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July 2007, Vol 18-1

# Western Pyrotechnics Association Newsletter



# WANTED

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BRAND

# WPA Newsletter, Volume 18, Issue 1

July, 2007  
Volume 18, Issue 1

Western Pyrotechnics Association

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## Computers Smoke, Don't They?

By Tom Calderwood, V.P. Publications

Wow—what a difference a new computer can make! (Or an old one gone horribly wrong, which is usually the case.) I'm still recovering from a major crash, so this newsletter is somewhat late. Let me give you some advice—verify your backups! 'Nuff said.

There is a very important announcement in this newsletter concerning some WPA policies at our events. If you manufacturer, you'll defiantly want to pay attention. Pete Wood also has some info for Do It that you won't want to miss.

For some projects in this newsletter, Donn Daly has an interesting result of an experiment gone wrong—but right. And for folks who want some rocket rising effects, be sure to check Chris Spurrell's Sparkler article. Both are interesting projects.

There was some discussion on the WPA Mailing List about cheap Chinese firing systems that use relays which are \*very\* susceptible to shock. The folks over at Fire-Linx have an article about a new product they have that is an all digital system. For those of us who really like dependability and flexibility, this system is worthy of checking out.

A huge THANK YOU to Tom Handel for 1) catching an incredible shot of the firecracker teepee from WWB18, and 2) letting me use it. Kudos!

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# Do It 2007 Update

## By Pete Wood

OK boys and girls! Put on your pyro party hats and get ready for another fun filled, color and noise saturated sky over Lake Havasu this coming October! That's right! The WPA is going to "DO IT" once again, this coming October 11<sup>th</sup>, 12<sup>th</sup> and 13<sup>th</sup> at Sara Park, so sell the pets, lease out the kids, the car, camper or whatever it takes to join us for this annual fireworks gathering under Arizona's October skies.

The event registration forms are being included in this newsletter and should be available on-line by the time you read this. Please note that there haven't been any price increases this year. However, also note that there are no event t-shirts being offered. While the logistical expenses of the event increase yearly, insurance premiums increase and the event grows in size, well, something has to give. It was decided that the event shirt would be eliminated in order to maintain current individual attendance costs. The t-shirts have always been the second largest budget item for this event, and if you are like me, you most likely have a lifetime supply of fireworks t-shirts already. One more and the wife, girlfriend, significant other or whatever, is going to have you sleeping with that damn t-shirt – elsewhere! We are not trying to deny anyone a t-shirt, but rather, provide all with a more "do-able" DO IT.

Another thing that we face this year has to do with the availability of chemicals for those that wish to manufacture. As of this writing, I cannot guarantee that chemicals will be available for on-site purchasing. It is my understanding that FireFox, due to the injunction placed against them by the CPSC, cannot make it financially feasible to come from Pocatello, Idaho, given the restrictions placed against them. Thus, they will not be attending as our beloved chemical vendors. Hopefully they will attend simply as our life long friends and for once, be able to play as the rest of us do.

I would say that if you are a manufacturer and are planning on attending Do It and future events, you should plan on procuring your supplies outside of the WPA events, for unless something changes dramatically in the next few months, the supplies will become non-existent from within. This is not to say that we, the BOD's, are not trying to find alternatives, but to be quite honest, with the other major chemical vendor not interested in attending, our options are few. Keep your fingers crossed and keep your eye on the WPA list for further updates as the event grows closer.

Now, for those of you wishing to book a hotel room for your stay, the host hotel is once again the Sunset Inn (formerly the Ramada) and you can contact them at 1-800-528-5169.

Please make sure to mention the registration code "DO IT" for our discounted room rates.

Reserve your rooms today, as they won't last long and once they're gone, they're gone.

As my final note, please check the WPA website at –

[www.westernpyro.org](http://www.westernpyro.org) and follow the links for all event information, online registration and current updates.

If you've ever wanted to get involved with the club, now's your chance! There are many areas that anyone can volunteer in, regardless of your level of expertise or experience.

There will be volunteer signup sheets available at registration (or on a table outside of registration) where you can choose the area you might like to help out in and the time of day you could help out. It's that easy. If all else fails, just stop any WPA Staff member and ask! I'll guarantee they'll find a spot for you!

Do It starts on Thursday, October 11<sup>th</sup>. BUT! Nothing, no manufacturing, no fireworks testing, nothing will happen until the site is set up in entirety. Please don't go to registration and complain and ask why you can't start doing what you came to do! Obviously the answer is that if you were helping set up, then you would be that much closer to being able to do what you came for. The more that participate, the faster set up will go and the sooner you will be able to start having fun.

Let's make this DO IT the best ever!

See you there!

Pete Wood  
DO IT Chair 2007

## Secretary's Musings

### By Rita Oesterle

Not much to report on as this is the "quietest" time for me. I am enjoying the free time I have. I was on crew for the 4th of July at Magic Mountain show with Donald.

I do want to remind all of you planning on going to DO IT in Oct that there are many river events occurring that weekend in LHC also. I remember last year that there were many rooms at the Ramada Inn with extension cords running out to their boats recharging their fish finder equipment. Parking lot was full of boats.

I intend to bypass that this year if possible. (I booked a room –NOT at whatever the Ramada Inn is now called. It does cost more but good parking and getting to sleep more is worth it to me.)

The DO IT 2007 form is in this newsletter or you should find it soon on the website.

I hope to see lots of members at DO IT in Oct. If not, there is always next Winterblast.

Rita Oesterle Secretary WPA BOD

### **Classified Ads**

**Wanted: PyroPak Firing Systems.**

Bill Daly, 661-949-1290 [www.321fire.net](http://www.321fire.net)

# Important WPA Manufacturing Policy Change

## by your WPA Board of Directors

I am sure you have all heard about the ruling from the CPSC against FireFox. This is a major blow against our hobby. Sure, we can wax eloquently about legality and the legitimacy of our government, but for now we have to deal with the fact that FireFox will not be an active vendor for Do It or WWB.

Your WPA Board of Directors has been actively looking for alternatives to this situation. There are some very interesting ideas, but let it be known that we value the trust you placed in us. As such, we are looking for ways that will allow all of our members to enjoy our hobby and to protect our club.

But there has to be changes. The CPSC ruling against FireFox accused them of selling M-80 kits. While we wholeheartedly agree that the illegal manufacture, distribution and/or sale of M-80s to the public is a crime, we also believe that the CPSC took a wrong track that has major implications for us all. Instead of chasing down the idiots who choose to break the law, the CPSC has chosen instead to block or limit the chemical and material sales to make the M-80s (including chemicals that \*can't\* be used as well!). Make no mistake, the CPSC does not like our hobby. FireFox has NOT broken any laws, yet they have an injunction that restricts them from selling certain chemicals beyond a certain amount. The WPA has not broken any laws, yet we have to change the way we manufacture. Otherwise we open the door into investigations and law suits against the WPA. These law suits may be groundless and without merit, but it will bring us into the court system and we simply cannot afford this.

To this end, we are now prohibiting the manufacture/possession/use of flash at any of our sanctioned events. We are also prohibiting the manufacturing of salutes (whether they use flash or not) for or at any WPA sanctioned event. Only commercial salutes (with the appropriate labels) will be allowed. We are not prohibiting salutes, just the private manufacture of them. If you want to put a salute on top of a rocket or in some other device, you will have to use a commercially available salute. Anybody found manufacturing/possessing/using flash or manufacturing

salutes will be removed from that event and their WPA membership will come up for review by the Board of Directors. There are a number of alternatives for shell burst, but flash will no longer be allowed.

Your board knows that this is not a popular decision at all, but it is necessary. Is it illegal to own the raw, unmixed chemicals? No, there is no law against it. Is it illegal to manufacture and use flash on site at the event as long as it is not removed from the premises? No, again there is no law. Is there a regulation imposed by the WPA against the manufacture/possession/use of flash and manufacturing salutes? Yes. One of the reasons the CPSC pursued FireFox was that they were \*suspected\* of, but not found to be, selling M-80 kits. FireFox was not found to be breaking any laws, yet a court injunction was administered against them. If the WPA were to be sued, it would most likely spell the end of the club. We have to protect against that.

Make no mistake, the CPSC would like nothing less than to see fireworks clubs go away. They only need a foothold in the door to make this happen. We intend to close that foothold. We are doing this to protect the entire club, but at the expense of some of our friends in manufacturing

For those who are manufacturing for Do It (and WWB), we will be in further contact on the best ways we have found to obtain chemicals. Watch the email list for further information.

We don't like doing this. It is unpopular and it *stinks*. We would rather see the safe promotion of the best and safest ways to get the best and biggest bangs. We are also trying to do our best to protect our club and our members. Hopefully we will find a more amicable solution to this in the future, but until then, the restrictions on flash and salutes has to be in place.

We appreciate your understanding. We will be contacting you when more information is available.

Respectfully, your WPA Board of Directors

## The Treasurer Speaks

### By Ann Huffman

Greetings to all WPA members. Hope everyone had a wonderful time at Winterblast 18 and are looking forward to Winterblast 19 in 2008. It was just a GREAT time from set up to tear down. From all the hard work our chair people put in to all of you wonderful members who made it such a enjoyable time. THANK YOU ALL!! Also after everything was said and done we were able to send \$3,380.56 to the Fireworks Foundation. Thank you everyone for all of your donations not only to the Fireworks Foundation, but to the WPA, firecracker wall and afterglows. Without all of you this could not have been such a success. Now lets get started for next year and even make it bigger.

Also DO IT will be just around the corner again in Oct. Our dates for this year will be Oct. 11th, 12th and 13th. We will also need you there for set up

and tear down. So please mark your calendars for this and watch the WPA web page for upcoming information on this. Remember to get your registration in for this as early as possible so we have a good head count.

I would also like to thank Rob Foelk for all his work with Pyro Playa. I spent several long hours and days on the phone with Rob helping him with all the BLM forms and ins. certs. I for one know Rob really had his work cut out for him. I was happy to help him out with this as well as the work and effort from the rest of the WPA Board to help Rob make this a working event for those of you to enjoy.

In closing I would like to thank my fellow board members but also all the WPA members for giving me another enjoyable year as your treasurer. Without everyone's efforts we would not exist. Stay Safe.

Ann Huffman WPA Treasurer

## WPA BOD Minutes Jan 14, 2006

Call to Order 8:02 pm

Conference Call attendees: Russ Laurie, Tom Calderwood, Rita Oesterle, Donald Oesterle, and Ann Huffman.

1. Approval of minutes from the Nov 28 meeting was approved as amended by the BOD.  
Motion by Donald Oesterle. Seconded by Ann Huffman.
2. POWA (Pyrotechnic Operators Worker Association)  
Tom Calderwood could not find any reference to it using Google. We agree with it in principle, but until more information is presented, WPA BOD chooses not to make a decision about supporting it

Motion by Russ Laurie. Seconded by Tom Calderwood

Action: Russ is to contact Joe Bartolotta.

3. WWB 17 updates  
Registration total for WWB 17 is now 473.  
The break out is 312 members, 95 spouses and 71 helpers/children
4. Treasurer's report  
Bank Balance is \$83,212.33.
5. Tom Calderwood gave up an update on the WWB program.
6. New Business
  - a. Racks for events  
Some members have volunteered to build racks. They want to be comped for 1 night. Fireworks America is donating racks also. There may be more rack and tubes donated to WPA for event use.
7. Old Business
  - a. Fire extinguishers that need repairing will be repaired. The repair kit is \$12 and we need 20 kits.
  - b. Brush clearance at SARA PARK
8. A Life time member was chosen. The award will be presented at WWB 17.

Adjournment: 9:12 pm

Motion: Tom Calderwood Seconded Ann Huffman.

Rita Oesterle, Secretary WPA

## WPA BOD Minutes April 6, 2006

Call to Order 7:37 pm

Conference Call attendees: Russ Laurie, Tom Calderwood, Rita Oesterle, Pete Wood, and Ann Huffman.

1. Approval of minutes from the WWB General meeting and the Jan 14 BOD meetings were approved as amended by the BOD  
Motion by Tom Calderwood. Seconded by Pete Wood.
2. Memberships  
There are 675 current members. Approximately 2/3 of the membership attends one or both of the events.  
A discussion followed on the need for either trying harder to increase the membership or an increase in fees is needed to meet the increasing costs of WPA... Russ talked about inviting the public attending the events to join the club and experience the fun of making and shooting their own product. WPA could also advertise on more web search engines. Russ asked that this agenda item be chat-

ted up via email.

Motion by Rita Oesterle, Seconded by Tom Calderwood

### 3. Treasurer's report

Bank Balance as of April 14, 2006 \$ 85,182.48  
(more insurance yet to be paid)

WWB wrap up

Income \$108,902.56

Expenses. \$ 80,416.39

Taxes

The data will be mailed approximately Apr 16 to our accountant.

The due date of mid August will be met this year.

### 4. Publication

The next newsletter will be 24 pages, up from 16 pages last time. Tom Calderwood will have the newsletter to the printer very soon. He expects to have it in the mail the end of the month or soon thereafter. The cost should be approximately \$2000 + postage. We will order 1000 copies in order to get the price break.

### 5. New Business


#### a. Patches and Membership cards

WPA member patches as well as WPA membership cards need to be reordered. It was approved to order both items from Pyronovelties. The minimum quantity or the same quantity as previously will be ordered. Rita will get the order to Katherine at Pyronovelties.

Motion by Russ Laurie, Seconded by Tom Calderwood

#### b. Fireworks Foundation Fund

Should WPA send more \$. As there are several items in the fund, Tom is to contact John Steinberg to learn more about which items are the more urgent at this time. Pete reminded us that the members did contribute at the general meeting and WPA gave 1/2



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of the auction proceeds to it.

Pete is to get another line added to the membership form for donations to the fund. The fund is also to be addressed on the web page, in the newsletter and on the list.

The Fireworks Foundation fund should be the agency giving the tax receipt.

Action: Pete for the web page and the membership form

Action: Tom for the newsletter article about the Fireworks Fund donations. Tom will also contact John Steinberg about the specifics of the fund and its parts.

c. Club printer for events (Secretary's)

Rita reported that the printer was having problems at WWB 17 registration. She is to check on printers for options and prices and report back next meeting.

The BOD did approve the buying of the printer.

Motion by Russ Laurie. Seconded by Tom Calderwood

Action: Rita Oesterle

d. Lanyards

Rita reported that WPA has an unopened box of yellow WPA lanyards donated by Pyronovelties that she would like to use soon. (There are too many WPA boxed items to store at her home). There are enough purple Pyromate lanyards to handle DO IT 2006. The motion to use the on hand stock of lanyards was approved.

Motion by Pete Wood. Seconded by Ann Huffman

e. Sound System at events.

There were many complaints about lack of any sound in parts of Sara Park and poor sound in other areas at WWB 17. A local sound system vendor contacted Russ Laurie wanting to bid on doing it for us. Russ will contact this vendor and get more details and present them at the next BOD meeting.

Motion by Rita Oesterle. Seconded by Tom Calderwood

Action: Russ Laurie

6. Old Business

a. Paypal

WPA is still being charged for the "2 ½% convenience fee" for every membership form. The cost is over \$400 for the 2006 memberships so far. Our web administrator needs to find another programmer to do the web design and the paypal updating. Tom and Pete are to talk it over with Kelly.

Action: Tom Calderwood and Pete Wood

b. Addition event sites

Pete has had an additional discussion with

John Dicks about the addition cost of transporting the containers etc to Hawthorne, NV. Pete figures the cost could run about \$10,000 to get the mandatory containers up there for a Winterblast event. Do It supplies transported would be less but still expensive for an event in an isolated area. Bill Daly and Mike Hill are going to talk with Don Laughlin about the possibility of having The events in Laughlin, NV. Mr. Laughlin owes many acres around that city. Pah-rump, NV is also a suggested location.

WPA has a 3 year contract (ends 2010) with Sara Park in Lake Havasu City for both events.

Action item: Hawthorne, NV - Pete Wood

Action item: Laughlin, NV - Mike Hill and Bill Daly

c. DO IT 2006

Kevin Bollinger and Pete Wood will be the main chairpersons.

d. Corporate sponsorship of events

This is one solution to the rising event costs. A member appeared interested in getting a group assembled to do it for WWB. A good presentation (maybe in PowerPoint) would be a good tool for WPA to have ready for any member to use for interested parties.

Action: Tom Calderwood and Russ Laurie

Adjournment 9:13 pm

Motion: Russ Laurie Seconded Rita Oesterle

Rita Oesterle, Secretary WPA

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## WPA BOD Minutes June 6, 2006

Call to Order 8:05 pm

Conference Call attendees: Russ Laurie, Rita Oesterle, Pete Wood, and Ann Huffman., with Tom Calderwood joining the meeting late. Guest attendees were Kief Adler and Kelly Goebel for short segments of the meeting.

1. Approval of minutes from the April 6 BOD meetings were approved as amended by the BOD.

Motion by Tom Calderwood Seconded by Pete Wood

2. Memberships

There have been 3 new memberships and 5 renewals since April 6, 2006

3. Treasurer's report

Bank Balance as of June 6, 2006 \$ 78,757.38

(insurance yet to be paid)

Taxes

The data will be mailed to our accountant.

4. Publication

The BOD thanked Tom Calderwood for a great newsletter.

The next newsletter should be printed and sent out between July 31, 2006 and mid August. It

will contain the DO IT 2006 registration form. (The online form is to be ready at the same time.) The online form will not contain the waiver of liability. It will be signed on site. Pete is to have the form updated and sent to Tom for publication. It should contain a line item for any donation to the Fireworks Foundation Fund.

Action: Pete Wood and Tom Calderwood

5. Old Business

- a. Patches and Membership cards have arrived.

- b. Fireworks Foundation Fund

WPA will donate to the fund if our insurance payments don't increase.

Motion by Russ Laurie, seconded by Ann Huffman

- c. Club printer for events (Secretary's)

Printer will be ordered in Sept in time to be brought to DO IT.

Action: Rita Oesterle

- d. Sound System at events. Continued for next meeting

A local sound system vendor contacted Russ Laurie wanting to bid on doing it for us. Russ will contact this vendor and get more details and present them at the next BOD meeting. The BOD would like to see a demo at DO IT.

Action: Russ Laurie

- e. Russ and Pete are to find out the length of our right to our domain name.

6. New Business

- a. Kelly Goebel updated us on the website progress.

Paypal is to be discontinued.

The set up fee of \$3495 is a 1 time fee. We will be charged an hourly rate to make host changes after that.

The members will be charged an internet service fee to cover the credit card costs. Tom Calderwood will provide Kelly with content and images as well as the 3 forms in .PDF format that Pete will be providing to him.

There was a discussion of member area. It was decided that it can be added later. For the present time, its fee of \$2400 sounds high for what it would provide.

The event Management system set up fee is \$2149.

Kelly will contact his web provider and supply the BOD with a contract for approval. The digest list should be changed over to the new system with not having the members subscribe again.

Action: Tom Calderwood and Kelly Goebel

- b. Addition event sites

Pete is trying to get in touch with John Dicks about the Hawthorne site possibility.

Bill Daly and Mike Hill are going to talk with Don Laughlin about having the events in Laughlin, NV.

Primm, NV is also a suggested location.

Lake Havasu City has not sent any contracts for use of Sara Park in Lake Havasu City for both events.

Action item: Hawthorne, NV Pete Wood

Action item: Laughlin, NV Mike Hill and Bill Daly

Action item—Contract with LHC Russ Laurie

- c. Events update

Kief Adler gave the update with the ATF. It is still an ongoing process with

The major issue is getting a variance for storage and its record keeping.

A motion was passed to create a new chair position for WWB for the maintaining of records using ATF&E guidelines

Motion by Russ Laurie, seconded by Rita Oesterle

The BOD will gather names of members for consideration for this position. The final approval of the position and the position's comp policy will be voted on at the WWB general meeting.

The BOD feels that since every one on the BOD has an active role at WWB, that the members should have staff status. This also will be up for a vote at the WWB general meeting.

Corporate sponsorship of events Continued to next meeting

Action: Tom Calderwood and Russ Laurie

- d. A reminder to all members. Please leave the name WPA off of your tag line to all other websites.

Adjournment 9:47 pm

Motion: Russ Laurie Seconded Pete Wood

Rita Oesterle, Secretary WPA



## WPA BOD Minutes September 28, 2006

Call to Order 8:00 pm

Conference Call attendees: Russ Laurie, Tom Calderwood, Rita Oesterle, Pete Wood, Ann Huffman, and Kevin Bollinger for the DO IT section of the meeting

1. Approval of minutes from June 6, 2006 BOD meetings were approved as amended by the BOD.  
Motion by Russ Laurie Seconded by Pete Wood
2. Memberships  
Online registration for WPA memberships has created many problems so far. The funds have gone to two different companies instead of WPA. They are now being credited to WPA..  
Action: Kelly Goebel and Ann Huffman
3. Treasurer's report  
Bank Balance as of Sept 28, 2006 \$34,878.73
4. DO IT 2006 Kevin Bollinger, event chair  
Kevin reported the following items are either taken care of already or will be done on site.
  1. Tables, chairs, and tents contract signed. They will be onsite Wed by 9am event day.
  2. Ice will be picked up each day by a staff member and taken to SARA PARK.
  3. Ann Huffman will have petty cash available on site.
  4. Bill McGregor is the security chair.
  5. Black Powder will be purchased by Greg Finke for the event.
  6. Afterglow chair will be Maureen Dwinell.
  7. Fire Extinguishers will be brought by Kevin Bollinger, Pete Wood.. Ken Keagy will be there with his fire tank trailer.
  8. Vendors will be Flying Phoenix and Firefox.
  9. Staff gifts are in the budget.
  10. A budget item was approved to buy 2 or 3 pop up tents to start replacing the 8 tents that were destroyed by wind at the DO IT held in Mesquite.
  11. There are no staff meals at the DO IT event. Staff will have water provided on site.
  12. Grandpa Miller will be the food vendor as he has the Lake Havasu City contract for SARA PARK.
  13. The trash dumpers and port-a-potties will be picked up on the Monday – the clean up day.
  14. Labor ready has not been used at previous DO IT events. We do not plan on using them this year.. (We hope enough members show up for cleaning up to avoid this cost.)
  15. Ann Huffman has contacted the security company.. She has the contract already signed.
  16. Bill Zuber's gas mines presentation will depend on the new situation with the tracks new speedway operators.
  17. We will need a back hoe and its operator for digging the trenches.  
Action item:: Pete Wood
  18. Cracker Wall location and construction will be an on site

decision.

Action item: Kevin Bollinger and Site chair Mike Hill

19. Parking, Manufacturing passes, and Manufacturing forms  
Action item: Pete Wood and Kevin Bollinger
20. Containers  
Action item: Mike Hill
21. Wrist Bands, Lanyards, and Badges  
Action item: Rita Oesterle
22. ATF has tightened the rules for manufacturing documentation at events. This also means that WPA must now have a detailed list of all product entering leaving the bunker at all events.. All product sold/ shot at the events must be documented also.
23. SARA PARK 1 year 2 event contract signed,  
Action item: Russ Laurie
24. Blast shields need repair. The guns and racks should be in good condition for the event.  
Done onsite by volunteers
25. Lake Havasu City Fire Department Chief Chip will be contacted beforehand.  
Action item: Kief Adler and Mike Hill.

Adjournment 9:22 pm

Motion: Russ Laurie, Seconded: Tom Calderwood

Rita Oesterle, Secretary WPA

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**Minutes of Annual Meeting of the Western Pyrotechnic Association**  
**February 18, 2007**

1. Call to Order: Meeting was called to order at 12:12 pm. Russ Laurie, president, presided. All members of the Board of Directors were in attendance as well as at least 10% of the general membership to meet the quorum requirements.

2. Approval of the WPA 2006 annual meeting minutes: The minutes, having been published in a WPA newsletter, were approved.

John Dicks moved; Randy Baranek seconded

3. Winterblast 2007 Comp policy approval:

WPA comp policy motion passed

Pat Chambers moved; Francis Marquez seconded

4. Treasurer's Report:

WWB 18

Donations from public \$4,831 (through Saturday)

Auction \$5,050

Public Display by LHC \$17,500

WWB Income \$131,429

DO IT 2006

Expenses and Income about the same

Ann Huffman asked the IRS about the correct terminology of an Income/Expense statement vs Profit/Loss Statement for non-profit organizations such as WPA. It should be referred to as Profit/Loss Statement according to the IRS. A motion was made, seconded and voted on to have the WPA financial statement be known as a Profit/Loss Statement.

Kief Adler moved; John Dicks seconded

5. Registration for WWB 18

Registration paid attendance included 495 members, 150 spouses and 75 children/helpers.

Included in the above registration figures were on site registrations of 52 members (19 new members), 14 spouses, and 20 children.

In addition to the above figures there were over 140 attending on corporate sponsorship and 50+ Lake Havasu City representatives on site.

6. Old Business:

A. John Steinberg brought us to date on the CPSC and DOT problems.

CPSC (Consumer Products Safety Committee) had a motion for a summary judgment. The Judge sided with the government. Both sides are to submit their proposals and the judge will give his decision Feb 28, 2007.

DOT (Department of Transportation). Transporting fireworks to the event meets the ATFE requirement for PGI. The transporter must have current licenses for the possession and transporting of chemicals.

B. Sara Park site for Winterblast

Staff and BOD members met with LHC (Lake Havasu City) representatives weeks before the event to discuss this problem

WPA had asked that the lower parking lot is for WPA members only. It did not happen. Members were turned away by the police from entering Sara Park right before the nightly displays.

Some were told to use the back road and found it was already closed for safety reasons.

Kief recommended that all members should be at SARA PARK by 4 pm in order to get a parking space. LHC has not offered any traffic solutions.

Another suggestion which will be to allow WPA Members to come in via the back road until 5 or 6 pm.

The member RV parking was too crowded. This will be resolved for next year.

The city states it has no way to shuttle the crowds from outside parking sites.

It was suggested that we have a member traffic liaison with the city. Kief stated he does that already with his function as the city liaison and public display co-coordinator.

John Dicks would like to see WPA have an alternate site. (Primm has been researched but it is unacceptable cost-wise.) John thinks WPA would have a better bargaining position with LHC if we had an alternate site available.

Rob Foelak suggested using Bureau of Land Management (BLM) land in Clark county, NV. Dimitri Timohovich informed us about the strict BLM Leave no trace behind policy.

The question was raised, "Are we outgrowing SARA PARK?" It was again mentioned that the grand master plan the city has for SARA PARK would make it unusable for our events.

Kief brought up that LHC was not supporting our events with their demand of closing open shooting at 10 pm. A member suggested the public displays start at 9:30 pm to allow the members to have more open shooting.

7. New Business:

A. DO IT #2 manufacturing event.

Rob Foelak was appointed chairman for an adhoc committee for looking into sites, determining the number of members who would definitely attend, and drawing up a plan for it. Rob is to present his plan to the BOD. The event would be held in 2008. Motion to appoint Rob Foelak as chairman of the committee was moved, seconded and approved.

John Dicks moved; Bruno Niestatek seconded

B. Life membership award

Don Oesterle was awarded life membership.

Don has been a member for 14 years. He has been on the BOD for several terms, been chair and co-chair of both DO IT and Winterblasts, and has been on staff at the events since 1996. He continues to serve the membership.

Congratulations Don!

C. DO IT 2007

John Dicks gave a presentation for Hawthorne, NV as a possible site.

The following is from last year's general business meeting minutes.  
*Hawthorne, 50 mile East of Carson City, NV, is a town of about 3500 and is a Naval undersea warfare weapon storage, and army weapons depot. From San Francisco it is a 300 mile drive, from San Diego a 485 mile drive Elevation is 4,320 Ft. There is 1 casino with 100 rooms and about 150 rooms total in the town for DO IT. The site, a race tract, is ½ mile from the town and has a curfew of 10:30 p.m. The nearest airport is Reno NV with approximately a 100 mile drive to Hawthorne.*

D. WWB Bunker staff position

Mike Hill suggestion that we add a staff position(s) for Bunker records and control at our events. This is a very important addition to the staffing as WPA must be in compliance with ATFE regulations at all times. This should not be part of the Security staff duties.

E. Vendor helpers and Corporate Sponsored helpers at events

The BOD will discuss and put on the digest and event programs, the "rules" for what a vendor helper attendee and a corporate sponsored helper can/cannot expect to do at the event. There will have to be a way to special badge, etc. these helpers. It was suggested that vendor helpers can pay to attend the seminars.

F. Trade Show at Winterblast

It was suggested to have the Trade Show at SARA PARK. The hours can be extended and would have more vendor exposure. Vendor input will be welcomed and the possibility of having it out there will be evaluated (weather, suitable tent, cost-effectiveness, etc).

It was moved, seconded, and passed that the Trade Show be open to the public.

G. Larry Mattingly introduced the discussion about a Safety Standards manual for WPA. Suggestion from the members included:

Classes for Beginners, Intermediates, and Advanced manufacturing. Randy Baranek already gives a class on safety for Class B fireworks at WWB. John Steinberg offered the use of PGI Safety class manual for WPA use. Francis Marquez and John Steinberg will look into modifying this program to meet western USA regulations.

The resumption of a Shooter's certification program at WWB (It used to be offered alternate years).

Sign posted at entrance to the shooter area listing the safety rules.

A motion was made and passed for WPA to use the PGI shooter certification course at Winterblast.

At each WWB we petition PGI to send out an instructor and that instructor's cost to attend and the cost of the materials for the course be paid for by the participants in the class. This class is to be offered at every Winterblast.

Kief Adler moved; Jack Petty seconded

Francis Marquez and John Steinberg will look into modifying this class to include western USA regulations and rules.

H. Signs should be posted at entrance to the shooter area listing the safety rules.

I. Kief Alder brought up that he gets all the Class B invoices from the pre-orders to the vendors. As they are bought on WPA's license, Kief

then verifies all orders to be either allowed/disallowed.

8. The situation about a member recently having his home searched and several items taken were explained to the members. There were external factors for this member being targeted by the law officers. He only had chemicals and could not have made any "bombs" from the materials found there. The manufacturing chair described what a member should do if he encounters the same situation. Do NOT have materials at your residence that could be used in firework making is the main rule. (One should only buy the quantity of chemicals he/she is going to use at the event.)

Any WPA member can contact the manufacturing chair if he has any questions about materials around their homes.

([PyroBill@comcast.net](mailto:PyroBill@comcast.net) Please include your full name, not your nickname.

9. The BOD will appoint a liaison committee between ATFE and WPA. John Steinberg offered to arrive early at WWB 19 and be a liaison between WPA and ATFE.

BOD Elections results:

Vice President BOD

Pete Wood

Kief Adler moved; Donald Oesterle seconded

Secretary BOD

Rita Oesterle

Kief Adler moved; Francis Marquez seconded

VP of Publications BOD

Tom Calderwood

Gary Berg moved, Tom Handel seconded

A motion was made, passed and approved to combine the 2 Northern CA areas into 1 area.

Bill Ryan moved; Mike Swift seconded

Area Chairman VP Election results

Northern CA Lynden King

North West (WA, OR) Bill Zuber

CA Central Francis Marquez

AZ and NV Mike Hill

Rocky Mtn Charles Wilson

Eastern/Foreign Gary Lillich

Alaska Jackie Whedbee

Texas unfilled

Hawaii Richard Rasmussen

San Diego Susan Baldwin (has 30 days to accept decline)

Canada Tim McIvor

Meeting was adjourned.

Respectfully submitted

Rita Oesterle, WPA Secretary

11:38 AM  
 07/30/07  
 Cash Basis

**Western Pyrotechnic Association, Inc.**  
**Profit & Loss**  
 January through March 2007

	Jan - Mar 07
Ordinary Income/Expense	
Income	
Advertising	
Newsletters	200.00
Total Advertising	200.00
Bank Adjustments	-8.91
Donations	
Clean up Donations	3,218.37
Fireworks Fund	1,265.00
Donations - Other	1,511.00
Total Donations	5,994.37
Internet Fees	
On line Fees	52.88
Total Internet Fees	52.88
Membership	
2007 Membership	35,610.00
Life Memberships	1,200.00
Total Membership	36,810.00
WinterBlast Income	
Advertising	50.00
Afterglows	735.00
Auction	5,555.00
Clean Up	3,385.00
Corporate Member	3,710.00
Cracker Wall	1,145.00
Donations	538.07
LHC Grant	17,500.00
Misc	632.00
Registration	53,100.00
Seminar Fees	300.00
Staff Shirts	220.00
Vendor Deposits	730.00
Vendor Tables	2,530.00
Total WinterBlast Income	90,130.07
Total Income	133,178.41
Gross Profit	133,178.41
Expense	
Equipment	169.32
General Operations	
Communications	44.48
Dues and Subscriptions	240.90
Humboldt Merchant Monthly Servi	139.20
Insurance	
Accident	924.00
Liability-D&O	2,681.00
Total Insurance	3,605.00
Member Cards/Mailing	160.14
Membership refunds	276.42
Miscellaneous	75.12
Newsletter	2,543.87
Printing and Postage	
Postage and Delivery	823.98
Total Printing and Postage	823.98

11:38 AM  
 07/30/07  
 Cash Basis

**Western Pyrotechnic Association, Inc.**  
**Profit & Loss**  
 January through March 2007

	Jan - Mar 07
<b>Taxes</b>	
Corporation Filing Fee	65.00
<b>Total Taxes</b>	65.00
<b>Total General Operations</b>	7,974.11
<b>Winter Blast</b>	
Afterglows	7,497.24
Bunker Supplies	213.89
Clean Up Refund	6,510.46
Cracker Wall	1,512.50
Event Chair Stipends	1,180.00
Event Fuel	1,344.30
Event Registration	452.99
<b>Incentives</b>	
Room Comps	2,721.22
Staff Shirt Purchases	955.74
<b>Total Incentives</b>	3,676.96
Lighting and Electrical	211.56
Miscellaneous	86.61
Office Supplies	18.47
<b>Printing</b>	
Programs	1,949.00
Printing - Other	103.27
<b>Total Printing</b>	2,052.27
Public display	7,500.00
<b>Registration Supplies</b>	
Misc. Supplies	303.12
Name badge	1,097.50
Postage/Envelopes	146.17
Refunds	1,608.44
Wrist Bands	74.85
<b>Total Registration Supplies</b>	3,230.08
Rental Cart Repairs	2,478.57
<b>Rentals</b>	
Containers	558.84
Convention Site(s)	3,200.00
Mule Rental	2,372.70
Radio	1,175.00
Tents	9,737.50
Truck and Trailer Rental	489.17
<b>Total Rentals</b>	17,533.21
Security	3,200.00
Seminars	3,153.22
<b>Site Preparation</b>	
Laborers	2,644.84
Supplies	1,422.29
Trash	209.00
Site Preparation - Other	540.04
<b>Total Site Preparation</b>	4,816.17
Sound Services	3,250.00
Staff Meals	2,288.09
Vendor Clean-up Refund	750.00
WB Refund	501.71
<b>Total Winter Blast</b>	73,438.30

11:38 AM  
07/30/07  
Cash Basis

**Western Pyrotechnic Association, Inc.**  
**Profit & Loss**  
January through March 2007

	Jan - Mar 07
Winterblast Site Fuel	805.18
WPA Web Page	93.27
<b>Total Expense</b>	<b>82,480.18</b>
<b>Net Ordinary Income</b>	<b>50,698.23</b>
<b>Net Income</b>	<b>50,698.23</b>

### WPA BOD Minutes April 5, 2007

Call to Order 7:44 pm

Conference Call attendees: Russ Laurie, Tom Calderwood, Rita Oesterle, Pete Wood, and Ann Huffman.

1. Approval of minutes from General Meeting at WWB Feb 2007 by the BOD.

Motion by Tom Calderwood Seconded by Pete Wood

2. Secretary's report by Rita Oesterle

The online membership form is back "on" now. It had been turned off the week before WWB and not turned on until recently.

3. Treasurer's report by Ann Huffman

Bank Balance as of April 5, 2007 \$106,059.33

WWB 18 income as of April 5, 2007 \$115,775.60

WWB 18 expenses as of April 5, 2006 \$82,012.21

4. Publications report by Tom Calderwood

The next newsletter should be ready to mail by late July-early August. The registration form for DO IT 2007 will be included in it. Ann will send Tom the Profit/Loss statement for its inclusion also.

5. WWB 2008

The BOD is looking into the possibility of having the trade show on site at SARA PARK. This should facilitate more member participation. The tent maybe inside the gate near the back road.

6. Rob Foelak submitted the proposed budget for Pyro Playa. This May, 2007, manufacturing event to be held at a remote location where participants could camp out on site. Delamar Dry Lake is being considered. The registration forms and payments will be handled by Rob Foelak.

The event is to be paid for by the attending members except for the portable potties which will be paid by WPA. All products will be built and shot the same day. The attendees will provide their own security and clean up. All WPA rules will apply to the event.

Adjournment 8:25 pm

Motion: Russ Laurie Seconded: Tom Calderwood  
Rita Oesterle, Secretary WPA

### In Memoriam

(from Steve Rhodes) "It is with a heavy heart that I inform you that my best friend Tom Grace passed away on July 16, 2007 of a heart attack. He was at his computer, logged on to AOL, and most likely working on eBay. He will be missed by many, many friends and family." Tom was a past WPA President.

It is with great sorrow to also announce the passing of Trudy Zarchoff last month. Most of you will remember her as the elderly woman manning the gates at night with her husband, Sam, during WinterBlast. Her presence will be greatly missed.

## 2007 W.P.A. Board of Directors

**President**

**Russ Laurie**

**russ@westernpyro.org**

**Vice President**

**Pete Wood**

**pete@westernpyro.org**

**Secretary**

**Rita Oesterle**

**rita@westernpyro.org**

**Treasurer**

**Ann Huffman**

**ann@westernpyro.org**

**V.P. of Publications**

**Tom Calderwood**

**tom@westernpyro.org**

# Last Chance

by Martin Walker

I had a First this year. I was driving north on 101 and had just turned off HWY 175 in Hopland, heading to a Lakeport 4th of July show, when I got pulled over by our friendly CHP. It was a big Chevy 1500, fully loaded. When I asked what the problem was, he said he pulled me over to do a HazMat inspection. Seems he noticed the 1.3G placards.

He asked to see my driver's license with HazMat endorsement, medical card, truck registration, proof of insurance, Bill of Lading, and HazMat Transporter's certificate. When I pulled my paperwork out, the first thing he said was the Bill of Lading either should be the FIRST item viewable (on top of all other papers, which it wasn't, because I shuffled stuff around during my pre-trip inspection), or tagged with a post-it type flag to alert anyone what and where it is in the paperwork. When I questioned the officer, he said this had always been law. I gave him all requested documents. Oh yeah, he also asked if I had a cell phone. Seems the new requirements to be able to contact someone are also being checked.

He then walked around my truck giving it a cursory inspection, then asked me to open the truck. He looked inside, asked if there were any other pyrotechnic devices anywhere else in the truck, to which I said "No". He checked several boxes for proper markings. I can only guess if he was trying to determine if there was more on the truck than the Bill of Lading showed. He then went back to his vehicle to write his findings, as I waited by the truck.

Thanks to the diligence of Pyro Spectaculars, and the efficiency of Dan Ramsauer, the officer had no findings and I was sent on my merry way. The officer did reiterate the point about the Bill of Lading needing to be first thing viewable, or flagged, ostensibly to be able to quickly determine the contents of the truck in

case of an emergency and a driver's incapacitation.

All things considered, the officer was quite friendly and non-adversarial. He was just doing his job.

Again a BIG thanks to Dan and Pyro Spec!!

Oh, another thing. The CHP officer called in to DMV, it seems the lab that did my medical cert this year had not sent it in. This could have been devastating, but since I had the current medical card, he cut me slack. I don't know if there is a way to call DMV and see if anyone's cert is on file, but I will never rely on the lab to do it again. I'll take a copy to the office personally.

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# The Waterfall Sparkler

by Chris Spurrell

Or  
Bill McGregor and the  
“Flaming Bike O’ Death”  
Or  
Sparklers on Steroids Become  
A Rocket Rising Effect  
Or  
Fire Dancing with  
Industrial Light and Magic

There are many unstable combinations in pyrotechnics. It turns out that one of them is the Spurrell/McGregor combination. This mixture has resulted in a stout steel mortar turning into an interesting “bell and wok” combo as well as some interesting burn pile moments at the end of an event. It now seems like the only reasonable “common ground” is going to be sparklers.

Yup.

A while ago I was asked to make a long lasting sparkler. So I tried some of the standard formulas with modest success (Wiengard, Tenny et.al.). They worked reasonably well. But, I found a formula on the web which looked too simple to pass up. It was 50% potassium perchlorate and 50% titanium plus a water soluble binder. I tried it with a nitrocellulose binder (being ever impatient) and it worked a little too well – I couldn’t look at it in broad daylight!

Later I thought something similar would make a great star. Only this time I used Firefox’s fast curing composite fuel binder (HTPB and curing agent) but these proved hard to light without a serious commitment to priming.

But, when we put chunks of this stuff on a one pound rocket stick and lit it we got a industrial grade hand-held “Waterfall” sparkler. We put this to use by giving Diane Purington a “Pyro Aura” as seen at [http://www.thecalderwoods.org/tom/DoIt05\\_2.htm](http://www.thecalderwoods.org/tom/DoIt05_2.htm)

Now enters Mr. Bill McGregor who wants to put some of these Mega Sparklers on the back of his chopper, his “Hog”. Okay maybe “Hog” is over stating it a little. Okay, even “Motorcycle” is way over stating it. Bill wanted to

put a couple of these on the POS glorified Moped he rides around the site. I gave him a few and after a turn around the track which caused him to reconcile sparkler position with air flow (like – “Why are these sparks getting closer as I go faster?”) He hit on an arrangement that did not challenge the turn-out gear he was wearing. Viola! The “Flaming Bike O’ Death” was born with Bill at the handle bars.

(Same url as the Pyro Aura)



## The Formula

I wanted to make it 50:50 Sponge titanium and potassium perchlorate but when I made the first batch I ran out of  $KClO_4$  and decided to make up the balance with ammonium perchlorate so the formula came out to

3 parts  $KClO_4$   
2 parts  $NH_4ClO_4$   
5 parts Titanium (sponge or flake, medium fine)





## The Waterfall Sparkler (Continued)

12% HTPB (Firefox's Polybutadiene R45-M)  
3% curing agent (Firefox's Isonate 143L)

I liked the effect so much that I didn't want to mess with it, and since I had a lot of cheap  $\text{NH}_4\text{ClO}_4$  I didn't try anything else, for a while, other than to increase the binder. Finally I tried using straight  $\text{KClO}_4$  and Ti and came up with a hard to light but very long lasting comp:

55 parts  $\text{KClO}_4$   
45 parts Titanium (sponge or flake, medium fine)  
16 % HTPB binder (Firefox's Polybutadiene R45-M)  
4% curing agent (Firefox's Isonate 143L)

I think the sponge titanium is a little more dramatic than the flake but both work just fine.

### The Mixing Technique

If you haven't used composite binder before you'll swear that the percentages are wrong. First, mix the binder and curing agent by themselves in a disposable mixing cup, and then add it to the powders. At this point you'll need a good pair of chemical resistant gloves. I use the Nitrile gloves from Harbor Freight. They are good for one batch. When you start kneading the mix the binder seems to disappear and you think that the stuff will never hold together. After another quarter hour of hand mixing the stuff starts showing hopeful signs of cohesion and another ten minutes into it you can form a pancake like slab of sticky comp that's about 3/8" inch thick. Now that it's sticky I'm glad I used a non-stick surface like a polyethylene sheet. Let it sit there for a couple of hours while the initial curing happens. When it starts to feel like a very soft rubber eraser I cut it into 3/8 inch "worms" about a foot long and let it cure a few hours longer. It's then ready to be parted from the sheet as foot long black "worms" and left to cure overnight. The next day I take a one pound rocket stick (3/8" x 3/8" x 48") and slather rubber cement on one face and on one side of the sparkler "worm". After 15 minutes I join the two and the contact cement does its thing.

### Rocket Rising Effect

So my buddy Bruno comes along, having seen some of these sparklers in action, and asks if I had any left over. Well I had a bunch of end pieces and broken bits which I gave him. That evening I'm impressed by a bunch of titanium whistle rockets but I didn't remember anyone mentioning that they were pressing whistle with titanium. That's the sort of thing that gives me the willies because of the chance of grinding hard metal together inside of whistle mix. It turns out that Bruno had glued the sparkler pieces on his whistle rocket stick right in the area that the rocket exhaust hits. It looked exactly like the titanium had been put in the comp. So Bruno invents a method of safely giving whistle rockets a dramatic spark trail. At WWB XXVIII a couple of the attending PGI board members tried this effect and were definitely pleased with the subterfuge and the results.

### Is Michelle one of the Incredibles?

Having seen the Flaming Bike O' Death our favorite fire dancer speculates that this sparkler stuff will make a fine addition to her fire spinning. While there's a big difference in flame temperature between hydrocarbon fuel and an oxidizer promoted metal fire, Michelle safely pulled off a most captivating effect which was faithfully captured by Tom Calderwood.

Who'd have thought that the lowly sparkler would be the source of multiple inspirations? And who will be next?



# Speak up!...and 'Pyro' Is Not A Dirty Word!

By Michelle Sykes

I wonder if my show making local headlines in the form of a shameless pile of lies is simply a rite of Pyropassage. Most of the feedback on my response letter posted to the list was positive, helpful, and made me think. The more relaxed point of view made me think harder; "Don't engage, be a duck, chill a glass, put your feet up, and you may want to avoid using the word 'pyro' ". The State Fire Marshal's response was similar; "How cheesy, but it happens all the time, don't even mention it". Well fine, no problem, and on some points I agree. But, this has all clarified my train of thought that this mindset is part of a larger problem. When these things happen, and we are the only ones in possession of the facts, and we do nothing to make them known; we become our own problem. In our silence we placate the fear and feed the ignorance. People will swallow what they are fed, especially when there's nothing else on the plate! No, we aren't fighting for world peace, or against global warming, or to put an end to hunger. But: Are we ashamed of ourselves or what we do? Do we feel guilty? If so, why? We seem to be largely a group of artistic, gentle, sensitive(sorry guys), and law abiding souls who wouldn't harm another and with a love and passion for what we do. So why should we keep our mouths shut or change our language.

The strategy of the PGI's mission to take the fight with the CPSC to Washington is to give us a voice that will be loud enough to be heard and effect real change. This is so obviously necessary at this point. And, overall we seem to be on the same page about that, but our individual actions seem a bit out of line with the goal. If we are to be successful in this fight this is a source of serious concern. We can't just throw money at the PGI and wait for them to solve our problems for us, and we shouldn't put all our eggs in one basket anyway. It's equally important in this fight that we each do our own part by doing what we do within the legal bounds of present circumstances and speak up! Speak up on our own behalf to educate and inform with truth and facts, every chance we get! Our fight isn't with the CPSC alone. What the CPSC is doing is only indicative of the much larger problem; our country's growing willingness to let our fears run our lives and rule our existence.

The real fight is with the overall mindset in this country that more laws, regulations, bans, locks, microphones, cameras and total control will keep us safe. It is with our overall state of fear that is amplified by the media's constant dramatization. It's negative affects go far beyond the hobbyists and the pyrotechnics industry. To stick to only what we are dealing with: We are not only, or nearly the biggest, victims of the CPSC's actions. The

removal of the same chemicals, and glass beakers due to their use in meth labs, is causing a dramatic decrease in college enrollment in the sciences. Our college professors can't get the tools and supplies they need to teach their classes. And the childhood garage lab, where many renowned scientists first became inspired by science, is history for fear of bombs and meth labs. We most certainly will never produce another Ben Franklin or Thomas Edison in this atmosphere. This is a worthy fight, moreover it is an imperative for the future of our kids and our country. And one that is already being fought by other groups-- we are not alone! If we are to change what appears to be an inevitable future though, we must be united as a group in our efforts as well as our goal.

Because ultimately as a nation and maybe as a group even, it's unlikely we can get on the same page fast enough to win this fight in an immediately affecting way, any more than we can on global warming or our role in this world as a nation, when Pyrotechnics is given a voice that is loud enough to hear in Washington and they are listening; the bulk of the evidence must clearly support that voice's statement that we are nothing to fear. That evidence can only come from one place, each of us. The sum of what we do, what we say, and how we conduct ourselves overall as individuals, will ultimately decide our fate as a whole.

So, if you do feel guilty: A simple change in what you do may alleviate this feeling as I suspect you may be doing something you shouldn't be. If you won't do this then please step away because I doubt the evidence you have to offer will help our cause.

If you are a proud and passionate Pyro, not difficult- many of us are downright egotistical, then I beg you to put your money where your mouth is and put your mouth where your heart is. Arm yourself with all facts on fireworks and Pyrotechnics, especially those related to safety, the environment, and the pyrotechnic devices we rely on in our daily lives. Wear your WPA or PGI jacket, or fireworks company shirt. Often! In public!! In your own home town!!! Be ready with a smile and a friendly patient nature when you are approached because you will be. Advertising works really well in our consumer society! And when the approach is a negative one: Bite your tongue, keep smiling and be informative. If this fails; The time has finally come to disengage, be a duck, chill a glass, and put your feet up. You've done all you can do... for now.

Officially off my soapbox... for now.

Michelle Sykes

# FireLinx Announces DSSS Radio Technology

By David Russell and J Larry Mattingly

It was a busy week for Firelinx, Inc., producers of the new Reliable Wireless firing system that has been popular with the industry at shows. The product launch was delayed by production problems, but Firelinx has used the time to their advantage, improving the product even further and redesigning the radio technology. On April 30, Firelinx passed FCC testing for their new Direct Sequence Spread Spectrum (DSSS) radio system. On May 1, they notified customers that shipments should begin within the month, and by May 2 – less than 24 hours after the announcement – the entire production run was sold out.

One of the new features of the system is the DSSS radio technology. This technology is just coming to the general market, and Firelinx is the first in the industry to offer it for pyrotechnic use. The preceding technology, Frequency Hopping or FHSS, was initially developed during WWII over 50 years ago.

Before digital packet radio, when you wanted a wireless link you transmitted the data over a frequency you were assigned to use – like your FM radio station is 103.9. If there was any interference on that frequency, the data link simply failed. In WWII, for example, this is how the enemy would jam communications. They'd just set up a powerful transmitter and blast your frequency. To defeat jamming, Frequency Hopping Spread Spectrum (FHSS) was developed. In FHSS, instead of just one channel, the transmitter is assigned a range of frequencies (also called a spectrum of frequencies hence the name). Instead of transmitting on one frequency, the radio divides the given spectrum into say 50 frequencies. Now the sender and the receiver are both programmed with a somewhat random table of the order in which to use these frequencies. They may be random, but the sender and receiver have the same table. So one user's devices might have a table with the numbers 1, 25, 40, 3, 16... Another transmitter might have a hopping table of 32, 14, 29, 38... So even if both devices are used in the same area, the odds that they will both try to use the same frequency at the same time are low (but not zero). If there is interference on one channel, both the receiver and transmitter simply hop to the next one in the table and try again. This hop occurs about ten times a second, whether or not there's interference. This works well for most communication applications because the probability of (eventually) finding a clear channel is very high. The problem is that the delay caused by having to try a channel, fail, try another one, etc. is unpredictable and can be significant. The more devices and interference sources there are in the area, the longer and less predictable these delays become. This delay can be a critical failure when firing a choreographed pyrotechnics display.

Today's answer to these problems is called Direct Sequence Spread Spectrum (DSSS). It starts with the same spectrum or range of frequencies, and they are still split up into perhaps 50 channels for

transmission. The difference, however, is that instead of trying to send the message and hopping to another frequency to retry it if it failed, DSSS works by taking a piece of the message you're trying to send, and breaking it up into little pieces that contain just a few bits each. This is sort of like the Star Trek transporter. DSSS breaks the message down into its energy "molecules", transmits a stream of them, and reassembles them on the other end. Each of these transmission pieces is called a "chip". Consider, for example, what happens if the transmitter needs to send a message of 100 bits of data. Each chip might contain 6 bits of data, and you have 50 channels over which you can transmit. Here's the key – Instead of transmitting a long message (which increases the window where interference can have an effect) over one channel, DSSS transmits a short message – the chip – over ALL 50 channels simultaneously, a different chip over each channel. Each Chip contains a random piece of the message, and they overlap – in the example above, we had 6 x 50 bits worth of data in the chips, so we effectively transmitted the message 3 times in one burst. That means that if only 1/3 of the chips make it to the receiver without interference, there's enough data there for the receiver to reconstruct the original message from the chips. Kirk arrives with all his fingers.

This is obviously a simplistic example. In reality there are different randomized channel sets assigned to different devices so many can coexist at the same time, and the probability of the message getting to the receiver is much higher than 2 out of 3. There are still opportunities for delays and interference effects, but the speed and reliability of the system are greatly increased. Because the data is transmitted simultaneously over many frequencies, DSSS does not suffer what's called "multi-path" interference as FHSS systems do. This effect occurs when the RF signal is bounced off objects in the environment, and two bounced paths converge to actually cancel themselves out a random point. That's why many FHSS systems (like a wireless Internet router) have two antennas on top – it's so that if one antenna gets dropped into multi-path cancelled point (which happens much more frequently than one would think) the other antenna will still be able to receive. This exact point of cancellation is dependent on the frequency of the transmission, so by using a burst over the entire spectrum, the multi-path cancellation point becomes at worst a blur, affecting only one chip. DSSS systems are also faster when establishing the initial connection between the transmitter and receiver, are less sensitive to interference in the operating area, and employ built-in collision avoidance to automatically switch away from channels being used by other systems.

Firelinx will be demonstrating the production system and DSSS technology at PGI, NFA, APA and the International Symposium on Fireworks this year. More information is available at [www.firelinx.us](http://www.firelinx.us).

# Black Snow

by Donn Daly

The very first seminar I ever attended when I joined the WPA was Gary Berg's Blue Whizzies Seminar. I was very impressed...what a great concept it was! I was very intrigued by the use of GE Silicone II caulking. It has many attributes that makes it attractive, among them; it binds the composition, protects the magnesium, it's a fuel, you can cast it, mold it, it cures relatively quickly, and it is readily available. So I used the Blue Whizzies technique and played with formula variations. It was in the course of experimenting with one of these variations that I came across an interesting effect.

My trials evolved far from the starting point. As I experimented I would note each tweaking of the formula, and the results. For those of you that have done this, you know that it can sometimes be an arduous and at times frustrating endeavor (especially for the novice). So it was as for the umpteenth time that I did not get the desired result from my test burn. I watched as the small pyramid of formed composition burned out in a disappointing, very ordinary orange colored flame. Then surprisingly, I was engulfed in a flurry of black snow. I looked up to see a 15 foot high cloud of very small black particles slowly precipitating down. The stuff was all over the place. I held out my hand to capture some as you would with snow flakes. The particles were very delicate and a peculiar tear-drop shape with a turned up tip, like a leaf. For very little mass it had produced copious amounts of ash. I do not fully understand the process that produced such a unique carbon structure. It was not the same as burning acetylene or other fuel rich carbon mixes.

I was fascinated by this and wanted to check to see if it was reproducible or just a fluke. I repeated the formula and tested it again. The results were the same. By now I had quite the sooty mess to clean up. But I when I began to sweep up the mess, it virtually disappeared. The particles were so fine and delicate with so little mass that they vanished with the stroke of a broom. Hosing it off hardly darkened the water.

This is certainly not a spectacular pyrotechnic effect, but amusing like snakes, smokes, and other outdoor day time effects. I found it akin to Lancaster's "Snow Cones" effect (see Fireworks Principles and Practices, 1972 by R. Lancaster, P 177 - 178) and have used it in combination with that effect to produce "Salt and Pepper" or black and white snow.

I thought that I would share this because it is somewhat out of the ordinary pyro fare. The oxidizer I used was Strontium Nitrate. Others may work. The Strontium Nitrate seems to be inhibited from sucking moisture from the surroundings by the GE Silicone II. The effect is lost if it is even a little breezy, so the air must be calm. It makes no noise to speak of, or bright lights. Just an unusual ash fall...like black snow.

The formula and manipulation follows:

## BLACK SNOW

(% by weight)

<b>STRONTIUM NITRATE</b>	<b>55</b>
<b>MAGNESIUM (250 mesh flake)</b>	<b>28</b>
<b>PVC</b>	<b>17</b>
<b>GE SILICONE II (ADDITIONAL)</b>	<b>+50</b>

First of all a few warnings and precautions: Nowadays, with the hobbyist in the crosshairs of the CPSC and other agencies, it prudent to use your common pyro-sense. Do not violate federal, state, or local ordinances. This formula cures quickly enough to be made during sanctioned events. Use appropriate personal protective equipment. Latex or Nitril gloves are necessary to handle the mixed compound. Be sure to keep your workspace free of other pyrotechnic compounds and keep water away from the magnesium. Do not let children play with these.

The mix is processed using the "Blue Whizzies" technique. Here is how I do it: First weigh the dry chemicals, mix and screen those 3 or 4 times as you would most pyrotechnic mixes. Take a sandwich size zip lock baggie and

## **Black Snow (continued)**

spray the outside with anti-static spray. Fold over the two lower corners just a little. I like to secure the folded corners with masking tape. This is to keep the compound from gathering in the corners where it is hard to work with. Place the baggie open and upright in an 8 ounce or larger paper cup and place on your scale. Tare (zero out) the cup and baggie. Add the mixed dry chemicals to the baggie and re-check the weight. Now very carefully using a caulking gun, add the additional (50% by weight) GE Silicone II. Avoid getting it on the zipping part of the baggie. If you add too much, use a flat stick or a spoon to remove some until it weighs correctly.

Squeeze out most of the air and zip up the baggie, leaving enough air in it so it will mix well. Put the baggie in one hand, make a fist with your other hand and start to knead the dry chemicals in with the GE Silicone II. Any method you find is the most effective to blend the ingredients will do. Just work it to a homogenous mix. Once mixed, remove the tape from the corners, cut the zipping

portion of the baggie off and discard it. Lay the baggie down flat and with a razor knife carefully slit it along the edges on both sides so that you can fold it open exposing the compound face up (be sure to have your gloves on). Use a 6" broad knife or a plastic scraper and scrape the compound off the laid open baggie. The compound is sticky at this point but it is starting to set up (if it is too sticky let it set a bit but remember the clock is ticking). You need to start working the compound by hand. Roll it into a ball and manipulate it until it becomes clay-like and stops sticking to your gloves. Once it is to that point roll it out and fold it over onto itself several times like bread dough. Soon it will set too much to work with so start forming up little pyramids. Pinch off a piece and between the thumbs and index fingers of both hand shape it into a small 4 sided pyramid about 1" high. Place them on a sheet of wax paper. Imbed a short piece of visco or black match into the tip of each pyramid. Continue this process until all the compound is used up. Let them set 6 – 8 hours or until cured. Use on a still day outdoors.

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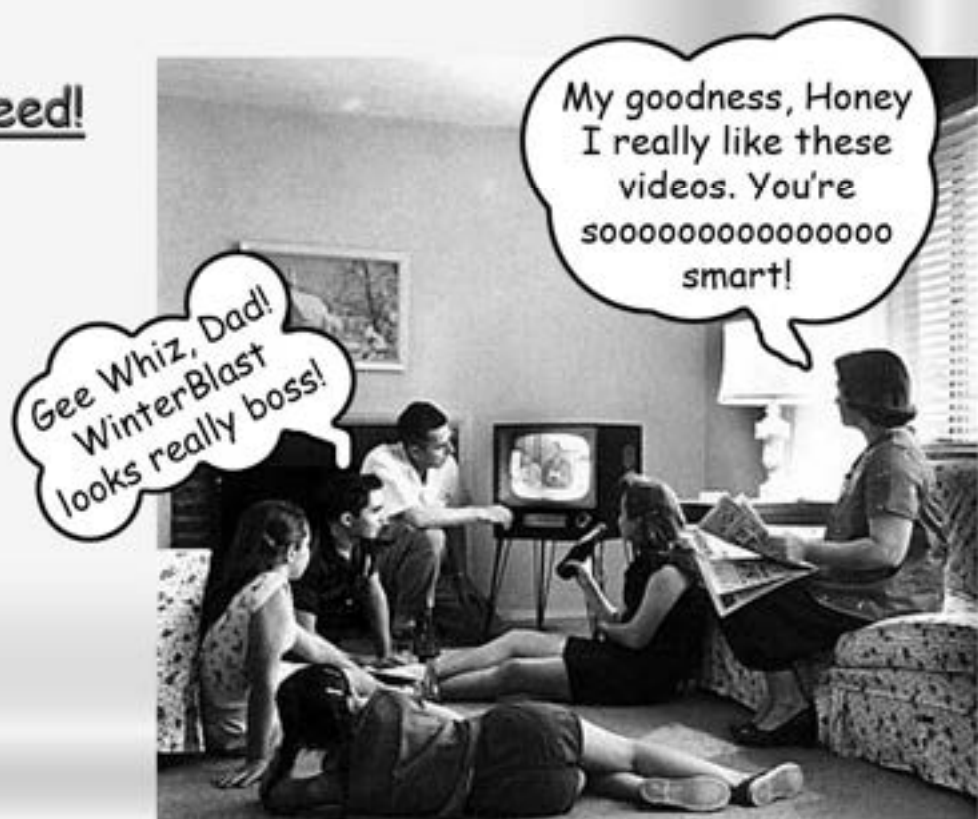
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