few unlucky people became painfully aware that Idaho had experienced a major earthquake when they helped dig out two children from under a fallen building.

"My first concern was the old school house," said County Commissioner Frank Maraffio. "This is sad but I'm glad that more children weren't hurt."

He was at his ranch near Clayton about 20 miles west of Challis when he felt the earthquake.

The school, and the second-hand store that caved in on Main Street killing seven-year-old Tara Leaton and Travis Franck, 6, are among the oldest buildings in Challis. Both were built near the turn of the century.

Construction of a new \$4 million high school had just been finished and students were scheduled to move from the old building Monday.

Chet Cobbley, 16, was inside the old, rock schoolhouse when he realized there was an earthquake.

"About ten of us were standing there talking when we felt the floor shake," he said.

Cobbley said he and his friends ran from the building when a science teacher, Dow Dean "yelled earthquake."

Another student, Luke Charlton, 15, said he couldn't believe an earthquake had hit until he got outside and saw the corner on the upper floor of the building chip off.

"We were sitting there B.S.ing and it just sounded like somebody was banging on the wall." After the science teacher yelled for them to leave the school, Chandler said he ran out the front door, felt the ground shake and saw rock fall from the upper floor.

City Clerk Wila Mae Juvette said several of the buildings in town were constructed in the 1890s with the same type of cinder blocks as the school and second-hand store.

"I'm really surprised other buildings didn't come down. It could have been worse," she said.

"It must have been an act of God," Mrs. Juvette said, referring to the coincidence that the two children happened to be walking below the only building in town that collapsed.

Jan Hardman, owner of Challis Transportation, a bus depot and gift shop on Main Street, said she was visiting friends in Moore when she heard about the earthquake.

She got back to Challis about 1 p.m., after driving across Willow Creek Summit on Highway 93 and seeing the fault line on the highway.

The road had been closed all morning and she was one of the first to see the huge fissure that ran from epicenter of the earthquake near Borah Peak.

"My sister has children in school and we heard on the radio the school had collapsed," Mrs. Hardman said.

She said she drove into Arco to ask the Butte County Sheriff dispatcher what had happened, and was assured that the school had not collapsed.

When she reached the pass she saw the fracture line that cut down the center of the highway and was about two miles long.

Several Challis residents said they felt the earthquake had been blown out of proportion by the news media.

By late morning reporters from major television networks, national magazines and newspapers from throughout the region were in town. There were traffic jams on Main Street and congested runways at the municipal airport. "I think we're making too much of this," said County Assessor Bob Savage. "The most important thing is two young people were killed. The rest of this stuff is immaterial."

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CUSTER SCHOOLS CLOSED TODAY

Schools in Challis will be closed Monday and Mackay schools will be closed for at least a week as officials complete checks for structural damage caused by Friday's earthquake. Officials said junior and senior high schools in Challis would be closed Monday. Students were to be moved Tuesday to a new school that had been scheduled to open Monday. According to officials, the only damage at Mackay elementary school was a broken heater in the lunchroom. State engineers Saturday determined the west wall in the high school gymnasium is separating, and will have to be replaced.

It also has been determined the smoke stack at the high school has to be torn down.

Officials said Saturday school will not be held for the rest of the week.

There have been several offers from organizations to set up classroom space.

Elementary students in Arco will also get a vacation Monday while the school buildings in Butte School District are being inspected for possible damage.

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QUAKE RANKS ON LIST

By Associated Press

The earthquake that rocked the Pacific Northwest Friday, killing two children in Idaho, was the strongest to hit the 48 contiguous states in 24 years, surpassing the quake that injured 45 people in the Coalinga, Calif., area in May.

Friday's quake, centered 110 miles northwest of Pocatello, Idaho, reached a magnitude of 6.9 on the Richter scale. It was the highest reading in the lower 48 states since Aug. 17, 1959, when a 7.1 magnitude earthquake occurred at Hebgen Lake, Mont., killing 28 people.

The last time anyone was killed by an earthquake in the contiguous states was on Feb. 9, 1971, when a 6.5 magnitude quake hit the San Fernando Valley in California, killing more than 50 people.

Two people died in Hawaii in 1975 in a seismic sea wave caused by a 7.2 magnitude earthquake.

Friday's quake was also felt in eastern Washington, much of Oregon, northern Utah, southwest Montana, parts of Wyoming, Nevada, North Dakota, British Columbia and Alberta.

It was the fifth "significant" quake reported in the United States this year, according to scientists with the U.S. Geological Survey. Geologists call an earthquake significant if it equals or exceeds 6.5 on the Richter scale, or causes damage or injury.

In addition to Friday's quake and the earlier one in Coalinga, the U.S. Geological Survey lists these significant earthquakes in 1983:

- Feb. 14. A quake with a magnitude of 6.3-6.5 hit the Shumagin Islands region of Alaska.
- July 12. A quake with a magnitude of 6.1-6.3 in southern Alaska caused slight damage in Valdez.

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CHALLIS CHILDREN'S FUNERALS MONDAY

BOISE (AP)--Two Challis children who walked to school together daily and died together in a major central Idaho earthquake will be laid to rest in the town cemetery.

Tara Leaton, 7, and Travis Franck, 6, died instantly Friday when part of a Challis building collapsed on them as they walked to school.

Graveside services for Travis, a first-grader at Challis Elementary School, were scheduled for 2 p.m. Monday at the Challis Cemetery. A Rosary service was set for 7 p.m. Monday for Tara, a second-grader, at St. Louise Catholic Church in Challis.

A funeral Mass is scheduled for 10:30 a.m. Tuesday at the Challis High School Gym, followed by burial at the Challis Cemetery.

"What's happened in the past, as far as any funeral in Challis, is usually there are pretty big crowds," Evelyn Strand, Tara's teacher, said Sunday in a telephone interview.

"People around here feel it's something they should do, particularly when it's someone from a well-known family," she said. "They all gather around."

In the hours immediately following the earthquake last week, neighbors and others who knew the children recalled them with affection and sadness.

"All the kids liked him," said Travis' teacher, Patty Millick. "He was very helpful and kind." She said the children were just learning to read, "and he loved to read."

"If we'd have free time, that's what he'd want to do," Ms. Millick said. "He was such a good kid, and I know the kids will really miss him."

She said that her last conversation with Travis, the day before he died, came about while the class was discussing Johnny Appleseed.

Mrs. Millick had asked the children to bring in apple recipes. She recalled Travis saying, "My grandma makes the best, most delicious, apple crisp."

"I think Tara was her mother's whole life," said Mrs. Strand, who says she'd known Tara "since she was brought home from the hospital. Her mother's a really good friend of mine."

"Tara was so cute and bouncy," she said. "Everybody knew Tara."

Thursday, the day before the earthquake, Tara wore a new pair of glasses to school for the first time, Mrs. Strand said.

The two children, who lived in the same neighborhood, were on their way to school when the earthquake, measuring 6.9 on the Richter scale, hit on Friday morning.

Several residents in the downtown Challis area said the children were killed as they hesitated on the sidewalk to avoid a car on the street.

Linda Gilbert, whose family lives across the street from Tara's house, said Tara and Travis played together a great deal and walked to school together everyday.

She said Tara and her mother, Sally, did "about everything together. They were always going places and doing things."

Cody Bradley, 7, who was in Travis' first-grade class, said he used to ride Travis' hot wheel, go mountain climbing and play cars with him. "Sometimes we liked to play cowboys. He liked to wrestle," he said.

The children's principal, Bob Lisonbee, said: "Tara was a real bubbly little girl, very lively and just had personality plus. She could get you in the palm of her hand."

Maryann Lisonbee, 14, the principal's daughter and Tara's babysitter, said the girl loved to climb hills and be outside.

Tara liked the movie "Annie," and the cartoon character "Strawberry Shortcake," said Tanya Nelson, 9, who had played with Tara and called her "a good friend of mine."

Judy Lisonbee, wife of the school principal, said Tara seemed to be very adventurous, just a normal, everyday American child."
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SEARCHES FOR LOST HUNTERS HALTED

By Ken Retallic

Search patrols for hunters that may have become lost or injured in Challis National Forest during Friday's earthquake have been suspended, according to Forest Service and Custer County officials.

"Everybody is returning on time and there is really no reason" to continue patrols, said a dispatcher for the Custer County Sheriff's Office. "The only ones still back in there are on horseback, and they are safe."

Travel in the forest "is not being restricted, but a few roads are closed due to slides," said Jim Jones, Challis Forest information officer. "We are still advising people to stay out due to tremors."

"There have been no reports of injuries--at least not through this office--and no one is lost at this time that we're aware of," said Jones.

Road patrols and helicopter flyovers were conducted throughout the forest over the weekend. "We got no distress signals from anyone as we flew over," said Jones.

Jones said that vehicles that were trapped behind various landslides and an earthquake-caused fissure in an access road near Mount Borah have been retrieved. Paths were cleared for the hunters' vehicles by Custer County heavy equipment operators, he added. "At this point in time, we're hoping everything will get back to normal," said Jones.

Hunters and steelhead fishermen in the Salmon National Forest also are being advised to be cautious while in the forest, said Jim Stone, information officer.

"We're still telling people not to camp under snags or near steep areas because of the danger of rolling material being brought down by tremors. Those could go on for another week or two."

Jones said there has been no noticeable effect on the steelhead run in the Salmon River or its tributaries, and sedimentation in the streams does not seem to be higher than normal.

An Idaho Fish and Game Department spokesman said there are no plans to close any areas near the quake to fishing and hunting.

"We had advised hunters to stay out of the area over the weekend and at least early this week, just to help lessen the confusion," said Rod Parker of the Idaho Falls office. But he cautioned that it could still take 2 to 3 weeks before county and state road crews can clear access roads that were blocked by fallen rocks or landslides.

Jim Coon of the Boise office also said that the quake has caused no negative impacts on the steelhead and salmon fisheries. "It didn't change the stream courses any, and we are not aware of any slumps that could have caused more mud in the river."

Coon said he thought the quake would have reduced the fishing pressure on the salmon, but it did not.

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REACTOR SHUTDOWN PREDICTABLE AT INEL

By Ken Retallic

Except for some minor cracks in two office buildings, the Idaho National Engineering Laboratory was unscathed Friday by the major earthquake which shook central Idaho. INEL officials say they were not surprised.

The nuclear reactors and other facilities such as the Idaho Chemical Processing Plant were constructed under strict design requirements to withstand seismic activity, said John Barry, director of operations safety. Also, INEL's major reactors have seismic sensors that shut them off during a tremor.

Four reactors were operating when the aftershocks of the quake reached INEL. Two shut down automatically and the other two were turned off manually without incident, according to Troy Wade, manager, Idaho Operations Office for the Department of Energy.

Still, many people were concerned and DOE employees spent much time Friday dispelling rumors that major damage or radiation leaks occurred at INEL.

"I don't know where they're getting that from, but it just didn't happen," said Barry.

The aftershocks of the quake were only low level tremors by the time they reached the site from the epicenter about 55 miles away, he added.

"On our nuclear buildings you just don't expect problems with those. They're built to really stringent criteria."

A quick check of the site's facilities showed that none had sustained any damage, said Barry.

"When this occurred we asked each facility to assess their facility to see if there were any problems. Except for a couple of cracks in cinder-block, office type buildings there weren't any other problems."

Barry, who also oversees safety operations at the Naval Reactor Facility and Argonne National Laboratory-West, said both also reported back that "there's no problems from their inspection or in their operations."

During an examination of a long, zig-zag crack in the mortar of one office building, Barry speculated that it occurred because of minor settling of the cinder-block laboratory. The extreme weight of special radiation detection equipment may have caused that corner of the Radiological and Environmental Sciences Laboratory to settle, he said.

The other INEL building which had similar cracks is not being used at this time.

If damage had been severe at the site, Barry said his employees would have been prepared to handle it.

"We pretty much have our own capability to respond to any kind of emergency. We have quite a bit of heavy equipment and talent out here--probably more than most people realize."

Also, when needed, Barry said he can call on federal and state agencies for assistance. Seismic activity in the Snake River Plain is monitored at INEL by EG&G, the prime contractor at the site.

"The reason why we are interested in seismic activity is because we do have all these facilities out here," said Barry. "We set up a seismic network and continue to fund it in the valley, here, so that we can have data over time."

Eleven years of seismic data has been gathered to date, said John King, director of the seismology laboratory, adding that one of his monitors was the first to record the shock Friday that registered 6.9 on the Richter Scale.

No other tremors of that magnitude have been recorded by his monitors and were the first of that intensity in the region since the 1959 quake in the Madison Canyon near West Yellowstone, said King.

King said there are no well defined faults beneath the INEL and it is theorized that the Snake River Plain is "decoupled" from the nearby mountainous seismic regions. Data collected from the Borah quake may help prove that theory, he said.

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THE QUAKE STORY: HOW WE DID IT **Between The Lines**

By L. Peter Krieg
Managing Editor

I didn't feel a thing.

I was rumbly to work--yes, boss, I was late--at 8:06 a.m. Friday in my old Datsun and couldn't have felt an earthquake if it was 9.9 on the Richter Scale.

Moat in the newsroom felt it, though, and there were reports almost immediately from the Upper Valley, and then Boise.

Still, it seemed only a moderate shake. Probably no big deal. Other reports dribbled in. Blackfoot felt it. Some damage in Pocatello.

A grocery store in Mackay sustained heavy damage. We dispatched Robert Bower, our only on duty photographer.

Twenty minutes later came the call from Mark Armstrong, our Central Idaho staffer stationed in Challis. There had been a freak and tragic turn in the story's magnitude. Two school children had been killed as the side of an old building collapsed and tons of rock tumbled on them.

About the same time we learned just how widespread the quake was. So did all the people who were calling on the phone.

Top editors met immediately to organize our coverage and assign stories.

We needed photos from Challis, too. Armstrong had taken a picture of the old Main Street building. We had three hours until deadline. There was no way for him to drive here in time to get us the film. Besides, he was needed there to cover further developments. Authorities hadn't been able to release the names of the dead children and the public would want to know them as soon as possible.

We immediately chartered a plane to fly the film here. We would also send another staffer back on the plane to help Armstrong with follow-up stories.

By now news media from throughout the country was clamoring for information.

We are members of the world's largest newsgathering organization, The Associated Press. As soon as we had learned of the deaths we notified the Salt Lake AP office.

And here I want to make a point. Too often the national news media is criticized for jumping on a story and going with it before they are sure. This is true perhaps sometimes of some of the electronic media and so all the media gets the reputation.

But it is undeserved.

AP wanted to know if we had confirmed the report. They simply didn't want to tell the world something so tragic, and then be wrong.

We were sure, we told them, and we gave them the telephone number of the Challis clinic where the children had been taken.

Minutes later they broke the story on the wire.

Residents of the small Challis community probably resent the inundation of media people that took place during the next 24 hours.

To them, the deaths of two children is a private horror. They don't want television cameras turning Main Street into what appears to them as a three-ring circus. They don't even want probing newspapermen, for that matter.

From reports we've received, it is too bad some of the media people weren't more low-keyed about their presence.

Still, it was the biggest news of the day in this country. Next to Grenada, it was the biggest story in the world that day. There hadn't been a fatal earthquake in the continental United States since 1971 when 50 persons died in a Los Angeles-area tremor that measured 6.5 on the Richter scale.

The Associated Press wanted pictures as soon as we had them. Arrangements had been made with the photo network for us to have top priority to transmit.

By 9:30 a.m. Friday we had decided there wouldn't be enough room in the newspaper to tell the story adequately. A decision was made to add four pages.

The film was put on the plane about 10 a.m. It was due in Idaho Falls shortly after 11.

We'd left space on the front page for Armstrong's photo. Photographer Bob Schweiger and I held our breath as he finished processing the roll of film.

Yes, Armstrong had come through and our readers would have that picture.

They would also have the most complete story available anywhere, compiled by Post-Register reporters. Anne Burke put together the main story from facts gathered by all staff members. Dale Withington wrote a history piece on the last major quake in the area, the one that struck Hebgen Lake 25 years ago.

Energy writer Ken Retallic spent much of the time on the phone with INEL people, confirming there wasn't a problem at the site. Bob Black put together a story on the causes of an earthquake.

And Ben Plastino was on the phone with Governor Evans and other state and federal officials. This was Ben's last day on the job and much ado was made of the earthquake's timing.

But you also need to know that there are a handful of others who are responsible for compiling all this news and getting it to you on time.

They are the editors. City editor Melinda Chambers supervised the writing. News editor Lee Blanchard organized the paper, decided where stories would go. What the headlines would say. Regional editor Teri Ehresman coordinated reports from Challis and Mackay. With the burden of four unplanned pages, the men and women who work in the composing areas and press room also pulled together to get late pages produced on time. The press run was only a few minutes late. With all the extra work, that was nothing short of spectacular. It easily could have been hours.

It was the kind of day that makes the newspaper business unlike anything else in the world.

It was the kind of story coverage that allows a managing editor to assure his readers they can count on complete and professional news coverage, whether it be a routine city council meeting or the biggest story in the country.

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AFTERSHOCK OF RUMORS STORMS VALLEY

Sidelights to Friday's earthquake in central Idaho came as fast as the aftershocks. There were moments of lightheartedness and stories of anguish and twisted truth.

At 4:15 Friday afternoon, a reporter from the London Daily Express called The Post-Register to ask if it were true that 500 miners were trapped underground in Idaho. It wasn't.

Singer Carole King, whose "I Feel the Earth Move" was a big hit in the early 1970s, was sleeping at her ranch near Challis when the earthquake hit. "We're all fine here," she told a reporter after the quake.

The chimney on the Beaverhead County, Mont., courthouse collapsed and workers were forced to leave the Federal Building in Butte, Mont. after plaster cracked and a light fixture broke loose.

Arlene Williams, wife of geologist Edmund Williams of Rexburg, gets calls at home from senior citizens who have the aftershock jitters. "I just tell them, "be prepared and from there on out the best you can do is just ride it out," she said. "Life is too short to worry yourself sick about it."

Peggy Taylor of Osgood said she's been predicting a quake for six months. "I'm not psychic but I've been feeling these tremors in mid morning," she said. Geologists said a quake on Oct. 11 registered about 3.4 on the Richter scale--large enough for human detection.

Friday's earthquake triggered a record number of long-distance telephone calls in Idaho. Mountain Bell estimates it handled 750,000 calls in the 24-hour period ended at midnight Friday. A spokesman said the company usually handles 680,000 calls on a normally busy weekday.

Peggy Porter in Mackay received a lot of calls, but she didn't get one she expected. "Everybody has called me except my husband," she laughed. Her husband, who's in the Navy, is in Alameda, Calif.

Rumors about the Mackay Dam giving way hit the town of Mackay a few miles down the Big Lost River several times Friday. "Except for the rumors about the dam giving way, everyone remained pretty calm around here," said Steve Ellis, owner of a grocery store.

Rumors of cracks and overturned trucks blocking roads also were common. But Will Stork from The Post-Register on Friday afternoon drove to Mackay and Challis to deliver a free copies of the paper. Central Idaho people normally get the newspaper's morning edition. One man in Mackay received the paper and joked, "I didn't know you fellas had that much heart."

The Mountain Express newspaper in Ketchum reported no serious damage to the town or the Sun Valley Resort community, which is just across the Pioneer Mountains from Mackay. The road to the Sawtooth valley over Galena Summit from Ketchum never closed, but damage was reported on the Trail Creek Road over the Pioneer Range to the Big Lost River Valley and Mackay.

Not everyone realized what happened Friday. "One little boy asked 'what's an earthquake?'" said Thomas Kershaw, superintendent of Sugar-Salem School District 322. "Only us old salts knew what it was." Kershaw said the children felt the quake just as they were coming to school.

Early reports about the earthquake said it hit different areas at different times. But an unintentional experiment conducted unscientifically by The Post Register's circulation department indicated the quake hit at least St. Anthony and Idaho Falls at the same time. The quake hit while two employees, one in St. Anthony and one in Idaho Falls, were talking over the telephone. Both noticed it at the same time.

Some people blamed the quake for things it didn't do. Newdale, Teton, Ashton and parts of St. Anthony lost their power yesterday at different times between 9 a.m. and 7 p.m. Construction crews working on U.S. Highway 20 near St. Anthony caused the outage when they cut a power cable.

There were times Friday when it appeared there were more reporters and cameramen in Mackay and Challis than residents. The helicopters and planes that flew them in from San Francisco, Seattle, Portland, Denver and other distant cities crowded into Mackay's airport. People bore the media invasion well, but one man consented to another interview, his fourth, only because the reporter was from The Post-Register.

Gov. John Evans said he was proud of the way Idahoans worked together after the disaster. "Whenever a disaster hits one of our small communities," said Evans as he surveyed the Mackay Dam, "neighbors always rally to help each other."

[Post-Register; October 30, 1983]

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MT. BORAH UP 15 FEET

By Mark Armstrong

CHALLIS--Scientists and tourists mingled at the base of Mt. Borah Sunday near the source of the nation's largest earthquake in two decades.

They had one thing in common--wanting to see for themselves the power of nature.

Among the sights is a fracture in the earth ten miles long, a two-day old stream that hasn't been named yet and an entire mountain that was lifted 15 feet out of the ground by Friday's earthquake, which registered 6.9 on the Richter Scale.

But while most of the hundreds of visitors took a few snapshots and drove away, students and geologists from several different states remained their work was just beginning.

They hope the measurements they are taking will enable them to predict with more accuracy when and where other earthquakes will occur.

Spencer Wood, a Boise State University geology professor, had planned to take his field class to study metamorphic rocks in Northern Nevada Friday morning. But when he learned of the earthquake he changed his plans and brought the students to Central Idaho. With the aid of about 20 of his students, Wood spent the weekend recording the ground displacement along the 10-mile-long fissure.

He said he believes Friday's earthquake is only one of many above 6.0 on the Richter Scale destined to radiate out from an unstable geological belt beneath Central Idaho.

Wood said there is evidence that "magnitude six" earthquakes occurred in this part of the state in 1916 and 1946.

"This could be the second most active earthquake belt in the United States," Wood said, comparing it to California's San Andreas region.

He said in California a magnitude six earthquake might be expected every seven years; whereas in Idaho an earthquake of that force will likely occur once every 40 years.

The escarpments or new faces created by the quake in the base of the Lost River Range were "very impressive," said John King, director of the seismic monitoring network for the Idaho National Engineering Laboratory. "With anything above (magnitude) 6.5, you begin to see surface ruptures--which is very rare."

King said the temblor occurred on what is known as the Lost River Range Front Fault System. "It's a dip-slip fault, which meant it moves up and down."

But, while the fault line was known, King said the suddenness of the quake was extraordinary. "We didn't see any foreshocks. It just happened, which is bizarre."

The valley is included in the site's special, seismic study area, and until Friday it was considered to be seismically quiet, added King. "We have recorded only 1 or 2 micro-earthquakes in that valley before, and based on those records I would have said that area was inactive."

From "profiles" or measurements of the amount of earth displaced along the fissure at two-mile intervals, Wood estimates that the ground was forced up about six feet on the average along the line that begins about 35 miles south of Challis.

Evidence of the ground movement is also apparent as deep cracks and broken sections in the asphalt on U.S. Highway 93 between Challis and Mackay.

Across the highway from the fissure, west of the tiny community of Chilly, is another wonder of nature caused by the earthquake.

A new stream was formed on the north side of Chilly Butte. King explained that the new streams which also formed in the area resulted from surface saturation [?]

said they had heard reports of some farmers losing springs on their property while others who had been without springs gained them.

Wood and his students believe that staging the field experience at the site of a major earthquake was the chance of a lifetime.

"This is the first time I've ever seen anything of this magnitude," said Mike Swenson, a junior geology student.

"We came out here and just tried to figure out a system. There isn't a set way of doing this-it just hasn't been done that often."

The geology students set up their tent camp at the side of Double Springs Road about 50 feet from the impressive gouge in the earth.

They experienced aftershocks of varying magnitude throughout the weekend. The largest, about 5.0 on the Richter Scale came at about 5:30 p.m., touching off rockslides in the distant foothills and cheers of excitement from the students.

Near mid-afternoon Sunday when final measurements were being made at the cut made in the road by the earthquake, the group experienced another kind of excitement when a truck carrying a bulldozer drove up to the work site.

As a man mounted the big machine, started the diesel engine and backed down the trailer, Wood appeared concerned that his study would be destroyed before all his data was gathered.

"This has lasting scientific importance and they could do us a lot of good if they cut the road somewhere else," he said.

The man on the bulldozer, Harold Lambert, was hired by Tetherow Logging Co. of Mackay to smooth the road for logging traffic expected Monday from a timber sale.

After a brief discussion between the two men, Lambert agreed to detour Wood's painstaking measurements and cut a path around the fissure on the road.

Meanwhile in Mackay, at a town meeting Sunday morning Mayor Oval Caskey said he estimates damage on Main Street alone at around \$1.5 million, and representatives from the Federal Emergency Management Agency headed back to Boise to total the damage. The Mackay City Council has set up an office in the old U.S. Agriculture Stabilization and Conservation Service building on Main Street. Officials hope to have a phone installed by Monday.

The Red Cross has set up a center in the County Courthouse, and representatives from the U.S. Small Business Administration and the Farmer's Home Administration will be in town Monday for anyone with questions.

[Post-Register; October 31, 1983]

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DAMAGE FIGURES REDUCED

By Bob Black

State disaster officials have pared down earlier estimates of Friday's central Idaho earthquake damage and now assess it at \$2.5 million for Custer County.

Earlier reports placed the damage at \$4-5 million, but Jean Terra, Gov. John Evans' press secretary, said Monday disaster services officials have lowered that figure.

Ms. Terra said \$1.5 million of the damage is in Mackay, \$500,000 is in Challis and \$500,000 is to roads other than state roads. State roads in the area also sustained damage, but Brent Frank, assistant District 6 highway department engineer, said there is no dollar figure for state road damage yet.

Ms. Terra said officials were still assessing damage Monday morning and a decision was expected later in the day about what kind of emergency relief would be available. State officials also were meeting with local residents to find out what their needs are, she said.

"We'll know later today when all the reports come in," Ms. Terra said.

Preliminary reports show the drinking water in Challis and Mackay is safe to drink and the Mackay Dam escaped the quake unscathed, although state officials continue to monitor it, she said. She said the communities have no immediate need for food or medicine and their main concern is reconstruction.

Officials estimate 80 percent of the buildings in Challis' and Mackay's downtowns were either destroyed or damaged to the extent that they'll have to be razed.

Bill Livingston, press secretary for Idaho Sen. James McClure, said the senator is "standing by" to see if the governor makes a formal request to President Reagan for disaster relief funds.

If he does make a request, Livingston said, the Federal Emergency Management Agency will send a team to the area to analyze the need and then make a recommendation to the president.

"The process sometimes is very quick," Livingston said. "Sometimes it's not very quick at all."

He said it took several months to complete the studies for last spring's flooding in Arizona because officials were waiting for the water to recede so they could assess the damage.

Livingston said availability of federal disaster funds will be based on the damage estimate and the ability of the state to help with the relief.

Frank said work has already begun to repair damage to state highways and restore two-way traffic to the portions that now have only one lane open. He estimates that part of the repair work will be finished in a week to 10 days, weather permitting.

Crews also will repair cracks that developed after the quake to keep water from leaking under the pavement this winter, he said.

An Idaho State Police official said Monday roads were open into Custer County, but portions of state highways 93 and 75 were restricted to cars only. Highway 93 between Mackay and Challis and 75 between Challis and Stanley were affected by the restriction.

"It's still a little slow going," the official said, adding periodic rock slides are still coming down some mountain slopes and motorists should be on the lookout for fallen rock.

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STATE HUSTLES TO GET RELIEF MONEY

By Bob Black

State officials scrambled Monday to prepare the necessary paperwork that will entitle central Idaho homeowners and businessmen to low-interest loans to help them repair their earthquake-damaged buildings.

Idaho Gov. John V. Evans has not asked the president to declare the region a disaster area, but work is being done to get Small Business Administration disaster relief money. Jean Terra, Evans' press secretary, said state teams were still assessing the damage and the governor will decide later in the week whether to ask the president for disaster declaration.

Paul Massie, state disaster services agency communications and resource officer, said a letter will be mailed within the day to the SBA regional office in Seattle asking for assistance. An SBA official said a team was already in the area evaluating whether Custer County fits the criteria. Larry Henderson, SBA public information officer at the Boise office, said a minimum of 25 buildings need to suffer at least 40 percent damage in order for the county to qualify for emergency help and it appears the county has already met the minimum standard.

Bill Livingston, Idaho Sen. James McClure's press secretary, said the senator is "standing by" to help speed along the request if Evans makes one.

Massie said an SBA declaration would help individuals affected by Friday's earthquake, the largest to hit the continental United States in 25 years, but would not help repair or replace public buildings.

A presidential declaration would help local governments repair their buildings, but he said the only major damage occurred to Mackay City Hall and it probably was not enough to fit the criteria.

One immediate concern is damage to two school buildings and Massie said state officials are still searching for ways to help with those repairs because schools do not fall under the federal program.

A Mackay elementary school gymnasium has been declared unsafe and the school's boiler is inoperable, Massie said. Also, an Arco junior high school wall has bowed out and the building has been closed because it's unsafe, he said.

"We're still looking very hard at the school situation," Massie said, adding at this point "there is no feeling as to what we'll do for the schools."

The SBA money will enable homeowners and businessmen to bring their buildings to conditions that existed before the earthquake, he said.

"We're not going to remodel any homes," he said, adding the money can be used to repair structural damage, wells, chimneys, foundations and other damage caused by the quake. Henderson was uncertain what the interest rate will be, but said it will likely be lower than that available at private banks. He said the rate will be based on what the money will cost the government and whether the home or business owner can get credit through a local bank.

State officials have pared down earlier estimates of the quake damage and they now rate it at about \$2.5 million. Earlier reports put it at \$4-5 million.

Ms. Terra said Mackay's downtown sustained about \$1.5 million damage, while Challis had about \$500,000 worth. Non-state roads had another \$500,000 and there is still an undetermined amount of damage to state highways in the area.

Brent Frank, assistant District 6 highway department engineer, said work is continuing on the damage the quake caused to U.S. Highway 93 and State Highway 75. He estimates portions that have one lane open will have both lanes open in a week to 10 days, weather permitting.

Crews also will repair cracks that developed after the quake to keep water from leaking under the pavement this winter, he said.

An Idaho State Police official said Monday all roads were open in Custer County, but Highway 93 between Mackay and Challis and 75 between Challis and Stanley were restricted to cars only.

"It's still a little slow going," the official said, adding periodic rock slides are still coming down some mountain slopes and motorists should be on the lookout for fallen rock.

[Post-Register; November 1, 1983]

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CHALLIS RESIDENTS BURY VICTIMS OF EARTHQUAKE

By Mark Armstrong

CHALLIS--The power of nature tragically taking the lives of two small children should remind us all of the frailty of human existence, the priest told friends and relatives of little Tara Leaton.

Father John O'Sullivan so reminded about 150 townspeople in Challis today at the funeral Mass of Tara, one of two children killed by an earthquake here Friday.

An entire mountain of rock was moved on its base by a tremendous force of nature, the Priest said, adding that words are not enough to describe the events of last week.

He said words like "aftershock" have been prevalent in the news the past few days, and asked "how do you express the awe you feel in your heart?"

Father O'Sullivan said words also were not sufficient to console the grief of a family when such a beautiful little girl loved so much dies.

But he assured Tara's family and people in the community who knew her so well that she has returned to "a place where there is no suffering."

Tara and Travis Franck, 6, died Friday morning when an earthquake registering 6.9 on the Richter Scale sent a building tumbling down on them while they were walking to school.

A close friend of Tara's family, Ida Savage, said the little girl's favorite color was pink, the color of most of the flowers in the gymnasium where the Mass was held.

Tara's ancestors were among the original settlers in this valley and the number of people at the funeral indicated she was from a well-known family.

She was known by nearly everybody in Challis.

"She was the apple of everybody's eye. She touched a lot of lives," Mrs. Savage said, remembering the way Tara would come into the drug store where she works before school.

"She would come in with my granddaughter and started calling me Grandma too."

Three of the pallbearers were among the people who dug the children out from under tons of cinder blocks Friday.

"If we could understand the design of God, God would not be God," Father O'Sullivan said. Tara was laid to rest in the Challis Cemetery.

Monday about 150 people stood in the town cemetery in the crisp autumn wind, within view of towering mountains, to say goodbye to six-year-old Travis Franck.

The graveside service was officiated by Rev. Ray Anthony of Challis Mission Bible Church. Bishop Robert Lisonbee of the Church of Jesus Christ of Latter Day Saints provided the eulogy.

Lisonbee, also the principal at Challis Elementary School where Travis was enrolled in first grade, remembered the boy as a well-behaved, good student who had a love for people and nature.

[Post-Register; November 1, 1983]

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MACKAY RESERVOIR FILLING FASTER Earthquake Opens New Springs

By Mark Armstrong

MACKAY--The amount of water entering Mackay Reservoir was doubled by the earthquake Friday, head of the Lost River Irrigation District said.

J. Doyle Jensen, chairman of the board for the irrigation district, said the spillway on the dam was opened Saturday to handle the increased flow.

He said Mackay residents at a meeting Saturday with irrigation officials "were concerned about the amount of water entering the reservoir."

Jensen said 670 cubic feet of water entered the reservoir in a 24-hour period ending Monday morning, while normal flow for this time of year is about half of that.

While this past summer was a wet year in the Lost River Valley, Jensen doesn't believe it was wet enough to cause such a large and sudden increase.

Apparently most of the increased flow, as much as half of it, Jensen estimates is coming from the north side of Chilly Butte, 15 miles up river. New springs were observed there shortly after the earthquake.

He said citizens "thought there might be a greater margin of safety in case of another shocker," and requested that the spillway be opened.

"The other reason was the increased flow," Jensen said.

Scientists believe subsurface water was forced above ground through layers of sand and silt by the force of the earthquake, that such occurrences are common features of large earthquakes.

"I can't really tell you how long this will continue," Jensen said.

He compared the present water problem to the large amount of water that entered southwest Montana's Hebgen Lake after the 1959 earthquake that registered 7.2 on the Richter Scale.

Inflow averaged 600 cubic feet for ten days before the earthquake. It nearly doubled to 1,100 cubic feet for 10 days after the earthquake, according to Jensen.

"We just have to give it time to tell," he said.

In the past two days water has been released from the spillway at a rate of 664 cubic feet a day. Jensen said the Big Lost river below the dam can handle that much additional water without flooding.

An emergency response plan has been implemented in Mackay because of citizens' concerns about possible strong aftershocks from Friday's earthquake and the status of the Mackay Dam.

The plan is only a precautionary measure, officials said.

The plan calls for a 24-hour watch on the reservoir with radio communication to the Mackay Fire Department, which would sound an alarm if there was any danger.

The alarm would be short blasts from the fire siren, rather than the usual steady siren.

Should the siren fail, voice instructions would be given on a mobile public address system, officials said.

School buses would be used in an evacuation.

Complete plans and detailed maps were to be distributed door-to-door Monday. Officials suggested people taking medication or with special food needs prepare an overnight bag with those items and place them by their front door.

Officials said the plan would be in effect at least until next weekend.

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IDAHO RESIDENTS SHOW TRUE GRIT FOLLOWING QUAKE

The deaths of two children and the handful of injuries that resulted from Friday's earthquake are tragedy enough, let alone added property damage to homes and businesses in the Mackay and Challis areas.

Just about everybody in eastern Idaho was willing to help following the earthquake, and many response units were quick to arrive on the scene. But it was the strong-willed residents of central Idaho themselves that took center stage in demonstrating their independence.

When Red Cross teams arrived in Mackay to assess damage and provide relief, town and rural residents alike convincingly told them they would rather handle the situations, and could if everyone would just stay out of the way.

That is the way people of pioneer stock and rural heritage are, even in this day when it is proper to appeal for aid first. If they can handle it themselves, they want it that way. If it is too big for them, they will accept support. But they never sit down and expect others to take care of them.

Some Mackay residents were bothered at being virtually invaded by outsiders, especially by news media personnel in airplanes and helicopters. Residents weren't above expressing displeasure either. Light planes were enough, but helicopters landing in the city park with little regard for the hindrance or damage they might cause was more than enough. And they did damage some of the park's sprinkler pipes.

Reporters scurried around trying to uncover stories from people still not recovered from the quake's effects. Those unfortunate incidents might have been overlooked had there been an emergency of greater proportions. Still there was a role for the news media to play--to inform the rest of the nation of the quake's consequences.

It has been charged by some that the earthquake was not really that big a deal and was overplayed. But was it really? A recording of close to 7 on the Richter Scale is no small thing.

The potential for disaster of dynamic proportions was evident with a shock of that magnitude. The dam at Mackay Reservoir might not have held; rock slides or the quake could have happened in more critical places and could have totally collapsed a school building.

Fortunately those things did not happen and everybody realizes they probably didn't because the quake happened in a sparsely populated area. Most people think, considering all aspects, it was lucky there was not more damage or human tragedy. Maybe some reporters were overanxious in proportion to the damage, but there was a story the nation was waiting to hear. People wanted to know if there was a need for help. Residents of the damaged quake area must remember friends and relatives elsewhere were anxiously awaiting the news and many could not communicate by telephone.

Everybody is relieved more help was not needed and the damage was relatively minimal. Still there is consolation in knowing that help was available--from federal and state agencies, Civil Defense, Red Cross and nearly everyone who would be physically able. Although some of the members of the press may have been looking for something more sensational than was apparent, people know the media had a role in keeping others alerted and informed.

The people of central Idaho whose property was damaged might need a helping hand yet and should not be readily forgotten. No matter how self-reliant, many have gone through traumatic personal experiences and the scars cannot be easily erased.

[Editorial]

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QUAKE COSTS SOAR; STATE AID MAY NOT

By Mark Armstrong and Juvanne Clezie

Earthquake damage reports from throughout central Idaho keep coming in, and state and county officials are concerned the state won't come up with enough money to pay for the damage.

In the Clayton silver mine, workers are fighting an uphill battle with rising water.

Early estimates set Custer County quake damage at about \$4 million. The next estimates were much lower--\$2.5 million--but now officials say that may not be enough to cover water-related problems caused by the earthquake.

New springs have flooded ranches near Mt. Borah and there have been reports of springs vital to irrigation drying up after the earthquake.

In Clayton, about 30 miles southwest of Challis, officials at the Clayton silver mine said more than 100 feet of water has flooded the mine since Friday's earthquake.

The flooding has shut down mining and milling, said Wally McGregor, vice president of Clayton Silver Mines Inc. He said that mechanical problems with rented pumps have hampered round-the-clock efforts to stop the flooding in the 1,100-foot-deep mine.

According to Roland Rovetto, mine superintendent, the mine has been taking in about 2,500 gallons of groundwater per minute. He said subsurface water normally enters the mine at about 1,000 gallons per minute.

Rovetto said a full work force of 38 miners had been working around the clock in shifts to pump water from the mine but by Wednesday the water was gaining ground on the workers at a rate of about four inches an hour.

He said the water will not cause permanent damage to the mine but that it could take workers a month or more to drain the water once the increased flow stops.

In addition, Rovetto said Friday's earthquake could be affecting other mines regionally, farther from the epicenter than the Clayton silver mine. For example, he said the mine was shut down by water problems for eight months after the 1959 Hebgen Lake earthquake.

He made no estimate on when the increased flow would slow down in the Clayton mine.

"This is a regional thing not just right here. It's all over," Rovetto said.

He said rocks and landslides from the quake nearly hit the mill and other buildings but none of the mine's 38 employees were inside the mine at the time.

The 48-year-old mine is near Clayton east of Stanley and 25 miles west of the earthquake's epicenter near Borah Peak.

Within two hours after the earthquake, the water started to rise in the mine at the rate of about 1 foot per hour until Tuesday afternoon, when it slowed by three inches an hour, mine officials said.

Residents of Custer County whose homes and property were damaged by the earthquake should register the damage with county and state officials, State Rep. JoAn Wood, R-Rigby said.

Mrs. Wood, whose district includes Custer County, said the county will stand a better chance of receiving aid and low-interest U.S. Small Business Administration loans if the county has a more complete tally of the damage.

Idaho Gov. John Evans Tuesday asked the SBA to declare Custer County a disaster area.

Preliminary inspection of the area indicates there was major damage to 39 homes and 11 businesses, and moderate to minor damage to at least 200 homes.

If the request is approved, businesses, homeowners and farmers will be able to apply for the loans to rebuild their property.

Councilman Doug Flint said representatives of the Small Business Administration had surveyed damage in the area over the weekend to determine if it qualifies for the SBA's disaster program. Those officials are to notify the city Thursday of their decision, he said. If available, money in the SBA program would be long-term at interest rates from 6 to 11 percent and will be made directly through the SBA, Flint said.

Mrs. Wood met with city and county officials Tuesday to discuss earthquake damage, and said the officials "were concerned" that efforts of the state agencies assessing the damage be coordinated.

"The commissioners thought there was a little confusion about coordinating all the agencies," she said.

Aid Office in Mackay

The State Disaster Services Agency, one of the state agencies assessing damage to the area and is responsible for coordinating the efforts of the other agencies, has set up an office in the old ASCS building in Mackay.

Mrs. Wood said county residents should make sure that damage to their property is registered either with that office or with Custer County Clerk Ethel Peck at the county courthouse in Challis.

Mrs. Wood said Custer County damage is more severe than preliminary estimates indicated.

"You can see that the extent of the damages is a lot worse than people had realized," Mrs. Wood said, adding if there is enough damage the county may qualify for federal disaster assistance--something she said Gov. Evans "has not ruled out entirely."

Custer County, with the lowest levy of any county in the state, registered nearly \$100,000 in warrants to get through fiscal year 1983, and Mrs. Wood said if the county does not receive adequate aid for the damages "this will be very hard on them."

According to Mrs. Wood, Mackay Mayor Oval Caskey has estimated about 80 Mackay homes have chimneys damaged badly enough that people may not be able to heat their homes without repairs.

Encouragement Needed

Additionally, she said if the SBA loans become available, some business owners may have to be reassured by community members that it will be worthwhile to restart their businesses.

"There are some business owners in the Mackay area that feel their businesses were marginal enough that they'll have a hard time making it whether they get the SBA loans or not," she said.

Tuesday night Mackay Mayor Oval Caskey told the city council that about 20 buildings in the town's downtown area sustained about \$1.5 million in structural damage.

The council voted unanimously to draft a letter to owners of the buildings, notifying them of the damage report and recommendations of state engineers, who arrived in Mackay Friday.

Earlier Tuesday, Caskey said he talked with Gov. Evans about the level of assistance the county will receive.

Letter to Reagan

Caskey said he was told that a letter was being drafted by Evans to President Reagan notifying the president of the state declaration of the county as a disaster area.

If Reagan declares the county a federal disaster area, that would make available low-

interest loans for businesses and homeowners as well as grants to school districts and cities, the mayor said.

Caskey said he received a call offering assistance from Nampa Mayor Winston Goering. Tuesday Goering sent that city's building and electrical inspector, Sam Shields, to Mackay without charge to offer help to businesses and homeowners who would like damage to their property assessed.

Several Mackay residents told the council they were not happy with the way the state engineers had conducted their examination and would like a second opinion.

Emergency Plan Through

Mackay Civil Defense Director Wayne Olsen said the emergency response plan implemented ..?.. and distributed door-to-door Monday will be discontinued Friday. It was implemented because of residents' concerns that strong aftershocks might cause the failure of Mackay Dam.

Olsen said the dam is structurally sound, but the irrigation district involved is reducing the reservoir's water level at a safe rate as a precautionary measure.

The emergency plan calls for a 24-hour watch on Mackay Reservoir. Watchers would be in radio contact with the Mackay Fire Department, which would sound an alarm if there was any danger.

The alarm would be short blasts from the fire siren rather than the usual long, steady blast that indicates a fire. Should the siren fail, voice instructions will be given on a mobile public address system.

School buses to be used in an evacuation will be at Pehrson's Shelter Home at the north end of town and at the senior citizen's apartments on Cedar Street at the south end. There will be four additional buses parked on the west end of two streets on each side of Main Street. The buses will pick up passengers at street intersections and take them to Pass Creek Road on the bench.

Olsen said there will be no fire sirens sounded this week so to avoid possible panic.

[Post-Register; November 2, 1983]

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EVANS ASKS DISASTER AID FOR CUSTER

By Bob Black

Idaho Gov. John V. Evans Tuesday morning asked the U.S. Small Business Administration to declare Custer County a disaster area, triggering a program that could help Custer County residents repair their earthquake-damaged buildings.

Jean Terra, Evans' press secretary, said preliminary inspection of the area indicates there was major damage to 39 homes and 11 businesses, plus moderate to minor damage to at least 200 homes.

The request, if the SBA approves, will allow businesses, home owners and farmers to apply for low interest loans to repair damage caused during Friday's earthquake.

Evans will decide later this week whether to ask the president to declare the region a disaster area, Ms. Terra said.

Paul Massie, state Disaster Services Agency communications and resource officer, said the letter asking for assistance was mailed Tuesday afternoon to the SBA regional office.

Paul Henderson, an SBA public information officer at the Boise office, said the request will be forwarded to Washington, D.C. and he expects an answer by the end of the week.

If the SBA approves, Custer County businesses would be eligible for loans up to \$500,000 and homeowners could get loans up to \$50,000. Loans would be at lower interest than private lending institutions offer and interest would be based on whether homeowners or businessmen could get finance elsewhere.

While news of the request was certain to be well received, there are indications that some businesses will still be hurt because they aren't financially solvent enough to repay even low-interest loans.

State Rep. JoAn Wood, R-Rigby, whose district includes Custer County, said she's talked to some people whose businesses were marginal before the quake and they may be unable to rebuild now.

"It could be the death blow," she said. "It really could."

The area has suffered economic hardships in recent years as the mining and timber industries have fallen on hard times.

"There's a lot of financial difficulty as it is," she said. "This could be the final blow."

Henderson said SBA loans are designed so people can repay based on ability. In some cases they'll have up to 30 years to pay back.

"I would hate to think that somebody wouldn't apply because they felt they couldn't pay it back," he said, adding the SBA will be willing to work with people to fit their needs.

Massie at the state Disaster Services Agency said his office is still "exploring all avenues" to help with the earthquake relief, but he knows of no outright grant program that would be available to the county.

He said even if there were a major presidential declaration, local residents would not be entitled to grants. A presidential declaration, which has to be requested by the governor, would help the county rebuild public buildings damaged in the quake, Massie said.

"They can tighten their belts, apply for low interest loans and do their best to rebuild," Massie said.

He said the office is looking into the possibility of seeking economic development grants, but at this point no decision has been made.

"I'm not going to rule out anything until it's all over and done," Massie said, "and that could be a long time down the road."

Assessment work continued this week as officials gathered information they'll need to decide whether to request a presidential disaster declaration.

Ms. Terra said school officials are reviewing damage to their buildings to see if a disaster declaration is necessary.

Massie said school repairs fall under a federal Department of Education program, while repairs to other public buildings fall under the Federal Emergency Management Agency. Both programs need a presidential disaster declaration first, Massie said.

[Post-Register; November 2, 1983]

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CHALLIS RANCH LOSES ITS LIFEblood: WATER

By Mark Armstrong and Cathy Koon

CHALLIS--Many grocery stores and other Main Street businesses damaged in Friday's earthquake will likely bounce back if low-interest loans become available to quake victims. But what good is a loan to a man who just lost the most important part of his ranch? That's the question Will Ingram has been asking himself since Friday.

Ingram, who ranches 2,800 acres just south of Challis, saw his water was gone when, more out of curiosity than anything else, he drove from his home a few hours after the earthquake last Friday to check on the source of his warm springs.

Water that poured from the spring at a rate of 5,400 gallons a minute before the earthquake--water that had been the lifeblood of his ranch--wasn't there.

"A guy can rebuild a house but something like this we'll never be able to bring back," Ingram said.

The water was used to irrigate about 1,300 acres of land where hay that feeds Ingram's 2,200 head of cattle is grown. It moved through a gravity-flow irrigation system seven miles long.

Additionally, the warm water was mixed with cold, spring water to keep drinking water for the cattle from freezing in the winter.

That's where other ranchers across Highway 93, east of Ingram will also be affected by what appears to be only Ingram's misfortune.

Glen Hunt, director of the U.S. Soil Conservation Service in Challis, said at least 15 ranchers with 3,000 cattle in the valley here depend on the warm springs water in the winter.

He said that doesn't include the many people who have one or two horses, or a few sheep and a cow.

"This is going to be a mess I'm afraid before we get it all taken care of," said Hunt.

Vangie Ingram, Will's wife, said the family moved here from Colorado about 11 years ago and immediately knew the value of the warm springs.

"That water was the lifeblood of this ranch," Mrs. Ingram said.

Officials from the U.S. Geological Service and two University of Idaho hydrologists visited the ranch this week and determined that it would not be feasible to try to drill a well to release the water.

Mrs. Ingram said the scientists offered a few predictions about what will happen to the underground water.

"They said it will either return to the same place, come up somewhere else or never resurface again." She said the scientists seemed to have the most faith in the latter prediction.

Ingram said the scientists believe that a fracture deep in the earth that allowed the water to escape was closed off by the quake.

He said without the warm water he will only be able to winter half as many cattle as he has now.

Officials of the State Disaster Services Agency, the agency coordinating efforts to assess damage caused by the earthquake, had scheduled town meetings today in Mackay at noon and Challis at 2 p.m.

The Ingrams said they planned to attend the Challis meeting. "We're going to pursue every avenue we can to see if we can get low-interest loans to keep operating," Ingram said.

Mount Borah

But while the Ingrams and others like them wait for officials to approve plans for aid, geologists are waiting too.

They may have to wait until next summer, before knowing for sure if Mount Borah is higher than it was before Friday's earthquake. "The general consensus among geologists is that the valley dropped," Ricks College geology professor Edmund Williams said today.

Earthquakes in the Intermountain Seismic Belt are triggered by tension, "a pulling apart of the earth's crust. It's hard to visualize the uplift of a mountain from a tension fault. It is more likely the valley fell," he said.

Aftershock activity in the quake area picked up after 5 p.m. Wednesday, when seismographs at the college in Rexburg recorded a quake at 4.0 on the Richter scale. There were several aftershocks of that magnitude during the night and were continuing Thursday, Williams said.

[Post-Register; November 3, 1983]

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EVANS MAY ASK FOR DISASTER DECREE

By Mark Armstrong

CHALLIS--Idaho Gov. John Evans will ask President Reagan to declare a federal disaster for earthquake-riddled sections of Idaho, the head of the Idaho Army National Guard predicts.

Adjutant Gen. James Brooks told townspeople at separate meetings in Mackay and Challis Thursday that the governor had scheduled a press conference for Friday. He said he thought an announcement would come at that time.

Brooks, also chief of the State Bureau of Disaster Services, said state personnel had been hasty in arriving at an estimate of \$2.5 million damage caused by last week's major quake. "The first damage estimate was very rough. I don't think it's worth the paper it's printed on," he said.

He said state officials have received reports of damage to buildings in Boise and a county road in Boundary County. The state has inspectors assessing damage in area mines.

"All of us are a little apprehensive about things we don't know about," he said.

American Red Cross workers have listed 307 homes in the county as damaged by the earthquake.

Brooks said the U.S. Small Business Administration and the Farm and Home Administration would announce by Friday that low-interest loans to repair businesses and homes would be available.

He said representatives of those agencies would be in Custer County next week to begin discussing loan programs with residents. A federal disaster does not have to be declared for those programs to be implemented.

Paul Massie, state disaster services agency communications and resource officer, said earlier this week that damage would probably be too little to warrant a presidential declaration, because most of the major damage occurred in downtown Mackay.

But reports of damage to springs at ranches and flooding at mines have mounted this week, and Brooks said "I think our chance of getting a presidential declaration are pretty darned good.

"This earthquake has affected things all over this state that I don't think we're aware of yet."

If a federal disaster is declared federal assistance will be made available to public entities as well as to individuals.

In addition to SBA and FHA loans, a special unemployment program for anybody without a job because of the quake, food stamps, and grants allowing individuals to make "minimal repairs to their homes to make them livable," will be available, Brooks said. The programs will allow public property to be repaired to original condition. Under the public assistance programs, the federal government pays 75 percent, the state pays 15 percent and local taxpayers pay 10 percent.

Brooks noted that the state lacks disaster assistance programs for public entities.

Inspections made this week by state officials showed extensive damage at the high schools in Mackay, Challis and a middle school in Arco.

Classes were canceled in Arco and Mackay because of damage to the buildings.

[Post-Register; November 4, 1983]

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EVANS WIRES PLEA FOR EARTHQUAKE MONEY TO REAGAN

Idaho Gov. John V. Evans said Friday he will ask President Reagan to designate earthquake-riddled sections of Idaho as a federal disaster area.

The announcement came during a morning press conference in Boise.

"Because of the effects of that quake, I am requesting that you declare a major disaster for the state of Idaho," Evans asked the president in a telegram sent Friday.

The request, if approved, will entitle local officials to federal disaster relief funds to repair public property. The money, which would come through Federal Emergency Management Agency, could not be used to repair earthquake-caused damage to three schools in the area and state officials said they are still looking for funds for school repair.

Still to be decided on is Evans' request for Small Business Administration disaster designation, which would enable homeowners, business owners and farmers to apply for low-interest loans to repair the damage.

Evans also said the Idaho Housing Authority has assured him it will make low-interest loans available to central Idaho homeowners. A disaster application has also been made to the Farmers Home Administration.

Meanwhile in Challis, residents continued to pick up the pieces from Friday's earthquake--the largest to hit the continental United States in nearly 25 years.

Adjutant Gen. James Brooks met with Challis and Mackay residents in meetings Thursday. Brooks, also chief of the State Bureau of Disaster Services, said recent estimates by state personnel listing quake damage at \$2.5 million had been hastily arrived at.

"The first damage estimate was very rough. I don't think it's worth the paper it's printed on," he said.

He said state officials have received reports of damage to buildings in Boise and a county road in Boundary County and that the state has inspectors assessing damage in area mines.

"All of us are a little apprehensive about things we don't know about," he said.

National Guard crews were busy today tearing down the city hall and the jail in Mackay--two buildings condemned after last week's earthquake.

City Clerk Sheri Wall said the National Guard began tearing down the jail Friday morning and should start work on city hall by noon. The work was expected to be done today.

She said in both buildings exterior and interior walls were separated and floors and ceilings were bowed by the earthquake's force.

Ms. Wall did not have a cost estimate of replacing the buildings.

City officials earlier moved their offices into the former ASCS building. They share the building with the National Guard and representatives of the state disaster services agency.

The jail was used as a holding facility for prisoners taken to the county seat in Challis. Ms. Wall said inmates will now be taken directly to that jail.

American Red Cross workers have listed 307 Custer County homes as damaged by the earthquake.

Paul Massie, state disaster services agency communications and resource officer, said earlier this week since most of the major damage occurred in downtown Mackay, there probably would not be enough damage for a presidential declaration.

But reports of damage to springs at ranches and flooding at mines have mounted this week, and Brooks said "I think our chances of getting a presidential declaration are pretty darned good.

"This earthquake has affected things all over this state that I don't think we're aware of yet."

In addition to SBA and FHA loans, a special unemployment program for people without jobs because of the quake, food stamps, and grants allowing homeowners to make "minimal repairs to their homes to make them livable," will be available, Brooks said. The programs will allow public property to be repaired to original condition. Under the public assistance programs, the federal government pays 75 percent, the state pays 15 percent and local taxpayers pay 10 percent.

Brooks noted that the state does not have disaster assistance programs for public entities. "The state has never seen fit to have a disaster assistance program," Brooks said, adding, "the governor sympathizes with what all the people in the county are faced with."

Inspections made this week by state officials showed that damage was extensive at the high schools in Mackay, Challis and a middle school in Arco.

Classes were not held in Arco and Mackay because of damage.

A SBA representative staying in Mackay, John Brennan, said limits on the SBA low-interest loans are \$50,000 for real estate and \$10,000 for personal property.

[Post-Register; November 5, 1983]

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MACKAY, BUTTE SCHOOLS NEED REPAIRS AFTER QUAKE

Officials of Mackay and Arco area schools wrestled Friday with ways to put students back in school after last week's major earthquake damaged buildings heavily.

Mackay children will be out of school Monday, while trustees of School District 182 consult with structural engineers, architects and building inspectors for earthquake damage at the elementary school and high school.

About 55 people attended a special board meeting Friday night for discussion of the damage.

Superintendent John Meek said several school patrons had suggested using other buildings in the community as temporary classrooms, but nothing has been decided on that.

Buildings offered include the Mackay LDS Ward, the Mackay Community Church, the American Legion Hall and Masonic buildings.

Chairman Lynn Rothwell said, "We'd rather use our own facilities if at all possible."

Some patrons said at the meeting that problems might be eased if the district were to go into split sessions after grade school repairs are completed.

"The board has to determine if the liability risk is worth putting them (students) back in the buildings," Meek said.

All the engineers consulted so far have agreed both Mackay schools are reparable, he said, but repair estimates range from \$10,000 to \$760,000 per building.

Repairs on the high school will take several weeks. For instance, its smokestack must be torn down and rebuilt.

School officials are hopeful they can get the children back into classrooms sometime next week. If the board decides to put the children back in school, patrons will be notified by various media.

Rothwell said the district has two main problems in deciding on facilities--making sure of children's safety and getting back into a normal routine quickly.

In the meantime, Meek said the state Department of Education has assured the district they will not have to make up any school time missed this week. However, if children continue to miss school, they will have to make it up, probably in the summer.

Butte County School District 111 will have to build a new junior high school or get by squeezing 30 percent of its student population into two buildings because of earthquake damage.

School Superintendent John Riley said Friday reports from three engineering firms hired to assess damage at Middle School show the building is beyond repair. He said a new building would cost about \$1.8 million.

Riley called a special school board meeting Thursday to explain how the district would bring the four grades into the high school and elementary school.

He said fifth and sixth grades will be moved into the elementary school and seventh and eighth grades will go to the high school.

The elementary school will be closed all of next week while classrooms are rearranged.

The senior high school will be closed Monday and Tuesday.

[Post-Register; November 5, 1983]

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STATE KEEPS ON SHAKING No More Damage

As state and federal disaster officials this week assessed damage caused by the Oct. 28 central Idaho earthquake, aftershocks continued to ripple through the region.

An aftershock measuring 4.5 on the Richter scale shook central Idaho Sunday--nine days after the quake that took two lives.

Scientists recorded the tremor at about 2:05 p.m. near the base of Mt. Borah--the epicenter of last month's 6.9 magnitude earthquake. No damage was reported from Sunday's aftershock.

But U.S. Geological Survey scientists who are measuring the tremors predict aftershocks that measured 5.5 and 5.9 Oct. 29, the day after the earthquake, are the largest that will occur.

"What appears to be happening in the aftershock sequence is not only are the frequency of the aftershocks dying down but their severity is dropping as well," said USGS Geophysicist Jack Boatwright.

As a rule of thumb, he said the largest aftershock expected is one lower numerically than the main quake.

Boatwright, a member of a USGS team from Menlo Park, Calif., said while "there is no absolute prediction" that there will not be a large enough aftershock to cause additional damage, he said "that appears to be the case."

Another USGS scientist, Charlie Langer, of Golden, Colo., told forest service officials here last week that it is unlikely that aftershocks will continue for more than a month after the earthquake.

He noted that homes and buildings that survived the main earthquake in good condition will survive the aftershocks.

Meanwhile, state officials hope to learn by next week whether President Reagan will declare Custer County a disaster area.

Gaetha Lloyd, Gov. John V. Evans' deputy press secretary, said information is being compiled and will be sent to the Federal Emergency Management Agency office in Seattle Tuesday.

FEMA will recommend to the president whether to designate the region a disaster area. If FEMA and Reagan agree to the designation, it would free federal funds to help with the cleanup.

"I'm told they will probably make a recommendation some time this week," said Ken Thompson, an Idaho Sen. Steve Symms aide. "I'm sure whatever they recommend is likely what he'll do."

Evans announced Friday he would ask the president to declare the county a disaster area and soon afterwards all four members of Idaho's delegation said they had written letters to the president supporting Evans' request.

Sen. James McClure, R-Idaho, said in a news release he hand delivered his letter to Reagan.

"While the remoteness of the area resulted in comparatively small damage on a cumulative dollar basis, it nevertheless was no less severe for the residents of the area," McClure told the president.

Thompson said it's customary for FEMA to handle the review to assess whether the damage meets federal criteria.

Thompson said he hopes FEMA can complete its review by mid week and the president can make his decision by the week's end, but it may be next week before the decision is made.

The Small Business Administration last week agreed to declare the county a disaster area, entitling home and business owners to low-interest loan money. SBA representatives will be in both cities this week, answering questions for residents and distributing loan applications.

SBA officials set up temporary offices at the Custer County Courthouse in Challis and at the Idaho First National Bank building in Mackay. Office hours in both communities are from 9 a.m. to 6 p.m.

Homeowners can borrow up to \$55,000 for building and personal property damage, while businesses can borrow up to \$500,000, according to an SBA news release.

Interest rates are based on a "credit elsewhere" test, meaning if the SBA determines the applicant is able to obtain credit from another source, he'll have to pay a higher interest rate.

[Post-Register; November 7, 1983]

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TREMORS FELT NEAR CHALLIS

CHALLIS (AP)--Central Idaho, the site of a major earthquake that killed two school children and caused millions of dollars worth of damage in October, was shaken by an aftershock measuring 4.5 on the Richter scale Sunday.

The tremor, which would be considered "small to moderate," occurred at 2:04 p.m. MST, said Dr. Robert Smith of the University of Utah Seismology Center. Its epicenter was the same as that of the major Oct. 28 quake, he said.

Dispatcher Sylvia Markley of the Custer County sheriff's office in Challis, near the epicenter, said there had been no reports of damage or injuries.

The area has been hit by waves of aftershocks since the major one, and aftershocks of 5.5 and 5.1 magnitude had been measured, Smith said.

None as large as Sunday's had been recorded since Oct. 30, he said.

The aftershocks had been dying down in frequency and intensity until Sunday, when a flurry of smaller ones followed the 4.5 magnitude one at a rate of "every few tenths of minutes," he said.

No one had called the sheriff's office to inquire about the aftershock, Ms. Markley said late Sunday afternoon.

"I guess people are getting used to it," she said. "I definitely could feel it, but it didn't shake anything off the shelves or make anything sway."

[Post-Register; November 7, 1983]

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QUAKE DAMAGE ESTIMATES CLIMB

Damage from an earthquake that rippled through much of the Pacific Northwest and left two Idaho children dead has jumped to an estimated \$12.5 million, Gov. John Evans says. However, a state official said Tuesday the estimates could climb even higher as reports on damage to agriculture and mines continue to trickle in.

The earthquake, which registered 6.9 on the Richter scale, struck on Oct. 28, causing heavy damage in central Idaho's Custer County.

Damage in the county came to more than \$6.8 million, Evans said, with the bulk of it, \$2.3 million, falling on agriculture.

Schools in the county sustained \$2.2 million in damages, with private homes suffering almost \$1.1 million in damages. Damage also was reported to businesses, public buildings and roads.

Another \$2 million in school damage was reported in Arco in Butte County. And \$3.6 million in damage was reported at the Gooding State School for the Deaf and the Blind in Gooding County.

Last week state officials announced they were closing the old high school building at the Gooding facility.

The Department of Transportation also reported \$420,000 in damages to U.S. 93 linking hard-hit Mackay and Challis and Evans said the state transportation department will apply for federal highway funds for repairs.

Evans last week asked President Reagan to declare Idaho a disaster area.

Gaetha Lloyd, Evans' deputy press secretary, said damage assessments were still preliminary because not all the damage to agriculture and mines has been compiled.

She expected those reports to arrive at her office later Tuesday, when the governor's office will mail its formal disaster application to the president.

[Post-Register; November 8, 1983]

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IDAHO QUAKE SHAKES MINDS -- AS WELL AS MATTER

By Mark Armstrong

CHALLIS--Aftershocks from a major earthquake are not always just continued movements of the earth's crust. The human mind is also shaken.

While one psychologist says long-term mental effects caused by last week's major earthquake will be minimal, she believes that much can be learned by studying the reactions of different people to the catastrophe.

Susan P. Hayden, a clinical psychologist who practices in Boise and Ketchum, says the earthquake can be used as a valid "projective test." Like the well known ink blotter test, a person's interpretation of it reflects their personalities and the way they view the world.

"Some people take responsibility for what happened and internalize it. Others externalize it--they're frightened there is something out there they can't control," Ms. Hayden says. Such events have the potential to cause deeper anxiety in individuals who are already feeling anxiety, she says.

"When you have something as secure as the ground you walk on start shaking, you see that terra firma wasn't as firm as you thought.

According to Ms. Hayden, the first reactions of people who felt the earthquake were as different as the people themselves.

While she has not counseled anybody because of the earthquake she said she has asked several friends where they were at the time of the earthquake and how they reacted to it.

Red Scare

A number of people in Boise she knows thought the ground was shaking because nearby Mountain Home Air Force Base had been attacked, that the United States and the Soviet Union had entered the realm of direct military confrontation.

"That flashed in a lot of minds," she said.

Other people thought first of the safety of their families or the condition of their property.

"It kind of lets you know where your values are," Ms. Hayden says, adding that she is considering using the earthquake as a test in interviews and writing a research paper on what she finds.

Besides the people who have relatives or friends die in such occurrences, Ms. Hayden says people who live alone may be affected the most.

"When a once-in-a-lifetime thing like this happens you really don't have anything to validate it against," she says, adding that we tend to depend on others to validate our own experiences.

Two Heads Better

Two people in a house together may be able to decide what it is that's happening faster than one person.

She said the people who externalized the event tended to become angry. For example, she said several people she spoke with were angry the day of the earthquake because their employers didn't close the office they worked at for the day for safety reasons.

Another counselor, Dave Poovey, a minister at Shepherd of the Valley Lutheran Church in Salmon, believes that people in central Idaho are "survival oriented" and will bounce back easily after an event like the earthquake last month.

He points out that there are no full-time psychologists practicing in either Custer or Lemhi County and the peoples' strong will may be the reason.

"People are very survival oriented here. I'm not sure if there was a psychologist that they would see him," said Poovey who counseled hurricane victims when he lived on the Gulf Coast of Texas.

[Post-Register; November 8, 1983]

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CHALLIS LOOKS AT NEW JUNIOR HIGH

By Mark Armstrong

CHALLIS--Challis school officials say a new building may replace the earthquake-damaged junior high school.

School District 181 officials on Tuesday discussed options for junior high students, who have been doubling up with elementary and senior high students since the Oct. 28 earthquake.

The building was intended to become a junior high school after the transfer of high school students into a new, \$4 million structure last week.

But the school received severe structural damage in the earthquake, forcing junior high students into the new building with the high school students.

In addition, junior high students are also being taught in two classrooms at Challis Elementary School.

School Superintendent Terrell Donicht said damage at the school, which has been cordoned off to keep the public from entering, has been inspected by state and federal officials as well as private engineering companies.

While no firm estimates of the cost of repairing the building have been made available, Donicht said engineering studies show it would cost less to replace than repair the building.

He estimated the cost of a new junior high school--large enough to hold 200 students--at about \$1.5 million.

The board agreed that financing of a new school would be dependent on availability of federal disaster funds because the community probably would not pass a bond election.

Idaho Gov. John Evans said Friday he would ask President Reagan to declare the state a disaster area.

If the president agrees (an announcement is expected in about 10 days) federal grants will be available to school districts.

If the request is turned down, Idaho, which does not have a disaster assistance program for public entities, will be on its own to rebuild schools damaged in the quake.

Other alternatives considered by the board include repairing the old building, or adding six classrooms to an upstairs storage area in the recently completed high school.

Most of the trustees seemed to agree that rebuilding the old school would not be a good decision.

In addition, they are concerned that increasing enrollment will mean crowding at the new building in a few years.

The new school, designed for 400 students, now holds 365 and school officials point out that the building is not designed for elementary school students.

About \$200,000 remains in the building fund from the new school and that money could be used to finance most of the cost of the additional classrooms, which has been estimated at about \$250,000.

Damage to the building--one of the worst hit by the earthquake--includes exterior walls falling away from the building, a brick chimney about to topple over, and displacement in roofing and beam structures.

School officials estimate it will cost about \$100,000 to have the building torn down and removed.

The board decided not to make a decision until the president's decision is announced. But they voted to begin interviewing architects and set plans in motion either to tear the building down or begin plans for a new school or the classroom addition. They said the old high school is hazardous and warned people--especially children--to stay away from the building.

[Post-Register; November 9, 1983]

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MACKAY SCHOOLS PREPARE FOR REOPENING ON MONDAY

MACKAY--Classes will begin on split-sessions here Monday if heat can be restored at the high school.

The decision was made late Tuesday evening at a special meeting of the School District 182 board of trustees.

Only the high school will be used for classes because of heavy damage to Mackay Elementary School in the Oct. 28 earthquake.

The tentative schedule Monday calls for high school students to attend classes from 7:30 a.m. to noon. Elementary students will attend school from 1-5 p.m.

Buses will run for both sessions on regular routes.

Officials are investigating the possibility of carpools for high school students. There will be no lunch served in the district.

Superintendent John Meek said if heat is restored in the high school all school personnel and volunteers are needed Friday to get classes ready for Monday's opening.

Structural engineers and architects have examined the elementary school and agreed the temporary walls need to be secured before classes are held.

Meek said it would cost \$750,000 to repair damage in the two schools.

Class days missed because of the earthquake will not have to be made up in the spring.

[Post-Register; November 9, 1983]

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EARTHQUAKE LOANS

MACKAY--Prince Woodbury, loan officer for the U.S. Small Business Administration, said representatives will be in Mackay and Challis for the next two weeks answering questions and distributing applications for low-interest loans to people whose homes and businesses were damaged in the Oct. 28 earthquake.

In Mackay, they will be at Idaho First National Bank through Nov. 10. On Nov. 11, officials will move to Mackay City Hall, in the old ASCS building.

On Nov. 14-18 officials will be back at the bank and on Nov. 19 they will be at Mackay City Hall.

In Challis, SBA officials will be at Custer County Courthouse through Nov. 9 then again from the Nov. 14-16. Office hours in both cities are from 9 a.m. to 6 p.m.

Deadline for applications for damage to homes, personal property and businesses is Jan. 5, 1984. Deadline for economic injury disaster loans to small businesses in disaster areas is Aug. 6, 1984.

[Post-Register; November 9, 1983]

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STUDY SHOWS INEL SAFE AFTER EARTHQUAKE

By Ken Retallic

Study of central Idaho's Oct. 28 earthquake is providing information that confirms design specifications for Idaho National Engineering Laboratory facilities are well within safety requirements, according to a team of site analysts.

They also pointed out that in communities closest to the epicenter, structures constructed under Uniform Building Code standards for this area were unscathed.

Those notes of reassurance were offered Wednesday at the weekly meeting of the Idaho Falls Rotary Club by Brent Russell, supervisor of EG&G Idaho's geosciences section; Ronald Smith, facilities management division; and Robert Guenzler, engineering analysis division.

Russell said monitoring of aftershocks that have rippled through the INEL has provided "real data that conforms with our empirical data" used to establish seismic resistance standards for site facilities.

And in a later question and answer session, he speculated that "the data may even enhance the standing of INEL" in environmental impact statement considerations for a New Production Reactor proposed for one of three sites, including the INEL.

Guenzler said analyses "largely found what we expected to see with an earthquake of this magnitude and distance from the site."

He suggested most INEL structures were built to stronger than necessary standards, noting that the eastern Snake River Plain was placed in a lower UBC seismic risk zone two years ago.

Smith said minor damage to a few INEL facilities were hairline cracks in walls and ceilings that were "essentially cosmetic" in nature.

But Russell and Guenzler showed a series of slides that revealed the dramatic impact of the quake on Mackay, Challis and the Big Lost River Valley.

Guenzler emphasized that it was the older buildings in the two towns that sustained the most damage. "Engineered or well-built buildings apparently didn't get damaged."

Russell said the quake had a magnitude of 6.9, "but we did not record any foreshocks at all. Before, the biggest in that area was 11 years ago and it had a magnitude of 1.3 on the Richter Scale."

However, he added, examination of the quake scene revealed that it follows an old escarpment from an earthquake that occurred about 10,000 years ago.

He said that the epicenter was 15 miles northwest of Mackay and the focal point is estimated to have been about 6 to 10 miles underground.

The importance of the information being gained is that INEL "is one of the areas where we help set standards for earthquake regulations."

He emphasized several times, however, that there are no known fault lines running through the Snake River Plain under the INEL. The nearest fault lines to the site are the Arco Fault Line and the Howe Fault Line just to the west of the site.

At the conclusion of the current analysis by INEL, the U.S. Geological Survey and others, Russell added, "We will be able to predict with a fair amount of confidence where the next earthquake will occur and at what magnitude--but not when."

[Post-Register; November 10, 1983]

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DISASTER REQUEST OFFICIAL

BOISE (AP)--In a quickie ceremony at the Boise Airport, Gov. John Evans on Wednesday signed a formal request to President Reagan to declare Idaho a disaster area because of the Oct. 28 earthquake.

The Federal Emergency Management Agency can't give grants to repair schools and other public facilities until Reagan signs the request. And officials said earlier it probably would take 10 days to complete the necessary paperwork.

Evans was in Salt Lake City for a speech Wednesday. State agencies completed work on the 20 page disaster request in mid-afternoon, and it was rushed to the Boise Airport for the governor's signature as soon as he landed.

Darrell Waller, chief of the state disaster agency, will carry the request to the Seattle regional office of FEMA.

It lists Idaho's earthquake loss at \$12.4 million to homes, businesses, farms, schools and other buildings in Custer and Butte counties.

The earthquake, rated at 6.9 on the Richter scale, was the strongest to hit the contiguous United States in 24 years.

Federal officials said if Reagan declares Idaho a disaster area, school districts can get 100 percent grants to replace earthquake-damaged buildings.

[Post-Register; November 10, 1983]

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IDAHO EARTHQUAKE WILL SHAPE FUTURE CONSTRUCTION

By Ken Robison

Idaho's big quake was a resounding reminder of the powerful forces at work within the earth. The present shape of the earth is the work of massive forces through millions of years, and things are still happening.

Since 1958 there have been major earthquakes in Montana, in Alaska, in California, in Idaho.

Most of the earthquake research seems to focus on California's well known faults, which are near heavily populated areas. Some geologists have predicted a very large earthquake in southern California within the next 30 years.

Where there are earthquakes, there are often also volcanoes. The eruption of Mt. St. Helens has focused more interest on the chain of large volcanic peaks of Washington, Oregon and California. These are part of a chain of volcanoes around the Pacific Ocean. Most Idahoans live on the Snake River Plain, the product of relatively recent (in the earth's history) geologic time. Just as we have had earthquakes in recent years, we could see active volcanoes.

The Idaho quake will undoubtedly cause some rethinking about the standards for building construction, about dams, and about other developments that might be jeopardized by big shakes.

There is some evidence that activities by man can stimulate at least modest tremors. A series of tremors around Denver a few years back were associated with injection of large volumes of fluid into waste wells.

The striking thing about earthquakes and volcanoes is how little is known about them--compared to some other areas subject to scientific inquiry. It isn't that scientists don't try, or that progress hasn't been made. There is a shortage of observation posts within the earth.

Perhaps the time will come when geologists can predict large earthquakes. They now have an ability to give advance warning about large volcanic eruptions. Volcanoes seem to cooperate with early warning signs, at least part of the time.

Idaho's landscape has seen cataclysmic upheavals--huge mountains thrust up, the breaking out of a large inland sea, and massive lava flows. Geologically, this is not a peaceful place.

The arrival of platoons of reporters and photographers in Challis and Mackay is but a forerunner of things to come. Those communities are likely to become more popular tourist attractions, with the new-found fame generated by the earthquake.

Idaho's reputation as an earthquake-prone area might have an affect on population growth. The well known tendency of California to suffer major quakes, however, has certainly not slowed migration to that state. If people paid attention to earthquake possibilities, we would see a massive movement of people out of California.

Because of special interest legislation approved by the Idaho legislature the lower end of Box Canyon on the Snake River may be doomed to development. The pending demise of Box Canyon is another indication of the ineffectiveness of conservation groups in attempting to lobby the legislature.

A pristine stream, fed by large springs, flows through Box Canyon to the Snake River. This property should have been acquired by the state years ago to preserve the spring and the

stream--particularly in view of the fact that most of the large springs in the Hagerman area have been developed for fish farms.

Most of the land in the canyon is privately owned. The owner also has a water right for some of the water. Considering the natural values of Box Canyon spring, the state should have never issued a water right for development there.

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[Post-Register; November 10, 1983]

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GOV. EVANS NOT SURE ABOUT SUPPORTING NPR

BOISE (AP)--Idaho Gov. John Evans is reassessing his support for construction of a weapons material-producing nuclear reactor in eastern Idaho following last month's massive earthquake, according to an aide.

"It's the safety factor," Evans' spokeswoman Jean Terra said Thursday. "If an earthquake potential does prove a threat he would be justified in reassessing his position."

But Sen. James McClure said the Oct. 28 earthquake added to his conviction that the facility could be built safely in eastern Idaho.

"What the earthquake showed is that facilities at the Idaho National Engineering Laboratory are more than adequately protected from any problems with earthquakes," said McClure press aide Bill Livingstone.

Ms. Terra emphasized that the governor has not decided to oppose the Energy Department's recommendation that the \$4.5 billion New Production Reactor be located at INEL.

"We have contact all the time with the people over there at the Department of Energy, and he will want to have their assessment of the situation," she said. "He's always said he supported that with the qualification that safety and environmental impacts be in the best interests of Idaho."

Congress has yet to decide whether to endorse the recommendation of Energy Secretary Donald Hodel that the new reactor be built at the Idaho facility.

Work on the project, which could create up to 5,000 construction and operational jobs in the state, is still years away, according to officials.

[Post-Register; November 11, 1983]

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SENATOR SAYS NPR SITE NOT SO SHAKY

By Ken Retallic

Last month's massive earthquake in central Idaho should not be used as an excuse to prevent the Idaho National Engineering Laboratory from being selected as the site for a New Production Reactor, says Sen. James McClure, R-Idaho.

"The earthquake proved, not disproved, that the NPR can come here if it is designed and operated properly. And I think we can do both of those," McClure said Friday at an Idaho Falls press conference.

In response to comments earlier this week by Idaho Gov. John Evans that the governor is reassessing his support of the weapons materials-production reactor because of the quake, McClure said he is convinced seismic safety standards for INEL facilities are more than adequate.

McClure acknowledged that "the other sites are likely to use this as an excuse" to push their selection, but he said the quake should not become an issue in the site's environmental assessment.

The minor effects of the quake at INEL "proves that the Snake River Plain, because of its geology, is somewhat insulated from seismic shocks even though it is surrounded by a seismic zone," he said.

McClure's assurances that design specification for INEL nuclear facility are within the seismic risk requirements established for the site have been repeated in various studies of the quake.

Brent Russell, supervisor of EG&G Idaho's geosciences division, told the Rotary Club on Wednesday that from studies of the performance of the site during the quake "the data may even enhance the standing of INEL" in consideration for the NPR.

Other sites being considered by the Department of Energy for the NPR include the Hanford reservation in Richland, Wash., and the Savannah River Plant in South Carolina. The INEL was recommended in August by Energy Secretary Donald Hodel as the focus of an environmental impact statement assessment for location of the multibillion dollar defense reactor that would produce tritium for nuclear weapons.

But funding for the EIS has since been blocked by a House subcommittee that contends DOE should first choose a technology and a site for the NPR.

"We have to keep the EIS process moving forward," said McClure. "I think it is foolish to say we can't do an EIS until a site is selected. That is part of the purpose of the EIS" to determine the location and the type facility that will be needed.

McClure said statements against the EIS by Rep. Melvin Price, D-Ill., and others "are not based on anything but the lack of resolve on their part to go on with the project."

But, he said, "from every study I've seen, I'm convinced that we need it."

The Senate Armed Services Committee has endorsed an EIS for the new reactor, and McClure said he thinks the congressional impasse will be resolved soon.

"I don't think they will move on it in the next day or two, but I think they will in the next few weeks."

McClure said he did not think the delay will endanger the project.

Meanwhile, EIS preparatory work such as monitoring and data acquisition can continue, he said. "This we can do without an EIS, so we don't lose all this time."

McClure was in Idaho Falls Friday to take part in Armistice Day activities and to attend a political rally later.

He said he strongly supports President Reagan's re election, but that he does not have any interest in a Cabinet position with the next administration.

[Post-Register; November 12, 1983]

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EARTHQUAKE VICTIMS AWAIT WORD FROM PRESIDENT

By Mark Armstrong

MACKAY--School officials in earthquake damaged central Idaho are praying and buying time, waiting to see how much money will be available to help them rebuild.

Gov. John V. Evans on Nov. 4 asked President Reagan to declare a federal disaster in Idaho after last month's earthquake.

If the president makes the declaration, federal grants will be available to school districts. If the request is turned down, Idaho, which does not have a disaster assistance program for public groups, will be on its own to rebuild schools.

Bill Livingstone, public relations officer for Sen. James A. McClure said Friday the Federal Emergency Management Agency is "keeping pretty tight" about the status of the emergency request.

FEMA will make a recommendation to President Reagan but declines to make it public, Livingstone said. Reagan is not expected to make a decision before Monday, a McClure spokesman said.

In Mackay, students returned to school on split sessions Monday, 17 days after the earthquake. The elementary school and the gymnasium at the high school have been closed because of structural damage.

"We're buying time with this split session to see what kind of money is available," said Lynn Rothwell, school board chairman.

"If the federal money doesn't become available we'll probably have to go back to the people for an override election," he said.

All grades are currently being taught at the high school in Mackay. The gymnasium has been cordoned off, Rothwell said.

Seventh to twelfth-grade students attend classes from 7:30 a.m. to noon. Kindergartens to sixth grades go to school from 1 to 5 p.m.

An early estimate set the cost of repairing the gymnasium at about \$750,000, but school officials say the job could be done for less than that.

Another option being considered, according to Rothwell, is setting up a prefabricated, steel building next to the high school that could be used as a gymnasium.

Estimates of cost for that structure run from \$250,000 to \$500,000.

The elementary school has been closed down because cinder block walls that separate classrooms have been shaken loose.

Rothwell said the block walls are not cracked and that school officials were warned by engineers "they won't stand up to another seismic event."

With volunteer labor, he said the school could be repaired for about \$10,000. Without it, the cost "would be much higher," he said.

In Arco, school superintendent John Riley is approaching the problem with the same kind of anticipation.

"Right now we're waiting to see if there is going to be some federal aid coming our way. The route we'll take is yet uncertain."

About 250 students were without classrooms when the earthquake damaged the district's fifth-to eighth grade Middle School.

Seventh and eighth grades were dismissed from school for about 1 weeks and fifth and sixth graders were out for two full weeks while the district rearranged classrooms and made temporary provisions available.

"Everybody's in class now . . . not under the best of conditions but the best we can provide at this point," Riley said.

Seventh and eighth grades are taught at the high school, fifth grade at a multipurpose room at the already-crowded elementary school and sixth grade in a trailer parked next to the elementary school.

Riley praised efforts of teachers and custodial staff in making the transition to the new classrooms a smooth one.

Riley said reports from three engineering firms hired to assess damage at Middle School show the building is beyond repair. He said a new building could cost about \$1.8 million. He said because of crowded classrooms at elementary grades, the school board before the earthquake talked of going to the public for help in building either a new school or adding on to existing buildings.

"The quake just became a catalyst for a greater sense of urgency," he said.

Officials at Challis School District 181 also have a wait-and-see attitude now that students have been rearranged in temporary classrooms.

The junior high school in downtown Challis was the only school building in the district that received major damage in the quake.

The building has been abandoned and engineering firms have said it may be beyond repair. The cost of replacing the building is estimated at about \$1.5 million--a figure that Superintendent Terrell Donicht said is probably less than the cost of repair.

At a school board meeting last week, officials discussed options for the 185 junior high students who have been doubling up with elementary and senior high students since the Oct. 28 earthquake.

One option considered would involve adding six classrooms in an upper floor storage area of the new high school that was completed last month.

About \$200,000 remains in the district's building fund from the new school and that money would finance most of the estimated \$250,000 for the addition.

"We're just waiting to find out what the President does," said school board clerk Cora Lee Bricker. "We can't make any decisions until we find out how much money will be available."

[Post-Register; November 18, 1983]

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REAGAN OKs FUNDS FOR CUSTER COUNTY Quake Victims

President Reagan has signed an order declaring Custer County a disaster area, making public, individual and school assistance available there. School assistance will also be available in Gooding and Butte counties.

The president's action is a response to the earthquake of Oct. 28, which caused millions of dollars in damage.

According to a spokeswoman for Gov. John Evans, the declaration also means federal aid will be negotiable if major problems are located after the fact.

A field office of the Federal Emergency Management Agency will be set up in Arco Monday, and other FEMA assistance offices will be opened in Mackay and Challis to enable individuals to determine what kind of assistance they need.

There is no set limit on the amount of assistance available.

Sen. Steve Symms, R-Idaho, said, "This aid will make Thanksgiving much happier for those families affected by the earthquake."

"We have the money necessary to take care of everyone who qualifies under the law," said Phil Cogan, a spokesman for the FEMA in Seattle. "It's not a case where people have to rush in."

Cogan said financial assistance will be provided to meet essential needs of central Idahoans rocked by the Oct. 28 earthquake that killed two children in Challis. He said the amount disbursed will depend on requests.

"I kinda thought it was going to come through," Challis City Councilman Don Leuzinger said Friday. "I just thought it was a matter of time."

Leuzinger said townspeople in Challis have come to each other's aid in the weeks since the quake, but he knows of no financial assistance having been offered.

Leuzinger also said local residents have been limited in what they can do for themselves until major structural damage in some buildings is corrected.

Some of the structures hit hardest include the Challis junior high school, which has been uninhabitable since the quake. Junior high pupils are doubling up with elementary and senior high students.

Challis School Superintendent Terrell Donicht said estimates show constructing a new junior high school for about \$1.5 million probably would be cheaper than repairing the damaged building.

A masonry building in the Challis business district partly toppled on the morning of the quake, killing two school children.

Cogan said only Custer County has been designated for the full range of disaster assistance available under Reagan's declaration.

Arco Junior High School and the Gooding State School for the Deaf and Blind also have been designated individually for repair. Both have been declared unsafe.

Full aid under the federal program includes direct payments for households, businesses and farms, tax relief and loans through the Small Business Administration and the Farmers Home Administration, Cogan said.

He said unemployment payments initially will be available through existing state programs. Whether a federal unemployment program is triggered will depend on the determination of need in Custer County, he said.

People seeking any type of assistance through the disaster program have 60 days to apply. The application process opened on Friday.

Cogan said the assistance centers in Challis and Mackay are expected to open by the middle of next week and will remain open until the "major need" is met.

Under the federal disaster program, school damage is 100 percent reimbursable. The federal program will pay 75 percent of assistance needed by local governments, with state and local money constituting the balance.

The government pays 100 percent of the outlay necessary to make home habitable, Cogan said. Money for non-essential home repairs is limited to loans with varying interest rates.

[Post-Register; November 21, 1983]

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EARTHQUAKE INSURANCE COULD GET CHEAPER

BOISE (AP)--Independent insurers in Idaho say they may soon be offering--through Lloyds of London--coverage for earthquake damage that would be cheaper and easier to obtain than present policies.

Idaho residents, rocked last month by the most violent quake in the continental United States since 1959, already can purchase earthquake coverage, but at a stiff price.

The cost is high because quake insurance is a specialized market, with the risk factor shared by only a few people, said Les Kiel of Idaho Falls, president of Independent Insurance Agents of Idaho Inc.

A half-dozen insurance agents contacted by The Associated Press say they have received very few inquiries about earthquake insurance in the weeks following the Oct. 28 tremor which caused an estimated \$12.5 million in damage.

Still, Kiel said it's likely independent agents in Idaho soon will offer a quake-flood package available through Lloyds, known as the insurer of everything from exotic jewels to disaster-prone terrain.

One insurance agent who did receive several calls was Ed Smith in Salmon, who has clients in that town and in Challis, where the earthquake killed two children.

Smith estimates he's had about 30 formal and informal inquiries about earthquake coverage since Oct. 28. But even at that, he says there have been no takers.

"The rates are usually prohibitive," Smith said, particularly in the Salmon-Challis area, which insurers consider a high-risk earthquake zone.

The cost is made more dear by the prevalence of old, multi-story brick buildings in the towns, he said.

Kiel said the agents' association was considering the Lloyds program even before last month's deadly jolt, which registered 6.9 on the Richter scale.

[Post-Register; November 21, 1983]

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WATER'S RETURN 1 MAN'S JOY -- ANOTHER MAN'S GRIEF

By Mark Armstrong

CHALLIS--In one quick stroke, the earthquake Oct. 28 dried up a warm spring that had irrigated a 2,800-acre ranch. Less than a month later, the water is back in force--doubling its past flow.

The warm springs on the Will Ingram ranch south of Challis began bubbling out of the ground again early this week. By Wednesday, a Soil Conservation Service geologist said it was putting out twice the water it had produced before the quake.

The warm springs is what made Ingram's livelihood in this arid country and the news for him is good.

But one man's joy is another's grief: ranchers and homeowners across Highway 93 are threatened by Warm Springs Creek's overflow.

Ingram has summer water rights for the warm springs water. After Nov. 1, the water is used by ranchers and homeowners below the highway to water their stock.

Headgates on private irrigation ditches have been opened to accommodate the flow and Custer County road crews have installed culverts to keep the water off the road.

Yet by Friday afternoon several fields in the Round Valley area were swampy and a few private drives were covered with water. Concerned residents surveyed the problem along with a state Water Resources official shortly after hearing that President Reagan had declared Idaho a federal disaster area.

The main concern of the residents is that if something is not done to move the water to the Salmon River faster, the water could freeze, slowing the flow in irrigation ditches and resulting in flooded roads and homes.

"All we need is one freezing day and then we'll really have problems," said Allen Getty, a rancher in the area.

Before the state official arrived, the ranchers discussed alternatives that might alleviate the problem.

One option would be to widen the creek's bed so it can handle the flow. Another option, a temporary solution, would involve opening Challis Irrigation Canal.

Either way, it will cost somebody a lot of time and money and residents of the area are already asking if the federal disaster declaration will help pay them for damage caused by the warm springs or for the cost of preventing damage.

"We're not getting flooded in the house yet, but we're fighting like hell to keep it out of there," said Guy Parker.

Parker owns a home on 2 acres in Round Valley, and has been working with his neighbor Bernie Aase all week.

The two dug a ditch around their homes to keep the intruding water out. Friday they put in two 24-inch diameter culverts to keep water from an irrigation ditch from overflowing onto their land.

By Friday evening they saw that a full day's work was wasted.

[Post-Register; November 21, 1983]

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QUAKE EMERGENCY OFFICE OPENS TUESDAY IN CHALLIS

CHALLIS--Ranchers and homeowners concerned about rising water from a warm springs said they would meet with federal officials Tuesday.

Federal Emergency Management Agency personnel were scheduled to arrive in Challis Tuesday to open a field office that will tell people whose homes or property were damaged in the Oct. 28 earthquake what assistance is available.

Flooding began in the Round Valley area last week shortly after a warm springs shut off by the earthquake suddenly reopened.

The warm springs, on the Will Ingram ranch about 10 miles south of Challis, is used to irrigate a 2,800 acre ranch and to water livestock on nearby ranches.

Ranchers in the area have advocated widening the stream bed of Warm Springs Creek--the warm spring's natural drainage--to accommodate the additional flow.

A state Water Resource Department official surveyed the flooded area Friday and Saturday but did not give a dollar figure for the amount of damage caused by the water. Headgates on private irrigation ditches have been opened to handle the flow and Custer County road crews have installed culverts to keep the water off roads.

[Post-Register; November 23, 1983]

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QUAKE VICTIMS GET DISASTER AID

MACKAY--A variety of disaster assistance programs available through several different agencies were explained to residents of earthquake-damaged central Idaho Tuesday. The Federal Emergency Management Agency at noon opened field offices at the American Legion Hall in Mackay and at Challis Elementary School to inform people what programs they qualify for.

The offices will be open 9 a.m. to 6 p.m. everyday until this Sunday except Thanksgiving Day. The number of residents coming into the field offices was less than FEMA officials had anticipated. But flyers listing the hours of the offices were mailed out Monday and officials were optimistic more people would visit the offices later this week.

In Mackay, about 10 residents had visited the office by late afternoon, all of them seeking assistance to repair structural damage to homes or businesses caused by the Oct. 28 earthquake.

Descriptions of damage included cracked chimneys and walls, roof damage and problems with sewer lines.

Grants are available for damage to owner-occupied homes to make the homes livable, said John Kainrad, FEMA temporary housing officer.

Also available are low-interest Small Business Administration loans for repairs that go beyond making the home habitable, that will bring them up to the condition they were in before the earthquake.

In Challis, about four residents visited the field office at the elementary school by late afternoon. Those residents were seeking reimbursement for damage to chimneys and the foundations of their homes, officials at the office said.

Meanwhile, FEMA held a meeting in Mackay Tuesday afternoon to explain the procedure officials of public entities should follow to qualify for federal assistance.

Under the FEMA grants for public entities, the federal government pays 75 percent of the cost for repair, the state pays 15 percent, with the remaining 10 percent paid by taxpayers. The grants fall under two categories: small project grants where the damage is estimated at less than \$25,000 and a payment is made immediately after a cost estimate; and categorical grants where damage is more than \$25,000 and an advance payment is made but the full bill is not covered until after completion of the work.

According to Dick Buck, a FEMA representative, damage had to occur during the earthquake or until the end of an "incident period"--a date that has not been determined yet when "the aftershocks have died down."

At last year's earthquake in Coalinga, Calif., the incident period was five months, Buck said.

Under the terms of the grants, initial and final inspections will be made of all repair sites to insure no work was done that went beyond the original inspection.

Public entities will also be reimbursed for regular hours and overtime for personnel used during the earthquake, and for equipment rental time and depreciation of equipment.

[Post-Register; November 23, 1983]

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CHALLIS SETTLES DOWN IN THE EARTHQUAKE AFTERMATH

By Mark Armstrong

CHALLIS--It was one month ago Monday that central Idaho was shaken by a major earthquake that brought instant recognition to a few quiet communities.

For most people the excitement ended weeks ago and life is back to normal. But for others the legacy of the earthquake continues.

The Oct. 28 earthquake was a lesson in extremes.

It was the most powerful seismic event in the continental U.S. in 25 years yet ended in only two human casualties.

It took priceless irrigation water from one rancher and gave others water they didn't need. It brought Lear jets from major population centers to one of the least populated parts of Idaho.

The majority of the estimated \$12.5 million in damage caused by the quake was to schools. Officials of three school districts in central Idaho have been playing a waiting game the past month.

After state officials pointed out that Idaho does not have a disaster assistance program for public groups, they waited and hoped for President Reagan to declare Custer County a disaster area.

Word of the declaration came Nov. 19, making public, individual and school assistance available in Custer County and school assistance in Butte and Gooding counties.

But as Federal Emergency Management Agency engineers are assessing damage to schools this week, questions remain among school officials. Will new schools be built to replace damaged buildings, or will the old schools be repaired? When will the projects begin?

The decisions will be based largely on recommendations made by FEMA.

FEMA opened field offices in Mackay and Challis last Tuesday to help people who qualify for federal disaster aid, advising them about programs they qualify for and helping with paperwork so they can be reimbursed for damage from the earthquake.

John Kainrad, FEMA temporary housing officer, said few people visited the field offices the first day, but later in the week--after word got out about programs available--interest picked up.

He said most of the people complained of damaged chimneys, cracked foundations and other minor structural problems, qualifying them for grants that will make the homes livable again.

If the homes are not considered safe for habitation now, the agency will find and pay for temporary housing for the residents, Kainrad said.

He said the FEMA offices at the Challis Elementary School and at the American Legion Hall in Mackay will remain open "indefinitely" from 9 a.m. to 6 p.m. seven days a week. FEMA officials asked that residents not get impatient, that grant money is available for everybody who qualifies, but that it may take as long as three weeks after applications are filled out before checks are in the mail.

"We certainly don't want anybody living in a home without heat or a home that's not safe, and that's why we're here," said Kainrad.

The earthquake is also more than just a memory for people who were affected by aquifers in the area altered by the Oct. 28 event.

As of Saturday, residents of Round Valley near Challis were concerned about the amount of water moving through a creek and irrigation ditches near their homes.

The problem occurred when a nearby warm spring--vital for summer irrigation and winter stock watering--that was shut off by the quake suddenly reopened, doubling its past flow. Residents of the area were concerned that colder weather could slow down the water's flow to the Salmon River, resulting in flooded roads and homes.

They advocated widening a natural creek bed to carry the additional water, but by Saturday there was no word on the level of assistance the federal government would provide.

Additionally, new water that sprung from Chilly Butte near the epicenter of the earthquake is still making the Big Lost River run higher than normal for this time of year. But irrigation officials say the water has slowed down and there is no danger of flooding.

According to J. Doyle Jensen, Lost River Irrigation District chairman, the inflow at Mackay Reservoir was measured at 667 cubic feet per second two days after the earthquake.

The flow had decreased to 567 cfs by last Wednesday, he said.

Aftershocks in the days following the earthquake became common occurrences, but Forest Service and U.S. Geological Survey officials say they have decreased in both number and intensity and that the worst is over.

Scientists have said the aftershocks that measured 5.5 and 5.9 on the Richter scale the day after the quake are the largest that will occur as a result of the Oct. 28 event.

As a rule of thumb, USGS Geophysicist Jack Boatwright said, the largest aftershock expected is one lower numerically than the main quake.

Forest Service spokeswoman Helen Edge said USGS officials in Colorado were calling the Forest Service office here with 24-hour aftershock reports daily for about two weeks after the quake.

"But they've diminished in frequency and magnitude and we haven't heard from them in a while," she said.

She said 23 aftershocks ranging from 1.0 to 3.0 were noted in the last report from the USGS Nov. 10.

[Post-Register; November 27, 1983]

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DISASTER RELIEF DOORS TO CLOSE ON TUESDAY

ARCO--Tuesday will be the last day that Federal Emergency Management Agency field offices will be open in Mackay and Challis.

By Sunday, 144 Custer County residents had visited the two offices that were opened by FEMA last week to tell earthquake victims about federal assistance programs for damaged property.

Mike Sweeney, FEMA public information officer, said by Sunday 103 people were interviewed in Mackay and 41 in Challis.

He said about 80 percent of those people will qualify for some kind of disaster aid.

"We feel pretty strongly that we've given everybody an opportunity to come in," Sweeney said.

Both offices have been open everyday except Thanksgiving and a listing of the hours of the offices were mailed out to county residents Monday.

Beginning Wednesday, people who want to apply for disaster aid are advised to make a collect call the FEMA office in Arco.

The number is 527-3778, and will be in service until January 16, Sweeney said.

Those qualifying for disaster aid must have incurred damage during the earthquake or by the end of an "incident period"--a date not yet determined when events caused by the earthquake pose no additional threat to property.

For example, damage caused by flooding that began after the earthquake would qualify, FEMA officials say.

[Post-Register; November 28, 1983]

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STRANGE WATER HAPPENINGS LINGER IN QUAKE AFTERMATH

BOISE (AP)--A month after a killer earthquake struck Idaho, strange water happenings are still being reported at various central Idaho sites.

The Oct. 28 quake, which registered 6.9 on the Richter scale, killed two Challis school children and opened up a 23-mile-long crack at the foot of the Big Lost River Mountains. U.S. Geological Survey officials are monitoring about two dozen streams and 30 wells in the Challis Mackay area, Dick Whitehead, a geologist with the USGS in Boise, said. A hot-water spring south of Challis dried up completely after the earthquake, but reappeared and is now flowing at more than triple its original flow, flooding houses in a subdivision.

The 95-degree spring that flowed on the Will Ingram ranch dried up within hours of the quake.

The spring was used to irrigate 1,300 acres and water 2,300 head of cattle, and hydrologists offered little hope that the hot water spring would come back.

But water began reappearing Nov. 10.

Flows have increased steadily since then, said Jackie Ingram, whose husband is one of four Ingram children involved in the ranching operation.

USGS records indicate the spring flowed at 2,700 gallons per minute before the quake, according to Whitehead.

Whitehead said the spring was definitely dry for a week or more after the earthquake.

But by Nov. 14 it was flowing at 7,600 gallons a minute. Two days later the flow was up to 9,000 gallons per minute.

USGS hydrologists have observed no changes for most other hot springs in the Challis area.

But other changes that have occurred include these:

- Flows from springs at the Hagerman National Fish Hatchery, 150 miles southwest of Mackay, dropped 10 percent hours after the earthquake, and fluctuated again two days later. The third day after the earthquake, the springs' flows increased briefly to 10 percent above normal before dropping, said hatchery manager Dave Brun.
- Several hot springs near Ketchum, across the Boulder Mountains from Challis, have maintained higher flows since the quake. Easley Hot Springs, near the Sawtooth National Recreation Area headquarters north of Ketchum, has doubled in size, information officer Elsie Adkins said. That spring's flow dropped by half following the 1959 Hebgen Lake earthquake near Yellowstone Park.
- Creeks and springs in the Chilly Butte area north of Mackay remain high. Some are several times their previous size, said Del Clark of the San Felipe ranch below the butte.
- Water in wells near the quake's epicenter at Borah Peak went up about 10 feet initially, but has since receded.

[Post-Register; November 28, 1983]

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EVANS ASKS SBA FOR BUTTE DISASTER

ARCO--Idaho Gov. John V. Evans is seeking a federal disaster declaration from the U.S. Small Business Administration for Butte County where reports of earthquake-related damage are mounting, federal officials say.

A federal disaster in Custer County was declared by the president Nov. 18, making public, individual and school assistance available there. The SBA had also declared a disaster in that county.

The disaster area did not include Butte County because early surveys of damage by state disaster crews indicated damage was primarily to schools.

"There appears to be more damage in the Butte County area than was originally thought and the state is reviewing that situation," said Mike Sweeney, spokesman for the Federal Emergency Management Agency.

Currently, Butte County will only receive grants for repairs of schools damaged in the quake. But if the disaster area is extended residents of the county whose property was damaged will be eligible for low-interest Small Business Administration loans.

He said about 25 residents of Arco and nearby Moore and Darlington have claimed minor structural damage to their homes.

"Moore and Darlington are very close to the county line and obviously it's not fair that if you live on one side of the county line you get help and if you live on the other side you don't," Sweeney said.

He said most of the damage to homes in the area was "relatively minor"--cracks in foundations and walls that could be easily repaired.

Tuesday was the last day that disaster field offices were open in Custer County. After seven days, 129 Mackay residents and 50 people in Challis had applied for disaster aid.

[Post-Register; December 1, 1983]

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QUAKE STILL FASCINATES SCIENTISTS

By Dave Fields

SALMON--The circumstances and physical effects of the Oct. 28, 1983 earthquake, better known as the Borah Peak Earthquake, continue to amaze investigating scientists.

Spectacular "sand blows," "earthquake fountains" and a miles-long scarp were formed when the earthquake hit. But what probably interests scientists most is that the powerful earthquake did not exact a greater toll from Custer County residents.

The Hebgen Lake, Mont., earthquake in 1959 was the last quake in the northwestern United States to register 7.5 on the Richter scale and cause surface faulting, says Jim Zollweg, seismologist with the University of Washington. Twenty-eight people were killed in that earthquake.

An earthquake in Algeria in 1980 measured 7.3 on the Richter scale--the same magnitude as the Mackay earthquake--killed about 10,000 people, Zollweg said.

The consequences could have been severe for Mackay and Challis residents had the earthquake occurred under more "normal" conditions, like the Algerian earthquake.

In the instance of the 1980 Algerian earthquake, the energy released from the shifting faultline--the cause of the quake--radiated outward in separate directions.

The Borah Peak Earthquake, however, released its energy in a more focused manner. The earthquake occurred on an extensive, long dormant fault system running along the western slopes of the Lost River Range.

(The scarp along the range's foothills is manifestation of the fault. A scarp is surface exposure of a ruptured fault.)

It was at the Mackay end or the southern part of this 10-mile deep fault where the earthquake originated, Zollweg said. However, it is a broken or piecemeal fault rather than a continuous stretch. Only a portion of the fault shifted in the earthquake.

When the faultline shifted vertically along its estimated 45-50 percent plane, the released energy radiated upward and in a northerly direction, Zollweg said.

Consequently, while the epicenter of this earthquake was located only about 10 miles from Mackay at Lehman Butte, the main force of the quake was dissipated over a sparsely populated area northwest of the community.

Zollweg said it was unusual for an earthquake of the magnitude of the Idaho quake to release energy in the manner it did. Under normal circumstances "Mackay should have been pretty well leveled," Zollweg said.

"In spite of the real tragedy at Challis, with the little children being killed, I don't think the people in Challis or Mackay realized quite how lucky they were, in the earthquake producing as little damage as it did," Zollweg said.

Two children, Travis Franck, six-years-old, and Tara Leaton, seven, were the only people killed in the earthquake.

The earthquake created a number of other geological curiosities. Most obvious was the scarp that was ripped open by the quake. The scarp extends for about 22 miles along the Lost River Range, according to Jim Dewey, research geophysicist with the U.S. Geological Survey.

The scrap represents a 10-foot vertical change in the topography brought about by the earthquake, he said.

What geologists term "sand blows" or "earthquake fountains" were also formed near the quake's epicenter at Chilly Buttes.

The sand blows and earthquake fountains were created when the intense shaking caused by the quake, in effect, "liquified" sub-surface materials and spewed them under great pressure into the air, Zollweg said. Reports of 18-foot fountains were part of this phenomenon.

Changes in the area's hydrology also produced some dramatic effects. Some springs dried up completely only to return at a greater intensity. One such spring was that located on the Will Ingram property south of Challis.

This spring exhibited an increase of more than 10 times its original flow, Dick Whitehead, a hydrologist with the U.S. Geological Survey, said.

Other springs in the Chilly Butte area north of the quake's epicenter also exhibited an increase in flow. In general, the water system throughout the Lost River and Pahsimeroi valleys exhibited a jump in flow following the quake, Whitehead said.

While hydrologists haven't explained the cause behind the variances in the area's water table, a number of theories have circulated among scientists.

Whitehead said that the earthquake could have created an increase in pressure within the water table, thereby forcing more water onto the surface.

Another theory suggests that the terrific shaking of the earthquake may have made sub-surface rocks more permeable, thereby allowing the water to leave the ground quicker.

Whitehead said that the increase in the area's hydrological activity could have been caused by a combination of theories. At the same time, he noted that the past several years had witnessed a greater-than average precipitation in Custer County.

But the Lost River at the time of the earthquake was running at "base-flow conditions"--when ground water seepage served as the primary source of water, and not snow melt. Whitehead said that the earthquake appeared to have had a definite effect on the river's increased strength.

He said, however, that a determination could not be made until an in-depth investigation was made. At present the U.S. Geological Service is monitoring 40 wells and some 10 springs in the affected area.

Zollweg said that the area's hydrology may not return to pre-earthquake conditions for another two to three years.

Scientists continue to research the Lost River Range faultline, which has yielded a number of curiosities--beginning with the Borah Peak Earthquake. This came as a surprise to geologists not only for its magnitude, but also because the fault had not had any major seismic activity since sensitive seismographs had been installed in the valley in 1971.

Evidence also shows that the Lost River Range has not experienced major earthquakes for some 4,000 years, according to Bill Richins, a seismologist with the University of Utah. For the past 100 years or more, since the area was settled, there has also not been substantiated reports of any sizeable seismic activity, Zollweg said.

Seismologists have monitored the fault since the quake struck last October. In that time, "tens of thousands" of aftershocks have been recorded by seismographs stationed throughout the area, Richins said.

A number of sizeable aftershocks occurred shortly after what he termed "the big event," the largest of which measured 5.8 on the Richter scale. The aftershocks have continued up to now, with a strong aftershock of 5.8 reading occurring as late as August.

Between April and August, the seismic activity lessened considerably, until the strong Aug. 22 aftershock struck, Zollweg said.

According to Zollweg, these aftershocks showed "a sudden change" in mid-December when their place of origin shifted location. Zollweg said that the aftershocks began

occurring several miles north of the exposed scarp from their previous concentration along the fault.

Presently the tremors have been concentrated in an area about six miles southeast of Challis, Zollweg said.

Zollweg said there are two interpretations to explain the shifting aftershocks. One theory explained this aftershock "migration" as being a process of geological readjustment, in which the region shifted and compensated for the changes brought about by the Borah Peak Earthquake.

Another explanation suggests that another, unknown fault system might exist in the region, which could account for the varied locations of aftershocks.

Whatever the case, Zollweg said that the aftershock sequence, like the initial earthquake, has not transpired in an expected manner. The number and strength of the aftershocks have been less than a 10th of the intensity expected of a scale 7.8 earthquake, Zollweg said.

"You wind up with a wimp of an aftershock sequence," he said. "I'm sure the people in Challis wouldn't agree, but that's the case based on our observations."

As for the future, both Richins and Zollweg agree that a sizeable earthquake is a distinct possibility. Richins said that aftershocks may be felt for 20 years or more, with another earthquake on the magnitude of a six or seven "not at all unlikely."

He said that within the intermountain area, there is a history of such "double-events."

Zollweg said that tremors could continue for at least the next four to five years, but said that another strong earthquake was feasible.

"I wouldn't be surprised if an earthquake over a magnitude of six were to occur," he said.

[Post-Register; October 28, 1984]

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Summary of Newspaper Articles

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Salt Lake Tribune – Salt Lake City, UT (last date searched 10/28/1984)

Headline: [Killer Quake Hits Intermountain West](#)

Date: 10/29/1983

[Info Categories:](#) B, E, G, I, P

Headline: [Idaho Fault Line Similar To That Along Wasatch](#)

Date: 10/29/1983

[Info Categories:](#) S

Headline: [Employees Evacuated From City Buildings Following Shock Of Idaho Earthquake](#)

Date: 10/29/1983

[Info Categories:](#) B, I, N, P

Headline: [Quake Rocks Tribune Building](#)

Date: 10/29/1983

[Info Categories:](#) E, P

Headline: [Quake Unleashes Forces Powerful Enough To Shatter The Earth](#)

Date: 10/30/1983

[Info Categories:](#) B, E, G, I, P

Headline: ['Horrible Roaring' Of Quake Fault May Put Woman In History Books](#)

Date: 10/30/1983

[Info Categories:](#) E, G, I, P

Headline: [Quakes Not Related, Official Says](#)

Date: 11/02/1983

[Info Categories:](#) S

Headline: [A Year After Killer Earthquake Hit, Challis Residents Remain Shaken](#)

Date: 10/28/1984

[Info Categories:](#) E, I, P

Information Categories

A -- Aid:

provide medical services, shelter, donations, loans, advice, encouragement, implement safety measures

B -- Building Damage:

structure itself plus windows and chimneys (typically damage visible from outside the building)

E -- Earthquake Description:

where, when, duration, direction, sound, motion, number and timing of aftershocks

G -- Geologic Effects:

changes at the Earth's surface, fault scarps, rockfalls, landslides, ground cracks, ground subsidence, sand boils, water spouts; effects on springs, lakes, wells

H -- Humor:

I -- Impact:

changes in daily routine; rumors; influx of reporters, politicians, cost in dollars

L -- Lifelines:

effects on transportation: roads, bridges, railroads, airports

effects on communications: telephone, telegraph

effects on power, gas, water, and sewer lines

effects on dams

N -- Nonstructural Effects:

effects on plaster, furnishings (typically damage or rearrangement of furnishings visible inside a building)

P -- People:

effects on and responses to, during and after; deaths, injuries, near misses

R -- Recovery:

clean up, rebuild

S -- Scientific:

explanation of the day

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KILLER QUAKE HITS INTERMOUNTAIN WEST

By Mike Carter

CHALLIS, Idaho--A series of earthquakes, the largest registering 6.9 on the Richter scale, rumbled out of this remote central Idaho community early Friday, killing two school children and injuring several others as they shook an eight-state area from the Rocky Mountains to the West Coast.

Damage was extensive throughout the Challis area, where both deaths occurred, as well as in nearby Mackay. Both were equal distance from the quakes' epicenters, about 110 miles northwest of Pocatello, along the Challis-Stanley Fault. The epicenter of the initial tremor was pinpointed to be within miles of Mt. Borah, Idaho's highest, located about 30 miles southeast of Challis.

Tentacle-like vibrations shot out as far north as Canada, and reached into Utah, Washington, Oregon, Montana, Wyoming, North Dakota. In Utah, tremors were felt as far south as Salt Lake County, although no damage resulted.

The two children who lost their lives were the first earthquake-caused fatalities within the United States since 1971 when more than 50 died in a quake that struck California's San Fernando Valley. The quake was also the strongest in the adjacent 48 states since the Aug. 17, 1959, Hebgen Lake, Montana, quake that measured 7.1 and killed 28.

Officials identified one of the dead children as Tara Leaton, 7, daughter of Frank and Sally Leaton, Challis. She and her companion, 6-year-old Travis Franck, were crushed to death under tons of concrete when a wall collapsed on them while walking to school.

In nearby Mackay, a quiet town of 550 residents nestled in a valley in the Lost River Mountains, a bank employee was seriously injured when a building collapsed on her as she exited her car to go to work. Mackay firefighter Randy Ivie identified the woman as Eleanor Williams (no age available). She suffered head injuries and broken legs, and was listed in serious condition at the Lost River Hospital in Arco. The woman's car, parked in an alley next to the bank, was flattened.

Mackay's Main Street was devastated by the quake, with almost every building sustaining serious damage--in some cases irreparable. The brick facades of several shops and offices (including City Hall) collapsed into the street after the initial quake. Police and fire officials cordoned off Main Street, fearing that the numerous and unpredictable aftershocks would bring the teetering buildings down and cause further injuries. The University of Utah seismic activity monitor measured more than 65 aftershocks late Friday. The largest recorded was 5.5 on the Richter scale.

Shattered glass, brick and goods thrown from the shops and stores lining the two block-long street littered the road. "The residential part of town wasn't hurt too bad," Mr. Ivie said. "It was the business section that took the brunt of the quake." Several residents reported that brick chimneys on their homes--as well as goods inside the residences--were damaged.

"Anything that had to do with brick just crumbled," he said, gesturing to the rubble-strewn Main Street.

Custer County Assessor Bob Savage said no damage estimate had been compiled. "The damages are just an inconvenience," he said. "The tragedy are these two kids killed. They'll never be replaced."

Idaho Gov. John Evans declared a state of emergency in Custer County Friday, clearing the way for state and federal emergency aid.

The first impulse--6.9 on the Richter--proved to be the worst, hitting at 8:06 a.m. Within hours, 15 aftershocks occurred, the largest two wielding the potentially destructive forces of 4.4 (at 9:15 a.m.) and 5.5 (at 1:52 p.m.).

The Richter scale is a measurement used to judge severity of the earth's movements and is calibrated in permutations of 10. Thus, an earthquake of 7 has 10 times the force of one registering 6 on the scale.

In Challis, 50 miles north of Mackay, a portion of the roof of the area high school collapsed, but there were no injuries. Several other buildings sustained heavy damage.

Residents said they could watch massive rockslides tumble down the peaks west of town. A pall of dust was visible for several hours after the first shock, and was bolstered by slides caused by the subsequent aftershocks. The slide trails were clearly visible from the center of town.

Mona James of Challis said a 15-foot boulder rolled through her home as she was sipping coffee Friday morning. Another Challis resident, Alan Allen, said a huge boulder bounced down a hillside and missed his trailer home by feet.

A crack in the spillway of the earthen dam restricting the Mackay Irrigation Reservoir, located about five miles northwest of town, at first was believed to have been caused by the earthquake. A sheriff's office spokesman, however, said the crack was an old one and that the dam appeared to be structurally sound. State officials were monitoring the dam on an hourly basis, said Custer County Sheriff's Deputy Darby Hinz.

Numerous other dams in the area were checked by officials from the Bureau of Reclamation but none was apparently damaged, said BOR Regional Director L. W. "Bill" Lloyd. He said the 30 dams within a 250 mile radius of the quake's epicenter will be closed for the next few days for inspection.

Roads and schools did not fare as well. A portion of a Custer County road dropped six feet and was closed by state police. Both major thoroughfares-- U.S. 93 and Idaho 73--were opened for limited traffic Friday afternoon.

Schools in Mackay, Challis and Rupert, Idaho, were closed Friday.

The quake caused other problems upstream from the town. Mackay Civil Defense Director Wayne Olsen said the quake apparently shifted an entire mountainside north of Mackay in an area called Whiskey Springs, causing numerous artesian wells to drain to the other side of the valley. "One whole side of the valley was made higher," he said.

Several other springs "just appeared," according to residents. Ken Lartner, a Tucson, Ariz., resident visiting land that he owns north of Mackay, said a small artesian well on his property "just started gushing" after the earthquake. In addition, the quake caused minor cracks and shifts in U.S. 93, which runs between Challis and Mackay, forcing closure of the road for a short period and causing officials to limit traffic between the two towns to passenger vehicles using one lane.

Deputy Hinz said searchers were combing the mountains looking for numerous deer and elk hunters reported to be in the area. Several smaller mountain canyons were closed by rockslides, but the deputy said that officials had no reports of lost or missing people. "But, it's an awful big area," he commented. Fixed wing planes and helicopters were sent into the surrounding hills to make sure the hunters were alright.

The deputy, who said he was "literally shaken out of bed" at his home in Challis, said he and another deputy found a 30-foot-by-10-foot crevasse north of Mackay while searching for stranded hunters 30 miles north of the town.

He and other law enforcement officers also expressed concern about the number of sightseers coming into the area. "If we have to evacuate, we're going to end up having to

move out 10 times as many people as we would normally have to deal with," he said. Idaho Fish and Game Officer Gary Hompland said his office had not received any reports of people not being able to make it out of the mountains.

Several other nearby cities and towns were severely shaken by the tremor, but no serious damage was reported. In Butte, Mont., workers were evacuated from the Federal Building when plaster cracked then a light fixture broke loose and crashed to the floor. Boise State University students were evacuated from tall buildings on campus while the structures were checked for damage.

In addition, the tremors triggered shutoff mechanisms at the Idaho National Engineering Laboratory, a 15-reactor plant near Idaho Falls. Sensitive monitors, triggered by seismographic activity, automatically shut the reactors down. INEL Fire Chief R. V. Savage drove to Mackay to see if his crews could be of assistance. "Things are secure at the nuclear facility," he said.

[Salt Lake Tribune; October 29, 1983]

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IDAHO FAULT LINE SIMILAR TO THAT ALONG WASATCH

By Con Psarras

The seismic convulsion that rocked the Intermountain region Friday morning was unleashed by slippage along an Idaho fault line that's geologically similar to Utah's more volatile Wasatch Fault, according to scientists.

Geologists say, however, that there is little scientific basis on which to assume that slippage along an unconnected fault line in Idaho could translate into increased potential for seismic activity in Utah.

"Geologically, I'd have to say it was on a similar fault, but I wouldn't say the occurrence would have an affect this far away," said Dr. James Pechmann, a University of Utah geologist.

Awesome Energy

But the fact that seismic waves from the Idaho shock were felt in varying degrees in Salt Lake County is a measure of the awesome energy released by a quake of that magnitude--measuring about 6.9 on the Richter scale.

The Richter scale provides a gauge for estimating the energy released by an earthquake as measured by ground movement. The scale progresses in geometric increments of ten. In other words, an earthquake measuring 5.2 on the scale would be 10 times more powerful than an earthquake measuring 4.2, and 100 times more powerful than one measuring 3.2.

By comparison, then, the Idaho earthquake unleashed several hundred times more energy than did the 4.2 earthquake centered west of Salt Lake City that awoke Utahns on the morning of Oct. 8.

Should a quake the size of the Idaho tremor occur along the Wasatch Fault, the potential for widespread damage, deaths and injuries would be "massive," said Dr. William Nash, chairman of the University of Utah Geology and Geophysics Department.

Scientists said the Oct. 8 earthquake in Salt Lake City was not caused by fault slippage and cannot be related to a pattern of concentrated seismic activity that includes the Idaho upheaval.

However, Dr. Nash said the Idaho quake will trigger a series of seismic movement and aftershocks that could last for several weeks.

He said scientists at the University of Utah seismograph station will monitor the probable aftershock region, including an area extending south into parts of Northern Utah, for signs of additional activity. More than a dozen U. of U. geologists were sent to Idaho Friday to study effects of the quake and the shocks likely to follow in its wake.

Geologic Pressure

Scientists on Friday were not certain which fault line in the Lost River Mountain range gave way to geologic pressure and slipped at about 8:04 a.m., sending powerful seismic waves across the northern Rocky Mountains and into seven states and parts of Canada.

The area where the quake was centered is characterized by several small mountain ranges separated by narrow valleys. On a relief map, the mountain ranges look like the fingers of a small hand placed over the center of Idaho.

That characteristic makes the fault line similar to the Wasatch Fault, which also lies along the plane of a mountain range whose slopes empty on to a large, flat valley floor.

Dr. Nash said earthquake specialists have not done extensive mapping in the area

because it is "generally rather remote. Our concentration has been along the urban corridor of the Wasatch fault."

Best Positioned

In that urban corridor, shockwaves from the Idaho quake were felt more vividly in some areas than others, and people on the top floors of tall buildings were probably best positioned to notice the tremors.

Dr. Pechmann said that tall buildings are most likely to sway under pressure from shock waves that originate a long distance away. Like the waves that emanate from a pebble tossed in a calm pond, the concentric waves closest to the center of an earthquake are close together, and move from the center with greater frequency.

As the waves grow larger and proceed away from the center, the frequency diminishes. Tall buildings, Dr. Pechmann said, are more likely to be swayed by a "long-period motion" characterized by strong, pulsating waves proceeding from a shock many miles away.

Alluvial Material

Also, seismic waves from the Idaho quake were more noticeable to people in the central and west portions of the Salt Lake Valley where the ground is comprised of alluvial material--deposits of earth unevenly spread across what was once the floor of a large, prehistoric lake.

That ground is more susceptible to motion from seismic waves than is bedrock, which is what lies below most of the homes on the eastern side of Salt Lake County and along the bench areas of the Wasatch Front, Dr. Pechmann explained.

The alluvium plains tend to have slower seismic velocities than do areas of bedrock. The slower the waves travel through the plain, the greater their amplitude and their ability to cause damage, Dr. Pechmann explained.

[Salt Lake Tribune; October 29, 1983]

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EMPLOYEES EVACUATED FROM CITY BUILDINGS FOLLOWING SHOCK OF IDAHO EARTHQUAKE

Following the initial shock of the earthquake that shook Idaho Friday, several hundred employees at the Salt Lake City-County Building and the Metropolitan Hall of Justice were evacuated for about an hour and a half as a precaution against aftershocks. County commissioners gave the evacuation order after consulting with Al Britton, director of Salt Lake County emergency services.

Building employees reported hearing rumbling noises and said chandeliers, hanging plants, curtains, coat hangers and other objects were rocked back and forth by the earthquake. No major damage was reported to either building.

On the 10th floor of the hall of justice, Salt Lake County Sheriff's Department secretaries Marcia Hedenstrom and Geri Fernley said they left the building on their own when they felt it swaying. "You could feel the whole building move," Mrs. Fernley said. Minutes later the entire building was evacuated.

However, city officials were concerned the city and county building evacuation wasn't handled well. Some employees exited through doors that would probably be destroyed if the 89-year old building's tower had collapsed, city general services manager Phil Erickson said. City officials Friday were evaluating emergency evacuation plans for the sandstone building and are expected to discuss the situation and possible adjustments in the plan with county officials early next week.

Mr. Erickson said some new minor cracks were found in the walls and tower of the city-county building, but none were considered serious. Across the street at the MHJ, some hairline cracks and chips of exterior concrete panels were found, but again the damage wasn't serious. County officials said about 300 people were evacuated from the hall of justice and about 200 to 300 from the county's 2100 South complex.

Friday's earthquake and one two weeks ago came at a time when city and county officials are deciding whether to preserve or demolish the deteriorating city county building. The possibility of more earthquakes soon could hasten the decision between a new lease on life for the building or destruction. Meanwhile, previous cracks and damages to the building aren't getting any better, Mr. Erickson said.

[Salt Lake Tribune; October 29, 1983]

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QUAKE ROCKS TRIBUNE BUILDING

By Wallace D. Hoffman

The "ripple effect" of the major earthquake that struck central Idaho Friday morning arrived in Salt Lake City, or more exactly The Tribune Building at 143 S. Main, at 8:08 a.m.

I am certain of the time because I had just brought an article up on the screen of a video display terminal in the 10th floor office of The Tribune's editorial board. The time was precisely noted on the screen: "08:08."

When the quake hit, my first reaction was that I was experiencing vertigo. The room seemed to take on the swaying sensation a person sometimes feels when he stands suddenly after sitting in the same position for a long time. I thought I was becoming ill.

Blinds Swaying

Then, out of the corner of my eye, I saw the venetian blinds swaying.

About that time someone in the hall hollered, "It's an earthquake." I was absolutely certain he was right.

The tremor didn't hit the building sharply. Instead, it triggered a definite swaying sensation, coupled with the feeling that the floor was rhythmically pitching, like a ship's deck in a rolling sea.

Frayed Nerves

The episode continued for at least a minute before the 10-story building "settled back" on its foundations. There were no books tipped from our office's several shelves, no light fixtures were shattered--there was no apparent damage, except for the slight fraying of the nerves of the half dozen or so people on the floor at the time.

Perhaps the most unusual aspect of the whole episode was that people in The Tribune's newsroom on the second floor hadn't felt the tremor. At about 8:20 a.m. I went to the newsroom and I asked people about their reaction to the quake. I initially received blank "What quake?" stares, until the phone calls started coming in, probably from people like myself who had been on the higher floors of buildings, wanting to know, "Has there been an earthquake?"

[Salt Lake Tribune; October 29, 1983]

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QUAKE UNLEASHES FORCES POWERFUL ENOUGH TO SHATTER THE EARTH

By Tom Harris
Knight-Ridder Newspapers

MACKAY, Idaho--The earth heaved and buckled here Friday morning, and nature has run amok.

Massive mountains were lifted up.

A valley floor fell 2 feet at the surface and narrowing to a sliver that cut 5 miles deep.

Small rivers rose in geysers from the sides of mountains.

Lakes formed in dry pastures in one area, and old marshes and sluices disappeared into the porous, rock soil in another.

"The forces unleashed here were so great," said Spencer Wood, a geophysicist at Boise State University, "that if it had happened in a place like San Jose or Los Angeles, there would have been scores of people dead."

As it was, the quake that measured 6.9 on the Richter scale took the lives of two children in sparsely populated central Idaho.

2 Big Aftershocks

But the land continued to churn Saturday. Wave upon wave of aftershocks shook the hills and plains, rumbling through at the rate of one every three minutes. Two of the 150 aftershocks were sizable shakes in their own right, measuring 5.5.

Sinkholes, some 10 feet across, pocked the valley floor, caused by liquefaction--the violent shaking of loosely compacted soil until it collapses into a quicksand-like goo.

"Borah Peak [Idaho's tallest mountain at 12,662 feet] could be from one-tenth of a foot to 10 feet higher today," Wood said. "The valley appears to have dropped about 5 feet."

The region has become a busy and cluttered outdoor classroom for scores of geologists and hundreds of onlookers. All were scouring the fissure in the Earth's surface that now snakes along the base of the Lost River Range.

"This is a fantastic experience, to witness geologic history," said Wood. "We have seen all the classic signs of a really big earthquake; the sand boils, liquefaction of the soil, and scarp formation."

Corner of Third and Main

It was 8:08 a.m. MDT Friday as 6-year-old Travis Franck and 7-year-old Tara Leaton, Franck's friend from across the street, were just rounding the corner of North Third and Main streets in Challis, 78 miles to the north.

There, beside LP's, a store for second-hand goods, children regularly gather to walk the half-mile to school.

Then the rumbling quake came rolling up through the earth.

The small, wood-framed home Travis had left just minutes before began to sway.

"I ran out of the house and yelled for Travis to tell him to come back," his mother, Janet Fisher, said through her tears. "But it was too late. They had turned the corner."

Breaking down, Fisher could not continue the story.

"It was pretty shocking," said her mother, Cecil. "Janet went after them in the car. Rocks were shooting down off the mountain everywhere. She got there just after the wall fell on them."

Crushed to Death

As LP's swayed and shook, huge rock slabs, held there only by their own weight and a skimpy layer of mortar, broke loose from the building's facade and crushed the two children to death.

"It was a tragic loss for a town so small," said Bob Lisonbee, principal of the nearby Challis High School. "Our daughter baby-sat Tara many times. She was a dear and vibrant girl." The mining town of 1,500 was quiet Saturday morning. The streets that were filled with frantic and frightened people 24 hours earlier were empty. The only buildings that suffered serious damage were the store and the high school.

Mackay, however, was harder hit.

The city hall, a drug store, grocery store, bar and two other buildings suffered extensive damage, though none collapsed. Blocks from the walls tumbled onto the sidewalks.

"It was a miracle no one was killed," said Cheryl Williams, manager of the Mackay Drug Store, which was still in shambles Saturday morning. "Thank God the school is at the other end of town or we would have had children crushed to death here, too."

Statewide, Gov. John Evans estimated damages at between \$4 million and \$5 million.

Where Faults Meet

Geologists say the quake was centered just north of Mackay, close to the ranch of Gordon Fulton in Big Lost River Valley. The epicenter was at the junction of two or three known fault systems, including the Lost River fault and Double Springs fault.

Ironically, state geologists had discussed the seismic dangers of the region with experts from the U.S. Geological Survey as recently as last week. Just as ironic was a visit two weeks ago in Challis by state civil defense officials who warned citizens there they were overdue for a sizable earthquake.

"They told us we should be ready for something like this, but what can you do? There was no time," said Cecil Fisher.

Seismic activity is not new to the area. The Rockies of Idaho and Montana have been frequently shaken by quakes. In 1959, a tremor of magnitude 7.1 hit Hebgen Lake, Mont., about 130 miles northeast of Challis.

For the past three years, geologists have been mapping a faintly visible surface fault across the foot of Borah Peak. Now, the fault is an ugly, twisting scar in the Earth's skin stretching almost the length of the mountain range.

Pumped Water Up Butte

The immense pressure created by the sudden drop of the valley floor forced water up the inside of bluffs five to six miles away.

"The water was shooting out of the sides of that butte over there 15 to 20 feet in the air and it was a river of water," said Fulton, whose family has ranched the rich valley floor for more than 100 years.

The flows died down by nightfall Friday, but not before flooding nearby fields and turning hundreds of acres of rich pasture into a lake.

National Forest officials and sheriff's deputies still worry about the fate of hundreds of deer and elk hunters who went out into the woods and steep canyons before the temblor hit.

Jack and Eleanor Blair of Mackay and Jim and Rita Hogg of Hailey, near Sun Valley, were hunting in a deep mountain canyon just east of the epicenter.

Mountain Falls Into Canyon

"We heard the tremendous rumbling and roar just as we started making breakfast," said Blair. "Then the whole side of the mountain where we had hunted the day before gave way and tumbled into the canyon. Dust and rocks came shooting out of that place for more than an hour.

"My God, it is just now beginning to sink in how lucky we were," said Eleanor Blair. "We were walking across the face of that shale shelf yesterday and were camping right in the canyon below it. We certainly would have been buried alive."

[Salt Lake Tribune; October 30, 1983]

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'HORRIBLE ROARING' OF QUAKE FAULT MAY PUT WOMAN IN HISTORY BOOKS

By Jerry Belcher and Richard E. Meyer
Los Angeles Times Writers

CHALLIS, Idaho--Lawana Knox may be unique in recorded history. She saw it happen. "There came a horrible roaring," she said Saturday, describing the earth as it wrenched open before her eyes into a crack 200 feet wide with terraced sides, like a staircase designed by an idiot.

Her account of the Challis earthquake will be invaluable to scientists, said Spencer Wood, research professor of geology at Boise State University.

"She is only the first or second human being in modern history to observe a fault like this actually forming," he said.

Fell to Ground

Knox, the 44-year-old wife of a sawmill operator on the Salmon River in remote central Idaho, fell to the ground--"there was no way you could have stood up"--and watched in disbelief as the earth split apart 150 to 200 yards in front of her. The massive crack snaked for 15 miles along the base of the Lost River Mountains.

The earthquake, at 8:06 a.m. MDT Friday, was variously measured at 7.2 and 6.9 on the Richter scale. It killed two children in this small mining town, injured three other persons and caused damage estimated between \$2.5 million and \$5 million. It also gave scientists a rare opportunity to gaze into the crust of the earth.

'Funny Roar'

Knox and her husband, Bill, were elk hunting on a mountainside about 28 miles from their home, near the epicenter, when the earthquake struck.

"At first, I heard a funny roar," she recalled, in a telephone interview. "I thought it was the wind blowing up the canyon, like it does, you know, except it was real still. I saw the sagebrush and the grass wiggling and starting to shake, and I thought, 'Earthquake.' I was more interested in the elk. We've had tremors before.

"The next thing I knew, it had thrown the gun, a .245 Winchester, out of my hands, and I couldn't get it. It felt like somebody was shaking me by the shoulders, and I had the sensation that it would throw me on my face. I was disoriented. I sat down. The power poles were banging back and forth, lines whipping--and the poles moving, too. There was nowhere for me to go, so I just sat there and waited.

"Then there came this horrible roaring. I looked and the earth just started cracking. Just everywhere I looked, the earth started to open up, just dropping like someone had taken scissors and started cutting. I could see dust a flying and a big crack going right along the mountains. I thought it would keep going and I'd just sink. It went along for miles. I could see it going.

"You'd be looking, and the next thing you knew there'd be a 4-to-6-foot width difference. "We'd watched nine head of deer before it hit, and they ran when it started. There were some elk, and they were all bunched up. I'd just shot at them, and they ran."

Her husband, also 44, was hunting at the top of a hill and did not see the fault line open up below. But the motion made him feel faint, and he kneeled so he would not fall.

"I had the sensation that the world was rocking," he said. "I stayed there and hung on until it quieted down. And then I could hear the rumble. My first thought was that it was a nuclear blast.

"About 15 minutes later I got back to my wife. The ground dropped in front of her. "The ground had slipped and left a four-foot bank. As we went down the canyon, it widened to about a 6- or 7-foot bank, like one side was raised or the other side fell. It went on for several miles, diagonally across the mountains and through the canyons and over little hills. It went toward Borah Peak."

Rocks Rolling

Mount Borah is the highest peak in Idaho.

"Right away there was nothing more," he said, "but about a half hour or 45 minutes later we thought we felt a couple of tremors. We heard lots of rocks rolling, and we could see into the high canyons where there were awful dust storms, like after rocks had fallen."

Neither Knox nor his wife was injured.

Dr. Wood brought 30 of his students from Boise to camp on the edge of the gaping fault and study its size, shape and formation. He told reporters that at no other time in history has there been an eyewitness to such an event whose account could be recorded and analyzed by the geologists who would try to determine what had happened--and what will happen next.

"The breakage, meaning the fault, is 15 miles long, and there's a 10-foot offset," he said.

"It's magnificent: the largest to form in the United States since the 1950s."

Where Wood stood, the crack was 100 feet wide, but he said that it extended to 200 feet for much of its distance along the mountain range. The high side of the crack rose in three or four gradations, like small terraces.

As Wood and his students prepared for a second night of uneasy encampment near the fault, aftershocks trembled through the valley. The University of Utah counted about 100 of them. Ed Williams of the Ricks College seismographic station in Rexburg, said that six to eight of them had a magnitude of 2.5 or greater, a force humans can feel.

He said that at least four had a Richter scale count of 4.0 or greater.

The aftershocks frightened residents of Challis and nearby Mackay, where residents mourned for the two dead children, Tara Leaton, 7, and Travis Franck, 6, who were crushed when a concrete and stone wall from a secondhand store fell on them as they walked to school. At the same time, many of the residents also started the long task of repairs.

Gov. John Evans said the damage could be as high as \$5 million. Maj. Gen. James S. Brook, commander of the Idaho National Guard, said the total in Custer County, which includes Challis and Mackay, probably came to \$2.5 million. The population of Challis has increased recently from 758 to about twice that because of new mining activity.

Mackay has a population of about 550.

Children Killed

Typical of the mourners was Chris Gee, 24, who knew Tara Leaton well.

"Tara was pretty and smart," Gee said, tears welling in her eyes. "When I heard about her,--I have a 19-month-old-baby--I said to myself, 'Thank God it wasn't him.' She was just exceptionally sweet, an adorable child. We lost two kids here. Because we're such a small town, that would be like losing hundreds of people in Los Angeles."

"This is a big disaster for us."

Officials said that the disaster could have been worse.

They found cracks in support structures at the Idaho National Engineering Laboratory at Arco, 77 miles southeast of here.

Pete Dirkmaat, spokesman for the Department of Energy nuclear research and testing facility, said that some of the cracks were discovered in a concrete wall at a building

containing a machine shop and maintenance facilities. He said other cracks were found in a bullet proof window at a guard house.

But Dirkmaat said that there was no damage to any nuclear reactors.

Two were operating at the time of the earthquake, he said. A light-water reactor shut down automatically, Dirkmaat reported, and workers manually closed down a breeder reactor.

[Salt Lake Tribune; October 30, 1983]

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QUAKES NOT RELATED, OFFICIAL SAYS

BOISE (AP)--A series of earthquakes that have broken out around the world since Idaho's killer quake aren't related, a U.S. Geological Survey official says.

"They don't represent any sudden change in the amount of energy being released from the earth's crust," said James Devine, assistant director for engineering geology.

"This is common," he said Tuesday in a telephone interview from Reston, Va.

Two Custer County children were killed Friday when an earthquake registering 6.9 on the Richter scale struck Idaho.

Since then, scientists have recorded earthquakes in Afghanistan, Maine, Turkey, Japan, and Indonesia, Devine said.

The Turkey quake killed 1,126 people.

He said that there are slack times and busy times for earthquake activity. "The energy is not released under a uniform rate."

"We locate 10,000 or so a year. There are always some going on. We locate some everyday," Devine said.

"On occasion you have several of these that occur in populated areas and when they hurt people and break things it gets in the papers."

He said that when earthquakes occur in the ocean or other unpopulated areas, scientists tell each other about them, but there is no public attention.

"We have not seen any significant increase in the overall amount of energy being released by earthquakes worldwide," he added.

In the last 10 years the amount of energy released by earthquakes has been somewhat less than the average 10-year figure, Devine said.

He said that in the decade 1900-1910, there was a significant increase in the amount of overall energy being released by earthquakes, and a significant number of large-scale earthquakes.

"We don't have a reason, other than to say the earth doesn't release energy in a uniform pattern," he said.

He said scientists calculate the amount of earthquake energy released by relating it to the magnitude of earthquakes recorded.

[Salt Lake Tribune; November 2, 1983]

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A YEAR AFTER KILLER EARTHQUAKE HIT, CHALLIS RESIDENTS REMAIN SHAKEN

By Susan Gallagher
Associated Press Writer

CHALLIS, Idaho--One year after an earthquake shook towns and ranches along central Idaho's Lost River Range like a dusty rug, killing two children, residents are still seeking reconciliation with violent forces that left their lives as fissured as the land.

Aftershocks continue to rout people from their homes and businesses, reminding them the ground isn't solid, and "quake drills" are regular events at area schools.

"You don't know if the earth's going to open up and swallow you. You don't know if a mountain's going to fall on top of you," Scot Tappan, a Challis grocer, said recently. His store is down the street from a building where masonry toppled on the two young victims as they walked to school.

"You learn to live one day at a time after an experience like this," Tappan said. An earthquake teaches you just what Mother Nature can do."

The Oct. 28, 1983, earthquake hit 7.3 on the Richter scale, the strongest in the contiguous 48 states since 1959.

The Borah Peak Earthquake, named for Idaho's highest mountain, is blamed for disrupting the clockwork of Old Faithful geyser in Wyoming's Yellowstone National Park. It has also raised concern over the safety of nuclear reactors at the Idaho National Engineering Laboratory, 50 miles from the quake's epicenter.

Students still attend classes in temporary quarters like a U.S. Forest Service bunkhouse while awaiting completion of new, safer schools.

Some children refuse to dim lights at night.

"We can repair our buildings, but the emotional effects will remain with us for a long time," said Cecil Fisher, grandmother of one of the dead children.

The building where the children died at one end of Main Street in Challis, population 1,200, is newly clad in aluminum siding and a "for rent" sign hangs in the window.

In neighboring Mackay, with 570 residents, workmen are completing a new city hall to replace a quake-shaken municipal building. The foundation for a new school was poured recently.

Eleanor Williams, a Mackay resident for more than 25 years, is back at her job at the bank after extended treatment for injuries and a related infection suffered when bricks fell on her. She never thought of moving away from the area.

"I don't know where you'd go," Williams said. "They all have their problems. If it's not earthquakes, it might be floods or tornadoes."

The federal government has provided more than \$5 million, mostly grants for new schools and loans for other construction, but feelings about the help are mixed.

"The Federal Emergency Management Agency is a joke," said Challis Mayor Charlie Burns, whose city applied for \$12,000 in aid and got \$8,600. A lot of that was offset by the cost of federally mandated paperwork, he said.

"I told them in Boise, 'If anything else happens up here, just stay away,'" said Burns. "We can take care of ourselves a lot faster and with a lot less hassle."

Morgan Haroldsen and his wife, Sarabeth, are using a federal loan to build a house on their ranch at Chilly, 17 miles north of Mackay and near the quake epicenter. The tremor knocked the south end of their old house off its foundation.

"We've got fields that were totally level before and now have mounds and depressions," Haroldsen said. "We've got places the stock won't go on."

Other ranchers at Chilly have had to repair flumes, replace stock-watering pipes and restring barbed wire tugged by the ground's spasms.

Rancher Will Ingram is developing a hydropower project at the site of his spring--it dried up right after the quake, then returned at five times its original volume.

In homes, new cabinet latches assure that canned goods won't crash to the floor during the aftershocks. Pictures hang from hooks instead of nails, and heirloom china no longer occupies high shelves.

"When you go to bed at night, you make sure your cupboards are locked and your dishes all put away," said Mrs. Haroldsen, whose 2-year-old was thrown against a wall by an aftershock in August measuring 5.2 on the Richter scale.

[Salt Lake Tribune; October 28, 1984]

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