



Geological Society of Nevada Southern Nevada Chapter Newsletter

October 2004

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New Seismic Survey Methods for Solving Geotechnical Problems in Las Vegas

DATE: Thursday, October 28, 2004

SPEAKER: Jim O'Donnell
(Geological/Geophysical Consultant)

LOCATION: Room 102 Lilly Fong Geoscience Bldg.

TIME: 6:00 p.m. Social *Half-Hour*
6:30 p.m. Presentation

Geological Society of Nevada, Southern Nevada Chapter
University of Nevada, Las Vegas
4505 Maryland Parkway, Box 4010, Las Vegas, NV 89154-4010
<http://geoscience.unlv.edu/GSN/gsnsc.htm>

Hi! Thanks to everyone who attended September's meeting. We had a good turnout considering it was at the same time as the first presidential debate. Our speaker this month is Jim O'Donnell, Geophysical/Geologic Consultant. Jim has been a member of our chapter for a very long time and spent many years as our chapter secretary! Jim is now in charge of coordinating our advertising and

sponsors. Jim will be talking about seismic surveys that he has run in the Las Vegas Valley. We look forward to seeing everyone at the meeting. Remember that our new social *half-hour* begins at 6 pm instead of 5:30. We hope this gives everyone more time to get to the meeting.

Well we just don't seem to be having luck with our field trip planning. We had a field trip to Kyle Canyon all planned and had a large group going but alas the weather has changed those plans! We will try and reschedule the field trip for the spring when the snow is melted!

Sincerely, Robyn

MEMBERSHIP:

If you are not currently a GSN member and would like to become one, regular membership is \$30 and student membership is \$15. For \$5 more you can become a member of the Southern Nevada Chapter. Note that if you are a full time student at UNLV, your \$15 membership fee can be waived. However, you must still mail-in a membership form (stating that you are a UNLV student) and \$5 for the southern Nevada Chapter. Our chapter relies on the \$5 chapter money to pay for food and refreshments at our monthly meetings. Remember that the new membership year started October 1st. An application can be downloaded via a link on our website, or one can be picked-up at a meeting.

ADS & SPONSORS:

GSN is a non-profit organization. If your business would like to sponsor social hour at a GSN southern Nevada chapter meeting or place a paid advertisement in this newsletter and on our website please contact Jim O'Donnell at 702.293.5664 or jim_odonnell@cox.net. Please see our current advertisements at the end of this newsletter and support our sponsors.

FIELD TRIP INFORMATION:

Our fall field trip to Kyle Canyon has been cancelled due to snow. We will reschedule this trip for spring.

PARKING:

For information on parking at UNLV and obtaining a permit please visit the UNLV parking services website at <http://www.unlv.edu/studentlife/parking/>. This also includes maps of the campus and directions.

CPR/AED/FIRST AID TRAINING:

I recently took an American Red Cross CPR/AED and First Aid course for my work and after taking the course I realized that most field geologists or scientists should have this type of training. There are many situations that we put ourselves in where accidents or sudden emergencies may happen. A lot of the time we are not in a location where emergency personnel can reach us, and sometimes where we cannot even contact them. If a situation occurs we should know what to do. I encourage everyone to take this training. What I learned may save someone's life or limb someday. For more information on Red Cross training in the Las Vegas Valley, please visit their website at <http://www.redcrosslasvegas.org/>.

THIS MONTH'S SPEAKER
New Seismic Survey Methods for Solving Geotechnical Problems in Las Vegas
JIM O'DONNELL

The growth in Las Vegas as a second-home site and as an increasingly popular tourist destination is fueling a boom in high-rise properties. At present, there are 50 high-rise properties, totaling 82 towers, announced or on the drawing boards. There are a number of geotechnical challenges associated with these high rise projects due to the potential of earthquakes, faulting, seismicity, liquefaction & other ground motion hazards in the Las Vegas Basin. In recognition of these issues, building codes were adopted requiring knowledge of shear wave velocity average, V_s , down to a 100 foot depth.

This presentation will detail new seismic methods to determine shear wave velocity average and P wave velocity for geotechnical problems down to 100 feet. Geological problems requiring deeper depth soundings will also be addressed.

Examples of the Refraction and Refraction Microtremor methods will be discussed along with P-wave Tomography, S-wave profiles; as well as the Downhole and Cross hole velocity surveys. These methods are of particular interest in solving the geotechnical problems associated with the Las Vegas High-Rise building boom that is underway, as Las Vegas expands vertically. Some methods work better than others and the advantages and disadvantages will be compared.

As a professional courtesy Jim will discuss or answer any questions you might have concerning geophysical methods. He can be contacted at: Geophysics@mysite.com or 702.293.5664.

Speaker's Background & Education

A Las Vegas area resident since 1985, Jim has over forty years of experience as an exploration geophysicist. His background is diverse and extensive ranging from working for five years in Saudi Arabia for the Arabian American Oil Company to many years at NOAA, USGS, and the DOE (seismologist) at the Nevada Test Site.

Most recently, he has been a geophysical consultant to many of the Geotechnical companies in Las Vegas, as well as to US Instrument companies. In 2003, he was part of FEMA's Emergency Response Exercise that brought together 100 City and County employees to simulate a magnitude 5.9 Earthquake in downtown Las Vegas. This year he was an instructor in a one-week Work Shop in Panama and Costa Rica titled "Developing Low Cost Seismic Instrumentation for High Quality Seismographs-Analog to Digital." Since 1995 he has been associated with UNLV's Harry Reid Center, Geosciences Department, and the Engineering Department.

He has maintained a seismograph at his home in Boulder City since 1996 which has recorded large events from China to small local events from Eldorado Valley. In 2000 he was nominated and elected as Southern Nevada's Board Member on the NV Earthquake Safety Council. He also works with Las Vegas high schools installing and maintaining seismographs and teaching Earthquake Awareness and Education to science classes. In addition, he initiated the Nevada High School Seismic Network. He is a regular guest speaker to UNLV's Civil and Structural engineers on Earthquake Appreciation.

Jim graduated from the University of California at Berkeley with undergraduate degrees in Geology/Geophysics and a graduate degree in Geophysics. He has been a Registered Geologist since 1970 and a Registered Geophysicist since 1974. He has published over 20 papers in Scientific/Engineering journals. Jim was a paratrooper in the in the US Army with the elite 11th Airborne Division (Hell's Angels) and the 10th Special Forces where he served numerous jump missions in Germany during the Cold War. He is still married to his college sweetheart, Jan and they have four grown children.

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Jim O'Donnell
Geological/Geophysical Consultant

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