WWB 24 - Blinded by the Light

	Wed	Thur	Exi	Cat	Cum
CONTRACTOR CONTRACTOR	wed	Thur	Fri	Sal	Sun
Registration - SARA	2pm - 5pm	9am - noon, 1 - 9pm	9am - noon, 1 - 7pm	9am - noon, 1 - 5pm	as needed
Trade Show - SARA		10 am - 4 pm	10 am - 4 pm	10 am - 4 pm	Noon - 4 pm
Safety Orientation Meeting - SARA		4	:30 pm, and again at 7	:30 pm (if necessary)	
Class B Safety Certification - SARA			4:30	PM	
Class C Vending - SARA		5 pm-10:00 pm	5 pm-10:00 pm	5 pm-10:00 pm	5 pm-9:30 pm
Open Shooting *		5 pm-10:30 pm	5 pm-10:30 pm	5 pm-10:30 pm	5 pm-10 pm
Afterglow - Quality Inn			10 pm - W	henever	
	All se	minars will be held a	t SARA Park		
50 (N 1739)	* Open shooting	g for Class C & B will	close during display	ys.	
Open shooting	will resume for C	Class C & B (separate	ly) at the discretion	of the Safety Chair	



<u>Thursday</u>				
Topic/Activity	Time	Duration	Presented by	Site
SITE SETUP	9:00 AM till Done		WPA Members and Families	SARA
Winterblast Registration	9am - noo	n, 1 - 9pm	WB Staff	SARA
Trade Show	Noon	- 4 PM	Vendors	SARA
B-Mag Open	10 AM	- 3 PM	Security	Container
1 Screen Sliced Star Workshop	1:00 PM	1.5 hours	Kevin Mather	Tent 2
2 "Forever Griz" Tribute Prep	2:00 PM	1.5 hours	Bear Naked Ladies	Hospitality
B-Mag Closed	3:00 PM	- 5:00 PM	Security	Container
Safety Orientation Meeting	4:30 PM	~30 min	WB Staff	Bleachers
Class B Shooting Certification*	5:00 PM	~30 min	Safety	Safety tent
Class C Vending	5 PM - 9	9:30 PM	Vendors	Class-C Tent
Open Shooting	5 PM - 1	0:00 PM	Safety	SARA
B-Mag Open	5:00 PM -	10:00 PM	Security	Container
2nd Safety Orientation Meeting (if missed the 4:30 time)		~30 Min	WB Staff	Hospitality Tent
Afterglow	10:00 PM	???	WPA and Sponsors	Quality Inn

* Must be 18 yrs old

		<u>Friday</u>			
	Topic/Activity	<u>Time</u>	Duration	Presented by	Site
Winte	erblast Registration	9am - noo	n, 1 - 7pm	WB Staff	SARA
Trade	e Show	10 AM	- 4 PM	Vendors	SARA
B-Ma	g Open	10 AM - 3 PM		Security	Container
зA	PGI Shooters Certification Course*	8:00 AM	4.5 hours	Debra Ludwig	Tent 1
4	Building Multiple Rockets Types with 1 Tool Set	10:00 AM	2 hours	Ben Smith	Tent 2
5	Set Piece Workshop	11:00 AM	1 hour	Steve Wilson, Todd Hall	Hospitality
6	Walking Tour of Manufacturing*	11:00 AM	1 hour	Bill Ryan	Tent 0
7	Round Shell Workshop (must be 14 yrs old) (\$5.00 fee)	1:00 PM	2 hours	Richard Haase	Tent 2
8	The Encyclopedia of Pyrotechnics - a labor or love	1:00 PM	1 hour	Bob Winokur	Tent 1
9	Great Balls of Fire done Jackalope Style	2:00 PM	1 hour	Jackalopes	Track Infield
10	Pattern Shells	3:00 PM	1.5 hour	Garry Hanson	Tent 2
11	Oxidizer Salt Manufacture Discussion and Round Table	3:00 PM	1 hour	Steve Majdali	Tent 1

* Must be at least 18 yrs old



	<u>Friday</u>	4		
B-Mag Closed	3:00 PM	- 5:00 PM	Security	Container
Safety Orientation Meeting	4:30 PM	~30 min	WB Staff	Bleachers
Class B Shooting Certification*	5:00 PM	~30 min	Safety	Safety tent
Class C Vending	5:00 PM -	10:00 PM	Vendors	C-Tent
Open Shooting	5:00 PM -	10:30 PM	Safety	SARA
B-Mag Open	5:00 PM ·	· 10:00PM		Container
2nd Safety Orientation Meeting (if missed the 4:30 time)	7:00	DPM	WB Staff	Hospitality Tent
Demo	8.00PM		Pyrotecnico	Track
Afterglow	10:00 PM	???	WPA and Sponsors	Quality Inn

* Must be at least 18 yrs old

	<u>Saturday</u>			
Topic/Activity	<u>Time</u>	Duration	Presented by	Site
Pancake Breakfast	8:00 AM	2 hours	BSA of Lake Havasu	Hospitality Tent
Winterblast Registration	9am - noo	n, 1 - 5pm	WB Staff	SARA
Trade Show	10 AM	- 4 PM	Vendors	SARA
B-Mag Open	10 AM	- 3 PM	Security	Container
12 Pasteless Italian Style Shell Workshop* (\$5.00 fee)	9:00 AM	2 hours	Randy Montgomery, Aaron Mayfield	Tent 2
3B PGI Shooters Certification Course *	10 AM - 4 PM	5 hours	Debra Ludwig	Hospitality
13 Learn from the Mistakes of Others	10.00AM	1.5 hours	K. L. and B. J. Kosanke	Tent 1
14 Introduction to Whistle Rockets	11:30 AM	1.5 hours	Kevin Mather	Tent 2
15 Pyrotography	Noon	1.5 hours	Tom Calderwood	Tent 1
16 BP Rockets For Beginners* (\$3.00 fee)	1:00 PM	2.5 hours	Steve Majdali, Kurt Medlin and Co.	Tent 2
17 Golden Gate Bridge 75th Anniversary Celebration	1:30 PM	1.5 hour	Jim Souza	Tent 1
18 Close Proximity Pyrotechnics	3:00 PM	2.5 hours	Eric Zeps & the Super Crew	Infield
19 Binding Systems	3:00 PM	1 hour	Joel Baechle	Tent 1
20 Mini Girandola from Commonly Available Household Items	3:30 PM	1.5 hours	Jim Biersach	Tent 2

AL Dr

* Must be 18 yrs old

<u> </u>	Saturday			
Topic/Activity	Time	Duration	Presented by	Site
B-Mag Closed	3:00 PM	- 5:00 PM	Security	Container
Safety Orientation Meeting	4:30 PM	~30 min	WB Staff	Bleachers
Class B Shooting Certification *	5:00 PM	~30 min	Safety	Safety tent
Class C Vending	5:00-7:30, af	ter PD-10:00	Vendors	C-Tent
Open Shooting (Closed during Public Display)	5:00 PM -	10:30 PM	Safety	SARA
B-Mag Open	5:00 PM -	10:00 PM	Security	Container
Public Display (Open shooting closed for duration of display)	8:00 PM	as nec	Pyrotecnico	Racetrack
2nd Safety Orientation Meeting (if missed the 4:30 time)	as nec	essary	WB Staff	Hospitality Tent
Afterglow	10:00 PM	???	WPA and Sponsors	Quality Inn
Winterblast Auction	10:00 PM	2 Hrs	Randy Baranack	Afterglow

* Must be 18 yrs old

		<u>Sunday</u>			
	Topic/Activity	<u>Time</u>	Duration	Presented by	<u>Site</u>
Winte	erblast Registration	as ne	eded	WB Staff	SARA
Trad	e Show	Noon	- 4 PM	Vendors	SARA
WPA	General Business Meeting	10:00 AM	2 hours	WPA Officers & Members	Aquatics Center
B-Ma	g Open every hour, on the hour, for 15 minutes till 3 PM	12 PM	- 3 PM	Security	Container
21	Mines Workshop (\$5.00 fee)	1:00 PM	2 hours	Mike Garrett & Todd Hall	Tent 2
22	Modern Uses for Lycopodium	1:30 PM	1 hour	Joel Baechle	Tent 1
23	Electrical Firing Systems	1:30 PM	1 hour	Chuck Erikson and Lynden King	Hospitality
24	Ghost Mines and Gas Flame Balls	2:00 PM	1 hour	Chris Spurrell, Bill Zuber	Infield
25	Pyrotechnic Myths – Things you may believe that are wrong.	3:00 PM	1 hour	Bob Winokur	Tent 1



	<u>Sunday</u>			
Topic/Activity	Time	Duration	Presented by	Site
3-Mag Closed	3:00 PM	- 5:00 PM	Security	Container
Safety Orientation Meeting (if necessary)	4:30 PM	~30 min	WB Staff	Bleachers
Class B Shooting Certification (must be 18 years old)	5:00 PM	~30 min	Safety	Safety tent
Class C Vending	5:00 PM	- 9:30 PM	Vendors	SARA
Dpen Shooting	5:00 PM -	10:00 PM	Safety	SARA
B-Mag Open	5 PM -	9:30 PM	Security	Container
Closing Show (Open shooting closed for duration of display) Tribute Show and Demo	8:00 PM	~1 Hour	Jackalopes and J&M Displays	Track
Afterglow	10:00 PM	Till Dawn	WPA and Sponsors	Quality Inr
	Monday			
Tear down and clean up at SARA	9 AM - W	hen Done!	WPA Members & Families	SARA
If you are able, PLEASE stay for a few hours Monday morning and t	help us clean he clean-up fe	up! As alway e!	rs, each person will receive lunch and	an equal share
(A \$15 clean up for was added to all registrations. Each member that stove until t	ha ataraga contain	or is looked will re	analyze an aqual share of the total face collected 1	and labor paid for)

(A \$15 clean-up fee was added to all registrations. Each member that stays until the storage container is locked will receive an equal share of the total fees collected, less labor paid for.)



1) Screen Sliced Star Workshop Kevin Mather

Screen sliced stars, also known as Parlon bound stars, are ideal for onsite manufacturing at events like Winterblast! These stars can be manufactured and dried in as little as three hours making them an excellent alternative to water bound compositions. This workshop will focus on the practical aspects of manufacturing and priming stars for use in a variety of pyrotechnic devices. We will cover the basics of parlon bound stars including how to vary burn rate, color and size. Participants will have a chance to help manufacture stars for use in rocket headers for the BP rocket seminar.

Kevin Mather has been mixing chemicals and playing with fire since he was given a chemistry set at age 8. When asked about how he got started in pyro he guickly answers that his mother, now 79 years old, (and most likely out in the manufacturing area wanting to help build something) is primarily to blame. Kevin has been quoted as saying, "She was always burning shit up and wanting to play with fireworks. Really, she was a horrible influence on such a young, impressionable mind. I never stood a chance at a normal life". Somehow Kevin graduated from engineering school at Cal Poly, San Luis Obispo and went on to a life of too many airplane flights and hotel rooms in foreign countries as the VP of International Business for a laboratory equipment manufacturer. It has been rumored that occasionally some of the company equipment has found its way into his alter-ego pyro life. No one really knows if this is true or not.

 "Forever Griz" Tribute Planning Meeting Bear Naked Ladies (and other good friends of Griz)

This is a formative meeting and workshop to bring together all of the ideas and elements for our tribute Sunday night to our recently passed old friend Griz Smith. Set pieces, fire and mine walls, aerial barrages and other special touching and appropriate sentiments will be planned and put into motion for the next few days, culminating in a proper display that Griz would, and will be part of.

3) PGI Shooters Certification Course Debra Ludwig

This course is an accepted safety course for licensing in many states. It is a must do course for anyone who wants to increase their knowledge of current NFPA regulations, requirements and safety protocols for commercial fireworks displays. The course includes classroom lectures, hands on



field work and a written test. Everyone can learn something new from this class. There are 2 required sessions for those desiring to apply for PGI certification. Space will be saved for those who pre-register for the class, and arrive at the class site with payment by 8:00am on Friday. All other places will be filled with participants prepared with payment on a first come, first serve basis. The participant maximum is 40.

Cost of Class - \$45.00 in cash (correct change appreciated) or check made payable to WPA Cost includes 200+ page book, live demonstration, hands on firing and classroom lectures in power point format.

Minimum PPE is required at Friday's class: Safety glasses, hard hat, closed toe shoes, long sleeved shirt, long legged pants made of 100% cotton or other flame retardant material (leather, turn out gear over cotton). Also bring a water bottle, lunch/snacks if desired, paper (if you don't like to write in your books) and a pencil, pen and/or highlighter.

You must have your registration ID prior to the hands on portion Friday after lunch. Registrants will receive their required WPA "B" firing line wrist bands and stickers at the conclusion of Fridays practical session. Due to a tight time schedule, no information can be repeated for late students.

Debra Ludwig - Deb has 18 years pyro experience and has held a California License for 9 years and Hazmat CDL for 8 years. Her husband Jim teaches the hands on portion of the class and has 21 years of experience in fireworks. They will often have a young aspiring pyro enthusiast on their crew to mentor throughout his/her training seeing them thru to licensure and beyond. Even someone with years of experience should take this class, you just might learn something new!

4) Building Multiple Rockets Types with 1 Tool Set Ben Smith

This seminar will detail the use of FireSmith Super BP Core Burn tooling to produce nozzleless BP, triple whistle and strobe rockets. Fuel formulations and production, salute headers, sticking and fusing will all be covered.

Ben Smith started his pyro career at an early age. As a boy, he saved his pennies throughout the year just to be able to visit the fireworks stands during that one great week in July. While in elementary school, he was exposed to the world of rocketry and began constructing sugar and black powder rockets. This led to experimentation and construction of other types of pyro



devices. Ben currently owns and operates FireSmith Pyrotechnic Tooling. Through this enterprise he has designed and currently manufactures over 150 different tools and machines used to construct a wide variety of pyro devices.

5) Set Piece Workshop Stove Wilson and Todd H

Steve Wilson and Todd Hall

Set pieces, also known as brightwork, have been made for hundreds of years to augment various kind of displays. Often shown as large words or flags, many approaches to this art can be used, often dictated by materials available and/or how the piece will be displayed. In this workshop, Steve and Todd will discuss some of those popular methods from artistic layout to commercial production. The class will then turn into a slavelabor workshop to help build elements of Sunday night tribute to Griz Smith. Attendees looking for an activity to do for the next few days will find this class fun and useful.

Steve Wilson got his start pyrotechnically in grammar school when he and his brother Bob used to mix and burn whatever they could get their hands on. This included toy caps, ammonium nitrate from the local citrus farmers, calcium hypochlorite tablets for the Doughboy pool, and sulfur from the Gilbert chemistry set. Needless to say, Steve and Bob's fireworks were a little bit boring back then, well, except for the time Steve attempted to grind the chlorine tablets together with the ammonium nitrate in a mortar and pestle. To this day, the rafters of the garage are still a bit bleached and Steve's eyebrows don't look like they were put on straight.

Later in life, Steve acquired a copy of Weingart, discovered American Fireworks News and the PGI. Shortly thereafter, some of the WPA roots belched out of his Commodore 128 and Steve's fireworks got a little bit better. He also became a CA licensed fireworks display operator which today easily accounts for about 1/2% of his annual income and 60% of his red tape.

By trade, Steve is a theatrical lighting designer, technician and equipment fabricator. Formally a lighting roadie with some 70's bands like ZZ Top, Chicago and Styx, he now wears many techie hats in his local theater community.

Todd Hall is one of those anonymous guys who mixed pyrotechnics and performance art at age 12 behind the barn (black powder, model canons and Polaroid cameras). These developed through the 1970s with fire dives at the public pool, and matured in his college days with anything that could be



legally ignited or exploded in public. Todd received a grant from the NEA in San Francisco in the 80s as a guest artist at the SF Art Institute and was never invited back. Fireart is such a misunderstood field.

From 1984 to 2004 he created 20 annual fireart performances at the Sierra Nevada ranch frequented by President Hoover (in the 30's) and the Grateful Dead (70's), among others. Fast forward to the late 1990's and his epiphany when learning of the WPA, Mexican castillos & toritos and 16" shells. He is now (virtually) famous for the tethered fireworks that carry his name.

6) Walking Tour of Manufacturing Bill Ryan

Go behind the scenes in Manufacturing. You'll get a chance to see various pyrotechnic devices being built. You'll marvel at the ingenuity of your fellow club members as they show various solutions to safety and production issues. Given by the Manufacturing Chairman, Bill Ryan, you'll hear how you, too, can join the ranks of Manufacturing! Your questions are welcome throughout the walk. Must be at least 18 years old.

Bill Ryan first worked as a helper at a fireworks show in 1982, when he helped hang a very rickety 20'x20' gerb portrait of John Wayne from the Spartan Stadium scoreboard in San Jose, built a nail board, attached e-matches to hundreds of fused shells, and set up a large hand fired electric show using two rolls of two conductor telephone wire. The nail board electric show came off well, despite the fact that they were still checking continuity while the sponsor was announcing the start if the show. Nonetheless, Bill was hooked and worked as a helper until 1995, when he obtained his own license.

Bill then joined the WPA and, while working as a volunteer safety, got hooked on rockets. After all, anybody can lift a shell with FFa, but it takes an artist to successfully lift a shell with a rocket. He spent a couple of years as volunteer safety at B-Rockets with Gary Berg, who drafted him to take his place as staff safety at B-Rocks when he moved on to bigger and better things. Since the purists in the club feel that only the lunatic fringe make rockets, Bill quickly earned the title of "head lunatic."

Eventually Bill was asked to takeover as Manufacturing. He arrived at his first event as manufacturing chair only to find BATFE there with their orange book and directions for us to follow it. That visit forever changed the layout of manufacturing.



Feeling strongly that manufacturing is a vital and critical part of the club, Bill's role is to maintain a safe and enjoyable environment in manufacturing, and to safely increase participation in manufacturing as much as is possible within the space limitations we have.

7) Round Shell Workshop Richard Haase \$5.00 Seminar Fee

A perennial favorite, this class gives you a chance to build the same sort of shell you see in your hometown fireworks display. You'll build a 4 inch shell and it will be launched that night. You'll learn to work safely, and you'll learn some of the secrets to shell building. If you like hands-on, you'll love this seminar! A \$5.00 materials fee will be charged per student.

Richard Haase been involved in the Pyro industry for 31 years and a licensed operator 24 years. He has been involved with putting on fireworks displays in both Europe and Asia. Richard is a member of both WPA and PGI and has been participating in the presentation of this seminar for the past eight years.

8) The Encyclopedia of Pyrotechnics - a labor or love Bob Winokur

Dr. Robert (Bob) Winokur has been a biologist and professor at the University of Nevada, Las Vegas since 1978. He now is Professor Emeritus, but continues to teach part time. As a member of the PGI since 1971, Bob served as their president for two years in the 1980's and has been a frequent contributor to and the editor of the PGI bulletin. Bob is also president of Las Vegas Display Fireworks Inc., a display company doing shows in the Las Vegas area since 1981. He is the author of "The Pyrotechnic Phenomenon of Glitter" (Pyrotechnica No. 2, 1978), a contributing editor to Pyrotechnica, Occasional Papers In Pyrotechnics, an occasional reviewer of articles published in the Journal of Pyrotechnics, and a major contributor to the early PGI Shooter's Safety Course and manual and recently, one of four primary authors and editors of the recently published 1200 page Encyclopedic Dictionary of Pyrotechnics and related subjects. Bob is a frequent seminar speaker at PGI and WPA conventions, and is famous for initiating flashes of light and puffs of white smoke during his seminars.



9) Great Balls of Fire done Jackalope Style presented by the Jackalopes

The Jackalopes will take you through the entire process of the manufacture of sawdust fireballs, from beginning to end, utilizing the detritus of the modern world. You will be amazed at the energy released from today's castoffs, all for the price of free.

Using only sawdust destined for the dump, discarded Quickmatch shell leaders, empty paint buckets and newspaper, you can lightup the night sky. All materials will be provided. Participants will leave with their very own exothermic delight and a basic understanding of assembling the poor man's creamora mine.

After an introductory live demonstration, we will briefly discuss the ins-and-outs of using various powdered flammable solid resources for making fireballs, before participants get to get their hands dirty with assembly. Space is unlimited, however we will only be providing enough sawdust for 15 mines.

Quickmatch leader donations are appreciated; magnesium turnings and star donations will not be refused, nor wasted.

Caution: Live material (black match) will be handled and completed dust fireballs will be produced that will need to be stored for use later in the evening.

About the Jackalopes... If you ever wondered if them wabbits with horns are for real, wonder no more. Hailing all the way from the dusty domains of Dismal Nevada, Jackalope Brand Fireworks is more conceptual then physical. Drawing inspiration from Maltese, Tultepec and early Americana pyro traditions Jackalope Brand wants to remind folks that pyro has a rich and varied vernacular. To these ends the members of Jackalope Brand draw on a wide array of artistic talents including, but not limited to, pyro art, machine art, painting, paper mache, blacksmithing, cardboard art, set construction and audio design. The most important take-away is that The Jackalopes put the fun in pyro!

10) Pattern Shells Garry Hanson

Patterns such as letters, symbols, geometric shapes in 3D, hearts and the ever popular smiley face, require special care to create in the sky. In this seminar Garry will discuss the most common used techniques in pattern shell construction showing



how stars are held in place and bursting strategies. For instance, peony type stars to make good patterns. To make an hourglass shell you should have brocade/Kamuro stars for the top & bottom and peony star for the ring. With a little imagination, many clever shapes can be realized.

Garry will assemble a few different shapes in at least a 5" shell. These shells will be fired later that night so we can see the actual results.

Garry Hanson is president of Precocious Pyrotechnics, a major manufacturer of quality fireworks in this country. At his plant in Belgrade, Minnesota, he makes good use of his background in mechanical engineering by developing much of his own specialized tooling. He is also a principal member of the NFPA Pyrotechnics Committee for over 20 years which has 9 codes if you count Flames & Close Proximate, serves on the Committee of Manufacturing of Pyrotechnic and 2 others for the APA, is a PGI Grandmaster, and charter member of both the WPA & NFA (National Fireworks Association). Garry knows a lot more about fireworks than this bio might lead you to believe – just ask him or better yet buy him dinner!

11) Oxidizer Salt Manufacture, Talk and Round Table Steve Majdali

Having researched the subject of creating chlorates from salt water for nearly a decade, Steve will discuss the theory and practical aspects of home production of chlorate and perchlorate salts, as well as show some of the materials used in the processes involved.

Steve Majdali is a charter member of the WPA, a member of the PGI since 1984, and is an executive member of the Reaction Research Society (the oldest amateur rocketry organization in the USA). He has been published in several pyrotechnic newsletters as well as Pyrotechnica and American Fireworks News. Always willing to share, Steve has given seminars or demonstrations at every PGI convention attended so far (17 to date) and four times or more at Winter Blast. Steve is a fabricator of pyrotechnic tooling, an amateur chemist, and a pyrotechnic consultant and educator. Steve was a licensed pyrotechnic operator for over twenty years in CA. Steve is an electrical mechanic by trade and an inventor/tinkerer by nature. He's been a fireworks enthusiast since his youth and learned machining to further his research in pyrotechnics and rocketry. He is mostly self-taught in chemistry, fluid power systems and writing



12) Pasteless Italian Style Shell Workshop Aaron Mayfield and Randy Montgomery \$5.00 Seminar Fee

Randy Montgomery of AM Pyrotechnics will be presenting a course specializing in the complete assembly of several varieties of American designed cylinder shells in sizes 3" and 4" that can be assembled in minutes with no need to paste, and fired the same day. Mr. Montgomery will take the class through a detailed walk of making this type of special shell from start to finish, and then fire the shells that very night in open shooting. Randy will discuss how to construct a simple burst for the shell, placement of stars within, strapping, and concluding with close up examples of how this type of shell can be made. Aaron will be standing at the back of the tent watching Randy sweat and discussing which bottle of wine to open later that night with Steve and Kief.

Randy Montgomery is the production line manager for AM Pyrotechnics, in Buffalo Missouri. Mr. Montgomery apprenticed and continues to work as a master apprentice under Grand Master shell builder, Bill Page. Over the years, Randy has assembled multiple types of cylinder shells, component/insert cylinder shells, Japanese style ball shells, mines, comets, Maltese style doughnut shells, and many other types of pyrotechnic devices. Randy works 52 weeks per year assembling these types of effects, and is one of the primary shell assembly personnel at AM Pyrotechnics, turning out hundreds of shells and thousands of comets per week.

Aaron Mayfield is the owner of AM Pyrotechnic Displays and the owner of AM Pyrotechnics Manufacturing. Aaron is a member of the APA, WPA, and display provider for many NFA, WPA, and PGI conventions shows. He has worked with several companies in Europe on show set-ups in Sicily, Italy and several locations within Spain. Aaron has designed multiple unique shell varieties throughout several factories, and maintains unique shell innovations within his own manufacturing division, teaming up together with Bill Page to make some very unique effects here in the US. He has also attended many displays in Europe, Japan, Italy, and China and has toured many European and Chinese factories. As such, Aaron is intimately familiar with display techniques in many countries and the various differences between our displays here in the US and the European displays, primarily speaking of the choreography differences, quality differences in product within shows, and different types of set-up. Aaron prides himself at mixing all of the above mentioned techniques in an artistic manner in a pyro-musical display, joining techniques he has learned in Japan, Italy, Spain, and the US with his



innovative product manufactured together with Bill Page right here in the United States.

13) Common Sense Hazard Management for Displays K. L. and B. J. Kosanke

Over the years we have investigated literally hundreds of pyrotechnic accidents in which the total number of deaths is nearly 200 (with six of these being personal friends) and many more serious injuries. It has been frustrating to note the number of times very similar and needless accidents have happened (and continue to happen). From time to time we have presented seminars detailing how some of these accidents have happened and how they might have easily been avoided.

This year's WWB is another time when we will present such a seminar. The presentation will be based on video and photo accounts of some of these accidents. In each case, after learning the details of the accidents and watching them on video, the seminar attendees will be asked to suggest simple ways in which the accidents might have been avoided.

This seminar will not be fun, but it might just be one of the most important you will attend.

Ken Kosanke has a Ph.D. in physical chemistry and postdoctoral training in physics. He has conducted research in several areas of physics and chemistry. He is a special expert on the National Fire Protection Association's Technical Committee on Pyrotechnics (and also on their Technical Committees on Explosives and Special Effects). For the past 25 years he has conducted research and consulted in fireworks, pyrotechnics and explosives.

Bonnie Kosanke has a MS with extensive experience conducting and directing research, and as a computer scientist. She is the originator and past publisher of the *Journal of Pyrotechnics*, a technical journal on pyrotechnics.

In the past, the Kosankes have commercially manufactured fireworks and have performed fireworks displays. Today they operate a pyrotechnic research facility, specializing in making physical measurements on fireworks and pyrotechnic items. They have lectured extensively in several countries on pyrotechnic chemistry and firework display safety and have written approximately 350 articles and papers on fireworks, pyrotechnics and explosives.



14) Introduction to Whistle Rockets Kevin Mather

Whistle Rockets JUMP out of the rack and SCREAM into the sky, which is why we love them! In this session we will look at the basics of manufacturing whistle rockets. Topics to be covered include how to prepare whistle fuel, types of whistle fuel, catalysts and the how to safely press a whistle rocket. Whistle rockets use high energy fuels so safety in preparing fuel and pressing rockets will be emphasized.

15) Pyrotography

Tom Calderwood

A lot of pyros shoot fireworks and a lot more also shoot fireworks - with their digital camera. Tom will show off some of his work as well as tips for getting that ***perfect*** fireworks picture. Daytime class discussion will include camera and related equipment use, computer processing, camera settings and setup locations. Afterwards we will informally meet on the track to practice with our cameras what was learned in the tent. Tom has a no-secret policy. His techniques are also posted on his web site - www.thecalderwoods.org/pyro.htm.

Tom Calderwood is the former Publications V.P. for the WPA. A lot of his photography can be seen throughout the publications articles. Tom got hooked on pyro when he was given a (stolen) pack of Black Cats at age 8. He soon discovered Estes and Centuri rockets, and these took priority over 'crackers, sparklers and smoke bombs. If not doing 'club stuff', you can find him in the manufacturing area still pursuing this love of BP rockets. Married for over 30 years, he has 5 children that can call him 'dad', but it's not their fault.

16) Black Powder Rockets for Beginners Steve Majdali, Kurt Medlin \$3.00 Seminar Fee

This workshop on Traditional Black Powder Rockets is a perennial favorite at both Do-It and Winter Blast. Steve and Kurt will demonstrate how to make a "one-pound" black powder rocket. Starting with a few simple tools, a tube, some clay, a few ounces of black powder composition and a stick, they will explain all the elements that go into making a successful rocket as they demonstrate the technique. Attendees will then have a chance to make their own rocket which they can fire that night. A \$3.00 materials fee will be charged per student.



Kurt Medlin first began trying to make fireworks around age 10 (with the patient tolerance of his mother and the encouragement of his father!). An avid collector of fireworks books and publications, Kurt acquired copies of the classic texts Weingart, Davis, and Lancaster by his late teens, and a few years later (around age 22 – 1981) Kurt joined the Pyrotechnics Guild International (PGI), and the world of organized pyro.

He attended his first PGI convention in 1983 and gave his first seminar at the 1986 PGI convention. Kurt worked his first public fireworks display in 1984. His articles and book reviews have been published in the PGI Bulletin and Pyrotechnica. His review of Dr. Alexander Hardt's book Pyrotechnics, can be found on the web site of the International Pyrotechnic Seminar.

Kurt is a charter and life member of the WPA, a former WPA officer, and a former Chairman of several Winter Blasts (WB II, III, and XII). He is also a former officer of the PGI (Publications VP) as well as trustee of The Fireworks Foundation, a nonprofit organization dedicated to the preservation of the fireworks hobby. Kurt has given seminars at previous Winter Blasts and Do-It's on black powder rockets, tourbillions, large bore candles, fountain and wheel construction, and Italian style shells. Kurt is also interested in fireworks history and collecting antiquarian fireworks literature.

17) Golden Gate Bridge 75th Anniversary Celebration Jim Souza

On May 26th, 2012, Pyro Spectaculars by Souza, manned with 75 of the SF Bay Areas best pyros, put on a massive display in and around one of the world's most iconic structures – the Golden Gate Bridge. It was a monstrous undertaking over a year in the planning. Aside from the scale of the show, a huge co-ordination of logistics had to be considered and executed maintaining the bridge's constant need to serve the public safely. Many custom props and rigging devices were built and installed in unique ways, making the set up seamless yet still spectacular.

Jim Souza, designer of the show will tell us how the fireworks for this celebration were conceived and brought to fruition. Jim will also play the 15 minute documentary "The Making of GGB75" as part of this presentation. Finally we will show the first class video of the the actual display.

Jim Souza is one of those rare individuals who understands both the "show" and "business" sides of show business. He learned showmanship from his father, using the magic of



fireworks to create the "oohs" and "aahs" that make people happy. Like his great grandfather, "Papagaio," Jim Souza continues to expand his family's legacy, now spanning five generations as America's Fireworks Family™. Through the years Jim has risen through the ranks to become the President and CEO of one of the world's largest fireworks display companies, Pyro Spectaculars by Souza. Under his leadership and creative vision, the company has become recognized as America's premiere pyrotechnic production company. Today, the company stages over 400 shows on the 4th of July including the nations largest display, the Macy's Extravaganza in New York City, as well as hallmark spectaculars in Boston, San Francisco, Los Angeles and Hawaii.

As a respected businessman, Jim not only serves at the helm of Pyro Spectaculars by Souza, but has also served two terms as President of the American Pyrotechnic Association, and was recently the recipient of the APA's Life Time Achievement award. Jim is also on the NFPA pyrotechnic committee and the California fireworks advisory board.

His passion for unique show designs and creativity in multiple media has led Jim to design award-winning fireworks shows in Montreal, Japan and Germany. He has been featured in People magazine, on numerous television shows including the Discovery Channel, the History Channel, the Today Show and in countless newspaper and electronic media articles. Jim has traveled the globe searching and developing new colors and innovative special effects. He cites Golden Kamuros, Happy Faces and Twinkling Stars as his favorite shells.

18) Close Proximity Pyrotechnics Eric Zeps and the Super Crew

This is a hands on working pyrotechnic experience with live theatrical product. Because of live product exposure during this seminar extreme caution, attention to detail, and safety will be observed at all times. All participants must bring and wear, safety glasses, long sleeve shirts, and long pants. The seminar will start on time and no person will be allowed in after the starting time.

We will create a back stage simulation for you to experience. When the road boxes come off the trucks what happens? We will discuss some of the products used in productions.

This training will include what you may expect at arena concerts, live wresting matches, ice shows, Broadway shows and other theatrical events. We will be loading the product



while demonstrating and discussing proper safety, wiring, restraining and handling of effects. And, the participants will shoot the show live!

If time allows, "fireworks like grandpa use to make" - an over view of old stage pyro devices including but not limited to flash pots, flash tray, big metal things, and other very bad stuff. This is the "look at stuff" and "tell old stories" part.

Super Crew (presently consisting of 9 members) is an elite cross section of talent from Northern California. Its members draw from their employment and life experiences. The pool of knowledge consists of construction, businessman, theatrical lighting, stage hand, retired fire chief, retired utility engineer, retired federal electrician, retired aero squadron commander (law enforcement), senior plant operator, deputy sheriff, CHP officer, paramedic, assistant pyrotechnic yard foreman, teacher, magician and a senior utility outreach specialist. Five members of the Super Crew hold the licenses, have training, and endorsements in the following many states including California, Nevada, Hawaii and New York. Those licenses include, outdoor public display, theatrical, special effects along with hazmat endorsements

Super crew has 201 combined years of pyrotechnic experience and creates entertainment environments using laser light, smoke, confetti, snow, propane, sound, video and other special effects not considered pyrotechnic. Major clients include the Sacramento Kings, the Sacramento Bee, the California History Museum, Range Rover, Serrano Country Club.

19) Binding Systems Joel Baechle

Binding systems affect many things in pyrotechnics, including burn rate, flame size, and color, as well as handling and strength. Many likely believe that water-bound compositions only involve dextrin, but there are many other water and solvent based methods that all have their own uses. Binders also affect burn rate and flame size, and many times excess binder is used to modify the effect as well as provide the "glue" to hold the composition together.

Joel Baechle has been involved in pyrotechnics since 1970 when he did his first fireworks display. He started out working at a fireworks stand on the state line and gradually found his way into the proximate pyrotechnics and special effects field, where he continues to innovate today. He tries as best as possible to inspire the creative elements of pyrotechnic



progress, the cornerstone of this effort being his 1989 monograph, PyroColor Harmony: A Designer's Guide. The purpose of this is to encourage a vision of pyrotechnics that is more artistic and less mechanical in order to bolster its reputation in the face of increasing regulatory issues. He remains committed to a multi-dimensional. American vision of fireworks presentation, rather than a "DJ" approach of launching imports to music. He has a B.A. degree in Sociology, and maintains a keen interest in the evolution of the arts in society through this season of rapid change, especially through the progress of multi-media entertainment. In other words, pyrotechnics should keep pace with changes in lighting design and entertainment presentation, and not become an artifact of the analog era. His wife Barbara has supported him in this difficult field for over 30 years, and their three sons are all involved in music and art as well. He resides in Northern California.

20) Mini Girandolas Class for Junior Pyros Jim Biersach and Family

In this class, the junior pyros (12-18 years old) will be supervised in assembling a mini girandola using a small round plastic frame and eight class C rocket motors (all materials provided in the class). Open shooting is immediately after the class and the kids will shoot their mini-girandolas in the class C shooting area. There are enough materials to make 12 girandolas and if there are more than 12 participants, they'll work in teams. Junior pyros need to have a parent or adult guardian attend the class with them to be able to participate.

The Biersach Family are from Sun Prairie Wisconsin. Jim, Margie, and Paul are all active builders and competitors at PGI conventions (Jim is a former PGI Grand Master), and they have been giving this class at regional club shoots and the PGI convention for many years. The Biersachs enjoy sharing their pyro knowledge with others.

21) Mine Construction for Beginners

Mike Garrett and Todd Hall \$5.00 Seminar Fee

Looking for a simple way to ease into manufacturing fireworks? Drop by the Mine Construction for Beginners seminar and we'll show you how simple and easy it is to make a fireworks mine. For these simple mines no high power flash burst or fancy compounds are needed and tooling is keep to a bare minimum. The insert effects are easy to obtain and best of all there are very few wrong ways to make a mine. We'll show you a couple proven right ways to get you started. Mines are fast, easy, and



fun to make. Each participant makes two 3" bag mines with guidance. \$5 materials fee per participant, standard safety gear including eye protection required.

Mike Garrett is a country boy stuck in Silicon Valley by circumstances. He relaxes with gardening, fishing, scuba diving, kicking a soccer ball around, and launching high powered rockets into the sky. In 2009 he rediscovered his love of fireworks and joined the Western Pyrotechnic Association. He's having so much fun with Black Powder that he can hardly control himself.

22) Electrical Firing Systems Lynden King and Chuck Eriksen

Lynden & Chuck will be conducting a short seminar on the set up, use and firing of several different kinds of electrical firing systems: commercial and homemade, high power and low power. They will show the good and the bad points of electrical firing, some that are easy to understand and some that are more complicated, but can give you more versatility. There will be examples of the way electric matches are connected to quick match and the dos and don'ts of using electric matches. They'll go through the connections of cables and plugs all the way through to "zip" wire and some of the quick an' easy ways to strip and connect wires. And finally, You'll be shown the importance of when to check for continuity, getting continuity, and the safety aspects of checking continuity.

Lynden King was first introduced to fireworks displays by John Sullivan of the old California Fireworks Company (Red Devil) when he was 16 years old. John helped Lynden get his license a month after he turned 21 in 1973 and Lynden did his first show a few weeks after that. He has been putting together firework shows for 43 years and is involved in 20 to 30 firework displays a year, all of which are partially or completely electrically fired. Lynden has been a member of the WPA for 15 years.

Chuck Eriksen began his fireworks experience as a crew member of the Redding JC's in 1976. He has a California and Nevada state basic pyrotechnic operators license. Chuck has been a member of the WPA for 10 years and is involved in approximately 25 shows a year. He has also assisted in close proximity displays. Almost all of these shows are performed with electrical systems.



23) Ghost Mines and Gas Flame Balls Chris Spurrell and Bill Zuber

Ghost mines, colored alcohol flames and variously fueled fireballs have been a permanent fixture at WPA events since the year 2000. The seminar will present both the history and evolution of these liquid fueled effects ending with a field demonstration of how the lift charges are made and the firing of at least a couple of these devices.

The class will be hosted by Bill Zuber and Chris Spurrell. In addition to their sharing of experiences, PGI fireball expert Jim Biersach will be providing additional information.

Chris Spurrell was raised in Southern California by his mother and alleged father. After several attempts he graduated from high school. Attending the University of California at Irvine, Chris majored in animal husbandry - until they caught him at it. From there he had to take it on the lamb. Chris worked for the commercial aerospace industry sucking farts out of airline seats until the industry slowdown in 1980. At that point he joined Chevron where his natural pyrophilia was particularly well suited. Not understanding the question. Chris volunteered for his company's random drug testing program only to be severely disappointed. He now pines for the old days and occasionally invents chemical problems. To quote Irving Snerd, Chris is the "paid conductor of spurious experiments for Big Oil." Chris is in charge of the chemicals used around a rather large oil refinery. In this capacity Chris routinely uses oxidizers to reduce hazards and pollution. Chris's experience and training in fireworks started when Gilbert Chemistry Sets (and the "Perfect" chemicals at the hobby shop) still offered magnesium ribbon, sodium nitrate and potassium permanganate. Chris now specifies which chemicals are to be used and how they are to be applied around the refinery. As such Chris has a bit of familiarity with some of the aspects of chemical safety. In applications around the refinery Chris has used industrial quantities of KMnO₄, KClO₃, KClO₂, KNO₃, NaNO₃, KNO₂, NH₄NO₃, NaClO, Ca(ClO)₂ and H₂O₂, A WPA member since 1997 one can usually find Chris in the manufacturing area or on the "B" rocket line.

Bill Zuber did his first display for a house warming party, July 4th, 1976. Since then he has done displays for Western Display fireworks, Zambelli Fireworks, Entertainment Fireworks and now Homeland Fireworks. He is famous for ghost mines and fuel fireballs at WWB as well as the Wall of Fire at Hillsboro's Oregon International Airshow (1000 feet) and the Madras Airshows (500 feet).



24) Modern Uses for Lycopodium Joel Baechle

Lycopodium powder, from lichen spores, has been a wellknown flammable material for special effects for years. Weingart mentions the Lycopodium Pipe, where the dust was blown into an ignition flame to make a ball of fire. The flames in <u>The Wizard of Oz</u> were done this way. Once known as "Vegetable Sulfur", lycopodium shows up in a few pyrotechnic star formulas for reasons that are not immediately obvious. This seminar will explain why.

25) Pyrotechnic Myths –Things you may believe that are wrong Bob Winokur

Perhaps because skeptical thinking continues to be uncommon and many people seem to feel no compunction to check the veracity of assertions in the media or elsewhere, there has come to be a wide variety of assertions that can be found in print that are simply entirely wrong, or at best, half-truths. These include all manner of statements about fireworks. especially about pyrotechnic chemistry, history and safety. Generalizations are commonly made for which there are many important exceptions and believing that these generalizations are largely true can lead to disastrous consequences. Considerations of a number of these inaccurate beliefs will here be catalogued and described. Several physical demonstrations will be used to underscore the fallacies of these beliefs. In some instances it is possible to actually trace the origins of these mistaken beliefs. Remarkably, their origins often stem from people attempting to be responsible and having human welfare at heart. All that is missing is the knowledgeable and rigorous search for truth. Frequently the basis for the erroneous pyrotechnic beliefs is a lack of a clear understanding of basic chemistry or a misunderstanding about the nature of probability. Sometimes the mistaken beliefs reveal the telltale signs of wishful thinking or extraordinary ignorance about how science reveals truth. Logic alone is simply not enough to discover truth. In all of scientific disciplines, including those about pyrotechnics a careful analysis often reveal counter-intuitive aspects. Below are a couple of examples things that people readily believe that are false. Much can be learned by examining such examples. For example: One the very earliest Europeans to visit China, Marco Polo, did not introduce gunpowder to Europe in 13th century as it commonly is reported. The strength of the container is often not the determinant of the strength of an explosion. A mixture of potassium chlorate and sulfur does not result in an extremely sensitive contact explosive. One cannot



effectively make good colored flames by simply including just any barium, strontium, copper and sodium compounds. Toxic chemicals do <u>not</u> represent a major or common threat in either the manufacture or use of most pyrotechnics. Old fireworks that have been stored for 50 years are <u>not</u> especially dangerous. Black powder was <u>not</u> invented by ancient Chinese monks. It is probably more accurate to describe the origin of black powder as more of a discovery than an invention. These examples illustrate that it is wise to maintain a skeptical approach to many assertions about pyrotechnics.

Dr. Robert (Bob) Winokur has been a biologist and professor at the University of Nevada, Las Vegas since 1978. He now is Professor Emeritus, but continues to teach part time. As a member of the PGI since 1971, Bob served as their president for two years in the 1980's and has been a frequent contributor to and the editor of the PGI bulletin. Bob is also president of Las Vegas Display Fireworks Inc., a display company doing shows in the Las Vegas area since 1981. He is the author of "The Pyrotechnic Phenomenon of Glitter" (Pyrotechnica No. 2. 1978), a contributing editor to Pyrotechnica, Occasional Papers In Pyrotechnics, an occasional reviewer of articles published in the Journal of Pyrotechnics, and a major contributor to the early PGI Shooter's Safety Course and manual and recently, one of four primary authors and editors of the recently published 1200 page Encyclopedic Dictionary of Pyrotechnics and related subjects. Bob is a frequent seminar speaker at PGI and WPA conventions, and is famous for initiating flashes of light and puffs of white smoke during his seminars.

BUSINESS MEETING

Sunday Feb 17th, 10:00 AM to 12:00 PM

Relics and Rods Hall, Aquatic Center