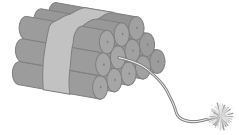


# The Primer



Newsletter of the Golden West Chapter, International Society of Explosives Engineers  
23633 Brewster Drive, Columbia, CA 95310

Volume 20

Fall 2009

Issue 3

## *In this issue . . .*

**Co-Presidents'  
Messages...**  
page 1

**Tony Serpas...**  
page 5

**Sponsors Ads...**  
page 6

**Shakin' It Up...**  
page 9

**How Come???**  
page 11

*The Primer* is published  
four times per year  
on the website of the  
Golden West Chapter  
of the ISEE:

[www.iseegoldenwest.org](http://www.iseegoldenwest.org)

Articles may be submitted to:

*Wes Bender - editor*  
P O Box 645  
Green Valley, AZ 85622

or

[wbender@frontier.com](mailto:wbender@frontier.com)

## *Co-President's Message...*

Bill Warfield -

As 2009 winds down I was looking around and wondering.....  
When I first started to get involved in the Golden West Chapter we had Seminars at the Red Lion in Sacramento where we had 75 people show up. The purpose of these Seminars was for education. We had presentations on the "new" hydraulic top hammer drills, computer optimization of drilling and blasting programs to name a few topics. There was a program on electric blasting put on by Don King in Columbia. We had a whole day on electronic detonators hosted by Kaiser Aggregates at the Permanente Quarry. The Golden West Chapter did a good job in educating its members on new and evolving technology. I wonder why we can't do that anymore.

The roster of the Golden West Chapter included drill and blast contractors, quarry blasters, representatives from drill manufacturers and all of the explosive distributors and their dealers. I wonder where they are today.

The Golden West Chapter has been an organized Chapter for 22 years. In the early days we had many young members. We had blasters who were trying to learn their profession, engineers who had the education but needed to the exposure to the working operations offered by the membership in general and members from the industry who just wanted to learn about the explosives industry and what the ISEE had to offer. I know that the younger members then have gotten older but I wonder where the young members are today.

One of the main issues that the ISEE has to contend with in the future is the government regulation. I used to call on a drill/blast contractor who could never have the time to see me unless it was at 6:00 a.m. on a job site. I know that I was just incidental labor but I ran a tamping pole, set up primers and helped tie in the shot. I learned a lot from him that I can still use. Today you can not get close to explosives unless you have been checked out by the ATF and the Department of Homeland Security for starters. I wonder if that has taken some of the interest out of younger members.

(continued on page 2)

## The Primer

Bill Warfield continues:

During my time as a member of the Golden West Chapter I met many of the Cal-OSHA people who were responsible for keeping our industry safe. We have had, and continue to have, some of these people as our members and officers. Unfortunately, we have no actively employed members today. We have been able to learn from their experiences and adapt our way of doing business to the way the regulatory rules were being enforced. That was an invaluable part of the Chapter's history. I wonder why we don't have their involvement today.

At one time the Golden West Chapter had a succession plan for officers. We knew who was going to be the President in 3 years as we had a Treasurer/ Secretary, Vice President and a Board of Directors who were involved in the operation of the Chapter. I was honored to be the President for the 10<sup>th</sup> Anniversary of the GWC. I have been an officer for too many of those years. I don't have to wonder why I am tired.

I have looked over the previous history of the Chapter and wondered why we are not better today from what we had to build on. It can not all be blamed on Government Regulation, consolidation of the manufacturing industries, or even on the down turn in the economy. Those are all factors but I believe that the main problem is that too few people care about the state of the industry. The workshops and seminars were held on Saturday and we had overflow crowds. People wanted to come and learn to expand their own knowledge and how they, as individuals could grow and improve themselves and the industry. I can not say that people today are not interested in learning or growing but not on their own time. They expect the learning to go on during their normal working hours. If I am wrong please educate me so I don't have to wonder any more.

The students at the Mackay School of Mines at UNR are interested in joining into an affiliation with the Golden West Chapter to have a Student Chapter of the ISEE. It would be a Student Chapter that combines the efforts of the SME/NSSGA and ISEE. They are a small group but an interested group. I won't wonder about them.

As we go into 2010 I wish all of you a great year. Get involved with the industry, your company and most importantly your family. Be safe in everything you do. Learn about the regulations affecting your future or you might wake up one day and not have a job to go to. I hope to see you in the coming year. Thank you for your support and friendship.

Sincerely,

Bill Warfield

## ***Co-President's Messages...***

Wes Bender:

If it sounds as if Bill is a bit frustrated by the current state of affairs of our chapter, it's because he experienced the salad days of the chapter's growth and he is understandably disappointed with the current situation. I share some of his frustrations, but I still believe, as does Bill, that the chapter can serve a useful purpose. To do so, however, will require a little work on the part of everyone involved. If you look back at how our early growth was achieved, a lot of it came about because the chapter had quite a few goodwill ambassadors out there circulating throughout the chapter's territory. Most of these were in the form of salesmen and tech reps, many from the explosives suppliers, but also from other industries. They were constantly on the lookout for blasters and industry-related people who would benefit from membership in the chapter. Blasting contractors also felt that many of their employees should avail themselves of what the chapter had to offer. My personal belief is that we had more blasters around back then too. Life was good.

Today we don't have as many of these people circulating, and most who are, have been somewhat lax in promoting the chapter to prospective members. I'm not trying to take anyone to task with these comments. Rather, it is intended to encourage those members who do make contact with industry personnel to take the time to discuss the benefits of chapter membership with them. Those of you who are in the blasting business probably have newer employees who would also benefit from chapter membership. Not only from the workshops that we conduct, but also in the sharing of experiences with other blasters. It should be the goal of each and every one of our members to bring at least one new member into the chapter each year. It's only in this manner that we can find the new blood who will eventually be tomorrow's chapter leaders.

Some of you who are reading this newsletter are doing so because you are on our list of Interested Persons and have been notified via e-mail that a new newsletter issue was posted to our website. Some of you, but not all, are members of the ISEE. We would cordially invite you to join with us in the future. We are happy to continue to keep you on the list, but we'd much rather see your smiling face at one of our functions. (Rest assured that we don't share our lists, membership or otherwise, with anyone.)

With today's economic crunch, especially in California, it is doubtful very many of you can find the necessary funds to attend the 2010 ISEE Conference in Orlando in February. If any of you are planning to attend however, the chapter would appreciate it if you would consider attending the Chapter Management Workshop on Sunday, February 7th from 7:30 a.m. to 10:15 a.m. on our behalf. Breakfast is included in the workshop and it won't cost you a dime. If you can help in this manner, please contact either me or our Secretary, Carey Haughey, so that we may reserve your spot at the workshop. Thanks in advance.

The 2011 ISEE Conference, however, is another matter. It will be held in San Diego and should be close enough for many of you to attend. I'll be going over there for sure. I would propose that we develop a flyer describing the Golden West Chapter, including an invitation to join and an application. It would probably prove beneficial to have a professional job done on such a flyer. We should also make sure that sufficient copies of our latest newsletter (at that time) are available to prospective members.

(continued on page 4)

## The Primer

Wes Bender continues:

The Al Colflesh Memorial Library, the official library of our Golden West Chapter, is in the process of being moved to a new location at Syar Industry's Lake Herman Quarry. When the move is complete we will advise you. For the past several years, the library has been located at CalOSHA's Mining and Tunneling unit offices in Sacramento. The Chapter would like to thank the folks at M&T for acting as the library's caretaker. Your assistance is greatly appreciated.

The Chapter officers and Board are in the process of arranging the annual business meeting. Details will be announced as soon as they are known. We will have a slate of officers and Board candidates in place prior to the meeting. Even though we will accept nominations from the floor, you can now attend without fear of being railroaded into some office or position that you do not want. We've also tried to avoid any conflict with other organizations, but that can be difficult this time of year. When it is announced, I hope that you will attend. Come out and meet your fellow Chapter members. For those of you who are not chapter members, this would be an excellent opportunity to find out what we are all about.

Gordon Coleman tells me that the annual Blaster Refresher Training Seminar, sponsored by Alpha Explosives, will be held on February 1st through the 3rd. For any of you blasters whose license will be coming up for renewal next year, this is an excellent refresher program and you should put it on your calendar. As usual, CalOSHA will conduct testing (for renewals only) on the third day.

I keep the chapter website updated regularly and recently added a few more features. On the LINKS page I added links to several of the other chapters' websites, in particular, those sites that are being kept current and that function properly. I also added a link to ISEE's Technical Information Central. TIC allows you to search the ISEE's database of abstracts of published papers. It also provides for a search of the abstracts of the U. S. Bureau of Mines' Reports of Investigations (RIs) and Information Circulars (ICs). While you can only view the abstracts and can't see the complete publication on the TIC, if you find one you want, it can be ordered through the ISEE Blaster's Library. Good service. Check it out.

Plans are also underway for the Chapter to present a training workshop this coming spring. Hopefully, we will have the details worked out in time to be included in the next issue of The Primer.

Hope you all have a Happy Thanksgiving.

Wes Bender

## The Explosives Industry in California Loses a Friend


On November 7, 2009, Tony Serpas passed away from complications associated with back surgery.

Tony served in the Mining and Tunneling Unit of CalOSHA since April of 1999. He was better known to explosives people in southern California, but he had an impact on all of us. He worked as an Associate Safety Engineer in all three Southern California offices of the unit, and was the senior in Van Nuys since May of 2003. Prior to his DOSH service, he was a motorcycle patrolman for the California Highway Patrol for 13 years. His specialty was helping people, and many of us were beneficiaries of that gift.

Tony is survived by his wife, Topsey, and children Debby and Cindy. He will be missed by all who had the pleasure to know him. Tony's service was held in Bakersfield on November 13, 2009. Cards or letters of condolences may be sent to Topsey Serpas, 513 Day Avenue, Bakersfield, CA 93308.

(We wish to thank Jerry Fulghum, Gordon Coleman and DOSH for providing us with the information on Tony. Our condolences to his wife and family. We're all richer for having known him, but now considerably poorer by his loss.)

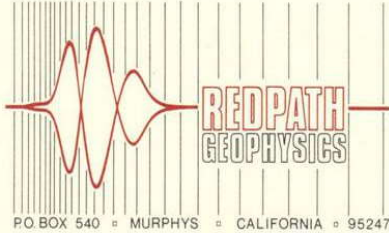
# The Primer



**Bill Warfield**  
Product Manager-Ground Engineering Products

---

**Atlas Copco Construction Mining Technique USA LLC**  
1708 Monte Bell Court      Cell: 916-768-9432  
Roseville, CA 95661      Fax: 916-772-0548  
www.atlascopco.us.com      Bill.Warfield@us.atlascopco.com



**REDPATH**  
**GEOPHYSICS**

P.O. BOX 540 • MURPHYS • CALIFORNIA • 95247

**BRUCE REDPATH**

209-728-3705

ENGINEERING GEOPHYSICS • BLAST DESIGN & PHENOMENOLOGY



**Matheson Mining Consultants, Inc.**      dba **Wesley L. Bender & Associates**

**2801 Youngfield St., Suite 171, Golden, CO 80401-2266 (303) 456-5638**  
**toll free (888) 456-5638 e-mail: service@mathesonmining.com**

**Blast Consulting Services**  
Sales of new and used Instantel Seismographs & Accessories  
Instantel BlastMate and MiniMate Plus Leasing (long and short term)

EXPLOSIVE & DRILLING SERVICES



**SPECIALIZING IN DRILLING BLASTING AND ROCK BOLTING SYSTEMS**



**Neil's Controlled Blasting, L.P.**  
GENERAL ENGINEERING CONTRACTOR  
LICENSE No. 797732

**DON BELDEN**  
President  
(916) 663-2500

P.O. BOX 749      FAX: (916) 663-2507 MOBILE: (916) 240-8759  
NEWCASTLE, CA 95658 HOME: (530) 389-8906 EMAIL: dbelden@neilscontrolledblasting.com

**MINI-SEIS SEISMOGRAPH**  
**ECONOMICAL - POWERFUL - RUGGED**

- ◆ External Printing Capabilities
- ◆ Complimentary Data Analysis Software




**WHITE INDUSTRIAL SEISMOLOGY, INC.**  
www.whiteseis.com  
800-641-4538



**MUNICON CONSULTANTS**  
**Construction Instrumentation**

- Economical Remote Monitoring From Our Offices.
- Vibration Monitoring: Piles, Demolition, Blasting.
- Settlement Platforms, Inclinometers, Tiltmeters, Piezometers, EL Beam Sensors
- Pre-Construction Damage Investigation Photos

**San Francisco Office 415-641-2570**



**CHARLIE M. POLLARD**  
*Marketing Director*

12225 GREENVILLE AVE., SUITE 750  
DALLAS, TX 75243  
800-766-6235 • 972-644-0434 EXT. 21  
FAX: 972-644-0424  
E-MAIL: CPollard@lancer-ins.com  
WEBSITE: www.nobellancer.com

- A MEMBER OF THE LANCER INSURANCE GROUP -



*www.alphaexplosives.com*

**DISTRIBUTOR OF A  
FULL RANGE OF EXPLOSIVES  
AND ACCESSORIES**

**EXPLOSIVES STORAGE  
MAGAZINES  
ATFE Type 2, 3, & 4  
Custom fabrication available**

**BLASTING SERVICES**

**BULK DELIVERY SERVICE  
ANFO, MINI-PRILL  
TITAN EMULSION™  
FRAGMAX™  
FRAGPAK™, SMALL DIAMETER**

**DRILL BITS, DTH HAMMERS  
& STEELS**

**SAFETY TRAINING  
INCLUDING OSHA & MSHA**

*Lincoln, CA (916) 645-3377  
Mojave, CA (661) 824-1356  
Plymouth, CA (209) 245-6977*

*Major Credit Cards Accepted*



**ENGINEERING  
SEISMOLOGY**

**BLAST CONSULTING**

**VIBRATION MONITORING**

**PRE-BLAST SURVEYS**

**SEISMIC REFRACTION**

**RIPPABILITY STUDIES**

**Contact: Mr. Alan "Bob" Mutchnick, RG, CEG**  
Director of Engineering Seismological Services  
Phone: (949) 888-6513 Email: bmutchnick@gmugeo.com  
23241 Arroyo Vista, Rancho Santa Margarita, CA 92688  
[www.gmugeo.com](http://www.gmugeo.com)



**The World's Most Trusted Vibration Monitors**

Purchase, lease or rent our industry-leading vibration monitors through a national network of qualified dealers.

**Your local Instantel Dealer:  
Matheson Mining Consultants Incorporated**

**Contact:** Colin Matheson  
**Telephone:** (303) 456-5638  
**Toll Free:** (888) 456-5638  
**Fax:** (303) 456-5639  
**E-mail:** colin@mathesonmining.com



[www.instantel.com](http://www.instantel.com)

Corporate Office: 309 Legget Drive, Ottawa, Ontario K2K 3A3 Canada  
U.S. Office: 808 Commerce Park Drive, Ogdensburg, New York, 13669 U.S.A.  
Toll Free: 1.800.267.9111  
Telephone: 1.613.592.4642  
Fax: 1.613.592.4296  
E-mail: sales@instantel.com

**Certified to the ISO 9001 Quality Standard**

## The Primer



**W.A. Murphy, Inc.**  
EXPLOSIVES DISTRIBUTOR

**RANDY L. SPENCER**  
Northern California, Site Manager/Sales

*Local Office:*  
P.O. Box 548  
Copperopolis, CA 95228  
Office (209) 785-4996 • Fax (209) 785-4995  
Cell (209) 743-9561  
rspencer@murphypowder.com

*Main Office:*  
P.O. Box 4607  
El Monte, CA 91734-0607  
(626) 444-9271  
(626) 575-2848 Fax

**R. Tom Watts**  
President




*Explosives Handling Equipment  
Since 1957*

**TREAD CORPORATION**  
www.treadcorp.com

176 EastPark Drive  
Roanoke, VA 24019  
540.982.6881 work  
540.344.7536 fax  
twatts@treadcorp.com




**Randy Messer**  
Ca License #906358 - Nv License #0069140

2689 Hwy. 20  
Marysville, CA 95901  
randyblast@aol.com

Phone (530) 741-0873  
Fax (530) 741-0876  
Mobile (530) 713-9964

**24-Hour Emergency Service**

# EXPANDING GROUT... NON-EXPLOSIVE!



Ca License #906358 - Nv License #0069140


## For Demolition, Construction and Controlled Cutting

A silent demolition agent which is consistent  
and safe, with no noise, vibration,  
ash, toxic gases or residue.

• Meets OSHA environment regulations •

24 - HOUR EMERGENCY SERVICE  
**(530) 741-0873**  
MOBILE  
**(530) 713-9964**

QUALITY YOU CAN AFFORD



**McRoy Sauls**  
Birmingham, AL USA  
Toll Free 800-749-2477  
205/592-2466 Fax: 205/592-2477  
sales@nomis.com www.nomis.com

Service You Can Depend On

### Chapter contacts:

<b>Bill Warfield</b> , Co-President	(916) 782-2275	<b>Wes Bender</b> , Co-President	(520) 648-3581
<b>Carey Haughy</b> , Secretary	(209) 533-0127, ext 23	<b>Gerald Fulghum</b> , Treasurer	(916) 481-1421
<b>Sandy Figuers</b> , Board Member	(925) 606-8595	<b>Joseph Johnson</b> , Board Member	



## Shakin' It Up ....

with Wes Bender

In the last issue we discussed the use of **Perimeter Control** or **Ground Control** to prevent damage to structures where the use of a vibration criteria would not be appropriate. We didn't go into much detail for designing blasts using perimeter control. We'll provide a bit of that in this article.

We preface our remarks with the usual caviats. You should not design nor load a blast using methods described in this article if you do not have the necessary experience or qualifications to do so. In addition, because neither the author nor the Golden West Chapter have control over the conditions under which this information may be used, you understand that you accept any and all risk in doing so. It is also advisable to conduct one or more test blasts in safe areas before you undertake to blast near any structure, and to use the information gained from such test blasts in the design of any subsequent blasts. The blaster in charge takes full responsibility for the results obtained.

In selecting explosives to be used in blasts that are in close proximity to any structure, it is best to avoid the use of free-flowing explosives. It is difficult to control quantities loaded because one normally loads free-flowing explosives to a specific level in the hole, hence you are loading by volume rather than weight. It is just too easy to overload a hole with free-flowing explosives. Additionally, some free-flowing explosives such as ANFO are efficient mainly because they generate a large volume of gas. Expanding gas, while necessary to help fracture and heave rock in many other types of blasting, can result in excessive heave and backbreak for Controlled Perimeter blasts.

Cautious blasting, using either pre-splitting or smooth-blasting is a form of Perimeter Control. Pre-splitting uses a large burden and closely-spaced holes that are large in diameter compared to the explosive charge contained therein. The goal is to propagate a crack through the row of holes. The resulting crack tends to stop radial cracking from production blast holes, providing that they are not overloaded. The crack also vents expanding gasses to assist in preventing excessive heave.

For pre-splitting, start with a test blast in a safe area. If using detonating cord, it is usually preferable to start with a low figure such as 75 grains per square foot of shear area. If this is insufficient to crack the rock, the holes will still be available to be re-loaded after they have cooled. (50 grains per square foot will usually only crack the weakest rock. 200 grains per foot will almost always result in severe flyrock in cases with insufficient burden.)

When using explosive cartridges for pre-splitting, either string-loaded or with spacers, a charge density of somewhere in the range of 0.07 lbs per square foot to 0.15 lbs per square foot is usually required. Test blasts using 0.10 lbs per square foot of perimeter area would be a reasonable starting point, with adjustments made based upon the test blast results.

(continued on page 10)

## The Primer

### Shakin' It Up (cont.) ...

Holes for pre-splitting are usually 2-1/2 to 3 inches in diameter and drilled on 18 to 24 inch spacing, depending upon the quality of the rock to be pre-split. In lesser quality rock, you may need to place them closer or even need to drill interim un-loaded holes to achieve the desired results. Test blasts are quite valuable in determining the optimum spacing.

Smooth-blasting, where the holes are fired after the production holes, could even apply to other situations where you are only detonating a single row of holes with light charges and small burdens. The reason for using small burden distances is to provide for easy and immediate movement of the burden to prevent gas buildup that could extend cracks into the rock on the side to be protected. Unfortunately, minimum burdens will usually result in excessive throw or fly-rock. To contain this, proper covering must be used. In the case of the trench being blasted immediately adjacent to the foundation corner of the brick building (as described in the previous issue), each blast of a few holes was only partially mucked out. The face was clear, but muck was left in place several feet down the trench from the holes being detonated. The remaining void was covered with blasting mats. In open country, this may not have been necessary, but we had water treatment plant facilities all around the blast site and couldn't tolerate any flyrock. We used extremely low powder factors for each hole, although the overall powder factor for the entire trench was quite high because we had a lot of holes with very small burdens. I had the opportunity to test a few small shots well before approaching the building, so I knew how much we could load. It should be pointed out that some of the blasters involved thought I was being too cautious, but their neck wasn't on the line. After blasting had proceeded well past the building and the trench blasts began to take on a more normal character, they came to realize that a bolder approach might have gotten them in trouble.

When trenching in close proximity to an existing pipeline, one should start out conservatively and only increase the powder factor after test blasts show that it can be done safely. When changes in geology are encountered, additional test blasting should be accomplished. Trench blasting usually requires a slightly higher powder factor than normal bench blasting because the rock is more difficult to break loose. It has a greater degree of "fixation". (The closest you may come to a high degree of fixation in normal quarry blasting is if you blast into a corner with an included acute angle.) In pipeline situations, you normally cannot directly view the impact on the buried pipe, hence the desirability of limiting backbreak through measuring the surface cracks that extend from the blast toward the pipe.

Remember that every situation will require a different approach. The only hard and fast rule in blast design, is that **there are no hard and fast rules in blast design**. You have to evaluate each situation carefully and design accordingly. Start with conservative designs in your test blasts. Whatever you do, don't guess at it and then cross your fingers, hoping for the best. That approach has ruined many an otherwise good blaster.

## ***How Come???***

### **A few words to live by:**

Alcohol has been known to loosen the bounds on creative data analysis.

Experience can be a hard teacher, but a fool hath no other.

Chance favors the Prepared Mind.

### **How about this situation???**

Curtis & Leroy saw an ad in the Starkville Daily News in Starkville, MS. and bought a mule for \$100. The farmer agreed to deliver the mule the next day.

The next morning the farmer drove up and said, "Sorry guys, I have some bad news, the mule died last night."

Curtis & Leroy replied, "Well, then just give us our money back."

The farmer said, "Can't do that. I went and spent it already."

They said, "OK, then just bring us the dead mule."

The farmer asked, "What in the world ya'll gonna do with a dead mule?"

Curtis said, "We're gonna raffle him off."

The farmer said, "You can't raffle off a dead mule!"

Leroy said, "We shore can! Heck, we don't hafta tell nobody he's dead!"

A couple of weeks later, the farmer ran into Curtis & Leroy at the Piggly Wiggly grocery store and asked, "What'd you fellers ever do with that dead mule?"

They said, "We raffled him off like we said we wuz gonna do."

Leroy added, "Shucks, we sold 500 tickets fer two dollars apiece and made a profit of \$898."

The farmer said, "My Lord, didn't anyone complain?"

Curtis said, "Well, the feller who won got upset. So we gave him his two dollars back."

Curtis and Leroy now work for the government.

They're overseeing the Bailout Program.

Scary, isn't it.