

Survey cites chance of 6.5 Malibu quake

Critics say the possibility of a 6.5 magnitude Malibu earthquake and another 7.5 quake offshore should negate any proposals of offshore liquefied natural gas terminals.

**By Hans Laetz / Special to The Malibu Times
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A U.S. Geological Survey study of the faults near a proposed offshore energy facility gives a 35 percent possibility that a magnitude 6.5 earthquake will hit Malibu in the next 30 years, and that this big quake will have acceleration forces larger than the great quakes that can be expected along the San Andreas Fault.

The study analyzes the Anacapa-Dume Fault, which lies parallel to and about 12 miles off the Malibu coastline, and concludes this fault is capable of generating a magnitude 7.5 earthquake, larger than the 1906 San Francisco quake.

The USGS conclusions come as officials weigh a proposed floating liquefied natural gas receiving station that an Australian energy conglomerate wants to anchor 14 miles off Malibu's west end. The Cabrillo Port project is under environmental review and could be built in several years.

Another proposed LNG terminal, at a currently underused oil platform off Oxnard, would see a 60 percent likelihood of a major quake in the next 30 years. Both offshore ports would use pipelines on the ocean floor to transfer huge quantities of natural gas from ships to a major network of gas distribution pipelines in Oxnard.

The USGS report details a series of undersea hazards in the Point Mugu

area, including potential liquefaction of sandy soils in Oxnard and undersea along the pipeline's proposed routes.

The USGS also reported on giant undersea landslides that have swept along the ocean floor in recent history, and undersea debris flows from the Santa Clara and Ventura rivers. Those heavy mud- and rockflows are denser than seawater and have occasionally carved deep new canyons through the sandy ocean bottom.

The effect of all those events, which have occurred in the last 300 years, can unleash a local tsunami of more than 20 feet in height, the USGS report says.

USGS spokeswoman Stephanie Hannah said the report does not make any new geologic discoveries, but instead summarizes and makes predictions based on dozens of academic research studies that have been conducted in the Channel Islands, Santa Monica Mountains and Ventura basin areas over the past several decades.

The USGS report says it is insufficient to fully assess the geologic hazards to the gas terminals using existing data. Its authors request that new sonar and radar technologies be used to map undersea landslides and debris canyons in the Santa Barbara Channel and off Point Mugu.

"It's an incredibly dangerous proposition to put this platform, the pipelines, the entire infrastructure, in this area," said Malibu Mayor Andy Stern.

Oxnard attorney Tim Riley, who runs a Web site as part of his effort to fight the LNG terminals, said the USGS conclusions should "totally undermine and preclude any and all LNG terminals" in the seismically risky Malibu and Oxnard area.

"If there is an approval for these terminals in light of this shocking report by either the Coast Guard, the U.S. Department of Transportation or Governor Schwarzenegger, it would be a gross dereliction of duty," Riley said in a telephone interview.

But a spokeswoman for Crystal Energy LLC, which is seeking permission for the Platform Grace terminal, said the USGS report was issued last year. Lisa Palmer said those conclusions would be addressed as an environmental impact report examines hazards and identifies ways to handle the LNG safely.

"With today's technology, there is always new information and new technologies that can handle these types of hazards," Palmer said in a telephone interview. "As a part of this project, Platform Grace will be recertified and brought up to current technical standards, including seismic standards."

However, Palmer said she had not seen the USGS report and could not make comments about the specific hazards mentioned in it.

Congresswoman Lois Capps, a Santa Barbara Democrat, asked the federal geology agency to examine the BHP Billiton plans for Malibu and the Oxnard oil platform terminal proposed by Crystal Energy.

From Capitol Hill, Capps' office released a statement that urged further study of the undersea risks before either LNG project is decided upon by the Coast Guard and Department of Energy. But Capps did not call for a halt to the environmental review prior to possible construction of the Oxnard and Malibu terminals.

"Given the magnitude of these proposals, I believe it is vitally important that every effort be undertaken to guarantee the public safety," Capps said in a statement prepared for The Malibu Times. "These hazards must be considered as part of any studies as well as the final design review process.

"I hope the Coast Guard and other agencies working on reviewing these proposals will follow the USGS recommendations to conduct more detailed studies on the seismic issue," Capps said. "Earthquakes of that magnitude could cause massive damage if the facilities aren't built to withstand the potential shaking, landslides, turbidity currents and tsunamis."

Officials from BHP Billiton, which seeks to build the terminal near Malibu, had not seen the USGS report Tuesday. "We knew Congresswoman Capps had some questions for the USGS, but we have not seen the answers," BHP Billiton spokeswoman Kathi Hann said in a telephone interview.

Beneath the controversy over the LNG platforms lies a trove of geologic research about the Malibu-to-Oxnard section of California coastline. In addition to the Anacapa-Dume Fault, it examines the Malibu Coastal Fault, which lies approximately below the northern Malibu city limits, the Santa Cruz Island Fault on that island, and the Oak Ridge thrust fault's presence in the Ventura basin.

The Oak Ridge Fault is the western extension of the "blind thrust fault" system that killed 51 people and caused \$44 billion in damage when it triggered the magnitude 6.7 Northridge Earthquake in 1994. A blind thrust fault does not move horizontally, but can cause sections of the earth to heave upward without a surface fracture.

The study said these offshore faults probably triggered the 1812 earthquake that heavily damaged the San Buenaventura Mission and caused damaging tsunamis along the local coast.

The pipeline between the floating terminal off Malibu and Oxnard would also be particularly vulnerable to undersea debris flows, the USGS report says. So called turbidity currents are fed by rivers carrying large loads of rock and gravel, such as the Ventura and Santa Clara rivers did last year.

Once entering the ocean, these boulder-laden floods of dense water and rock travel at up to 45 miles per hour, and scrape sharp canyons into the seafloor. The report says such canyons exist at Point Dume, Port Hueneme and elsewhere, and can extend 35 miles offshore.

In addition to the possibility of local tsunamis from debris flows, the USGS says major undersea landslides have been caused by earthquakes, including a local 5.2 magnitude earthquake in 1930 that caused a 20-foot high tsunami at Santa Monica that killed one person.

The Coast Guard has sent BHP Billiton's proposed Malibu LNG terminal back to the company for additional research. Possible terrorism and geologic hazards were among the

questions the Coast Guard cited in asking for more planning.

Meanwhile, California Gov. Arnold Schwarzenegger has not yet taken a public stance on the offshore LNG terminals, although Malibu Mayor Stern said he has heard Schwarzenegger's environment secretary favors the plans.

The inclusion of the USGS geologic studies in the EIR at this time means that BHP Billiton and Crystal Energy will have to address the concerns and detail steps to mitigate those possibilities. But public review of the entire process, Stern noted, has been blocked by the Patriot Act and concerns about terrorism strikes against the explosive LNG ships and terminals.