

NEW MEXICO STEAM LOCOMOTIVE & RAILROAD HISTORICAL SOCIETY



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AT&SF 2926 FEATURED IN NEIGHBORHOOD MURALS Neighborhood Association Solves A Local Problem With Art Murals

A strong initiative by the Del Norte Neighborhood Association, (DNNA) and a lot of community support turned a trashy, problem alley into an art promenade lined with murals depicting New Mexico history. And one mural depicts 2926 as an icon of New Mexico's rich rail history.



Art Alley: The completed murals are protected by a graffiti resistant finish, presenting an attractive display of New Mexico history and life.

The alley is located in the northwest portion of the Del Norte Neighborhood. It connects residential Overland and Downey Streets to a variety of adjacent commercial properties.

With high concrete block walls on both sides, the unlighted alley had become laden with trash, graffiti, and was often a hangout for drug use. It was an eyesore to the community, and a scary place for neighborhood children.

The DNNA decided to act. Their choice of action was to turn the eyesore into an attraction. The attraction would be an art display depicting scenes representing New Mexico History. The DNNA's request for assistance resulted in a variety of donors and a lot of volunteer labor.

Bernalillo County's Neighborhood Outreach Program provided a small grant. A request for paint brought many gallons of donated paint. Topanga Productions, producers of the hit TV series "Breaking Bad" donated 50 gallons. Other organizations and individuals added another 70 gallons.

Next came an invitation to community residents and organizations to help with the layout and artwork. The response extended well beyond the neighborhood. Neighborhood residents, as well as individuals from other neighborhoods, joined students from Del Norte High School to produce an eager volunteer work force. Local artists, including NMSLRHS member Gayle Van Horn stepped up to provide oversight. Other NMSLRHS members donated paint and materials.

The first step, cleaning up the trash and preparing the concrete block walls for application of the art, was finished by early March. Then, delivery, layout, and application of the art began. Since a number of students were involved, the art work was scheduled for completion by the end of the school year.

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DIRTY HANDS AND MONEY

By Mike Hartshorne

Restoring and operating the ATSF 2926 is central to the mission of our Society. Such an effort requires dedication, organization, planning and politicking. But mostly it requires **“dirty hands” and money**—dirty hands of hardworking members, and money from members and our dedicated supporters. The short version of this story is that our Society has invested more than 90,000 man hours and more than \$1,300,000 in this project over the last 10 years. Lots of our members have time to donate but not much money. Only a few are relatively “well off” by the standards of our day and none I know are rich! Everybody gives what they have and we have made remarkable progress.

The table below shows the yearly increase in Society assets taken from annual audits from the 2004 tax year forward. Yearly volunteer man hours are from the sign-in sheets kept in the World Headquarters.

The trend is ever upward.

Board of Directors member and Assistant Chief Mechanical Officer Bob De Groft estimates \$169,000 will be needed to finish the restoration job. That can vary when outside contractors are used for jobs like stay bolt sleeve welding. With continued success in raising funds it looks like the Society is getting close financially.

That is not all the money the Society needs, however. We’ll need the best part of \$100,000 to fix some track and build a garage for the 2926. Our basic operating costs, including auditing, insurance, porta-potty, telephone, computer and internet cost, and Armed Response Team security are about \$1,000 per month.

When we begin steam operations we’ll need up front money for used motor oil (7,000 gallons to fill ‘er up’), water for the tender (24,500 gallons a crack), lubricants, more insurance premiums for multimillion dollar liability coverage, and more.

Where does it all come from?

It comes from many entities, public and private, profit and non-profit. It comes from individuals throughout the U.S. and abroad. There isn’t enough paper in this newsletter to list all donors. They are listed on our website.

The Society enjoys in-kind support from businesses, large and small. Timken Bearing Co. refurbished the side rod bearings. The Grand Canyon Railway is replacing babbitt to restore the crossheads. The BNSF foundation, Wells Fargo Bank and others have made big contributions. Lots of local businesses have made contributions. Matheson Tri-Gas, the Bond Paint Company, NAPA, Reliance Steel, Conway Freight, and many others have donated materials, tools, goods and services. We thank all our supporters.

Society members and our many visitors have provided additional support. They have bought T-shirts, hats and related memorabilia, and put dollars in the donation boxes. Members make a minimum donation of \$29.26 per year (\$48.00 family). Many of them kick in a lot more than that. Online donations from the campaign offering sponsorship of flue tube replacement have totaled more than \$72,000 since October of 2008. Using the same approach, brake shoes for the 2926 will go “on sale” for sponsorship soon. Local and national artists have contributed paintings and drawings sold to raise money for the Society.

The dollars are absolutely necessary. And our “dirty hands” stretch every dollar with lots of hard work—**for free**. Anything we can do for ourselves spares us from hiring the work from a contractor. We have no payroll. Volunteers do every job possible for zero pay. Our overhead costs have been only about 5-6 percent each year with most of that paying for insurance and audit.

If you would like more information about the Society’s dollars and cents the audits are available in the Education Center files at the reefer just inside the walk-in gate. Next time you are washing your dirty hands after a work session or digging in your wallet to buy a stylish 2926 baseball cap or donate thank yourself on behalf of the Society. When you see someone doing the same thank him or her. We need all the dirty hands and money we can get!



DIRTY HANDS AND DOLLARS—A Winning Combination.

Tax Year	Assets	Man Hours
2002	-	1,915
2003	-	3,784
2004	286,454 #	4,507
2005	58,518	5,732
2006	60,563	4,426
2007	86,164	7,096
2008	104,258	8,667
2009	276,142	11,169
2010	100,404	9,768
2011	138,557	11,972
2012	187,290	14,157
2013		7,948 ##
TOTAL	1,298,972	91,141
# Beginning total as of 2004 ## January – June 2013		

YOU WANT TO DRILL HOLES IN WHAT?

Drilling Holes In Perfectly Good Air Tanks Causes Some Members To Think The CMO Is Uncoupled From Reality

By Frank Gerstle and Ken Eckelmeyer

Recently Chief Mechanical Officer Rick Kirby said we needed to drill a large array of holes partway thru the walls of the compressed air tanks on 2926. Rick asked us to calculate the hole depth specified by Code of Federal Regulations 270. Some members became concerned that our knowledgeable CMO might be spending too much time in the sun.

Bob Kittel, CMO of San Bernardino RHS, had recommended this practice for our engine. Rick, Bob, and Grand Canyon RY CMO Sam Lanter debated its value via email.

Rick said the FRA stipulated the holes be drilled to certify the tanks as safe. Alternatively, we would have to remove the tanks every year and certify them either by hydrostatic or ultrasonic wall thickness testing. Each would require a lot of time and labor, and neither option is attractive.

CFR 270 sounded at first like the tongue-in-cheek maxim that you can make something stronger by drilling holes in it. The proof is that toilet paper never tears at its perforations.

In fact, the rationale for certifying tanks by drilling small holes is based on sound metallurgical and mechanical engineering principles. We weren't able to find who invented the technique or derived the governing equation, but it was definitely a clever engineer. We now understand the physical basis behind the Regulation.

Safe operation of these tanks is no laughing matter. The 2926 carries two cylindrical steel compressed air tanks, one five feet and the other eleven feet long, both 23" in diameter, (Picture at right). Each is at least 60 years old. When filled with 150 psi air, energy in the five-foot tank is roughly equal to four WWII hand grenades; that in the eleven-foot tank, about nine grenades. It is an understatement to say that a tank rupture would be serious.

The tanks were well designed to prevent this: the walls are made from mild steel, very tough and ductile, with minimum thickness of 0.25". Hoop stress in the wall at maximum working pressure is 6,700 psi, only 1/8th the ultimate tensile strength of the steel. A safety factor of eight is twice the value usually specified by the ASME Pressure Vessel and Boiler Code. The tanks should therefore be extremely safe. Provided, of course, that the wall thickness is not somehow compromised.

This is where CFR 270 comes in. The most likely cause of rupture in these tanks is corrosion of the interior wall, which will thin and thus weaken the walls. Mild steel is a good structural material, but it will rust in contact with water. The continual introduction of compressed air into the tanks will ensure a certain amount of condensation, collecting along the bottom of the tank. We reasoned that a grid of holes drilled partway thru the walls, especially along the bottom of the tank, would provide a means for the tank to leak before a catastrophic burst could occur.

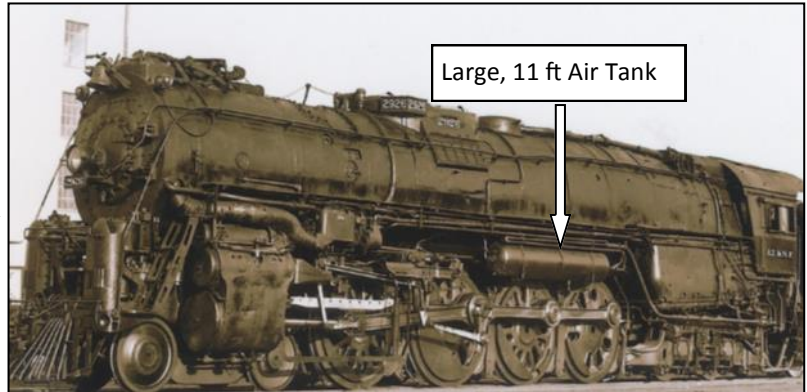
To explain this we need some numbers. Hole depth D is given by this equation:

$D = 0.6 \times P \times R / (S - 0.6 \times P)$ where P = maximum allowable working pressure, R = tank internal radius, and S = ultimate tensile strength of the steel. This results in a value of $D = 0.1$ " for our tanks. The CFR specifies that 3/16" diameter holes be drilled in a 1' by 1' grid over the entire surface of the tank. Rick had already figured out that one row should be drilled along the bottom of each tank.

Widely spaced, 3/16" diameter holes will not significantly increase stress in the uncorroded tank wall. The steel is sufficiently ductile to mitigate stress concentrations caused by the holes. The holes become important if the tank inner wall should corrode to a depth approaching 0.15". The remaining 0.1" steel wall is still strong enough to prevent rupture, but the steel at the bottom of the holes would be more highly stressed, and corrode more rapidly. Instead of bursting, the tank would fail by developing a leak at one of the drilled holes.

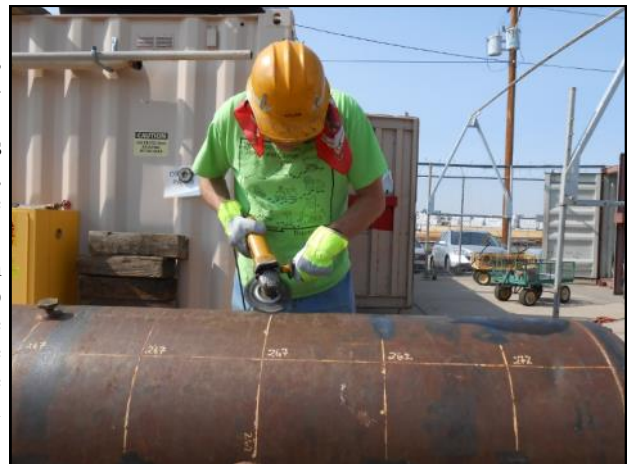
Leak before burst is a desirable design feature in any pressurized system. CFR 270 provides that for the 2926 air pressure tanks.

It also was comforting to learn that our hard-working and respected CMO is not suffering from sunstroke, or senility.



Large, 11 ft Air Tank

AT&SF 2926 Showing location of large air tank above drive wheels.



PREP AND TESTING

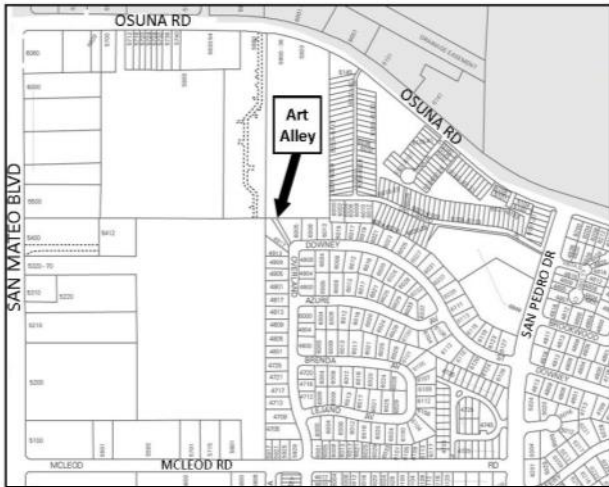
Above: John Taylor prepares the large tank for ultrasound test and hole drilling.

Right: Dave Van de Valde tests strength of the small tank with a hydro test rig.



(Continued from page 1)

The freshly cleaned and prepared block walls were divided into segments. Each group sponsoring an art panel was assigned a segment, 11' 8" wide by 6' high for their work. The art work each group would place on their assigned panel was selected through the group's research of New Mexico history, and approved by three judges to match the space and theme of the project.



Map of a portion of the Del Norte Neighborhood pin-pointing the location of Art Alley.

The result of all the volunteer activity is Del Norte Neighborhood's Art Alley, a line of great murals along the once graffiti laden alley wall. Each mural depicts a segment of New Mexico life and history. Gayle Van Horn's depiction of 2926 at the Alvarado anchors one end of the wall, and a rendering of the Sandia Peak Tramway anchors the other end.

The Art Alley murals are available for public view. Located at the corner of Overland and Downey streets, Art Alley is accessible via Osuna Rd and San Pedro or via San Mateo Blvd and McLeod Rd. Visitors should use caution and drive slowly because it is a residential neighborhood. Please give the neighbors more respect than those who previously trashed and misused the alley.

The members of the 2926 restoration crew understand the problem Del Norte was having with vandalism and graffiti. We have experienced the same. We are very happy to have been involved in the project, and to have the locomotive featured so prominently.

After all, 2926 is not just any locomotive. It is not just an old locomotive belonging to a collection of rail fans. It is an icon of the railroads that helped settle New Mexico and build our towns and cities. It represents the very best of high speed steam power. Albuquerque residents as well as all New Mexicans, can proudly say. "It is OUR locomotive."

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FEDERAL RAILROAD ADMINISTRATION INSPECTORS VISIT

The restoration of 2926 is subject to regulations established by the Federal Railroad Safety Act of 1970. Aware of the regulations, NMSLRHS contacted the FRA office in El Paso Texas when we acquired the locomotive. For the past several years, we have had visits from FRA Steam Inspector Ralph Gutierrez. On a recent visit, Mr. Gutierrez was accompanied by Daniel Owsley, FRA Train Control Inspector.

The inspectors met with NMSLRHS Chief Mechanical Officer Rick Kirby to review work on 2926. Their report was very positive. Rick says that the last line of their report says it all. It states, "...exceptional work being performed by volunteer force."

Keep up the good work guys!

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CROSSHEAD UPDATE

Sam Lanter's gang at the Grand Canyon Railway continues work on the crossheads to machine new Babbitt bearing surfaces. Look for an article in the next newsletter about this effort. Thanks Sam!



On an earlier visit, Bob DeGroft steps down from 2926 as FRA inspector Gutierrez exits the smoke box.

* * * * *

When will WHEELS, ABQ Rail Yards and AT&SF 2926 be ready for business?

The development of the WHEELS Museum along with the rest of the Albuquerque Rail Yards may appear as an elusive dream to some, but that dream is very much alive! In fact, the WHEELS Museum already exists and occasionally hosts special functions while growing continually in its assets and its supporters. Even more importantly, the City of Albuquerque is actively pursuing its vision of "Adaptive Renewal" of the Albuquerque Rail Yards thus increasing the prospects of the WHEELS Museum and AT&SF 2926 ultimately taking up permanent residence there.

Meanwhile, AT&SF 2926 is seeing the light at the end its own tunnel as the NMSL&RHS Board of Directors announces a lofty, yet do-able goal:

Complete the restoration of AT&SF 2926 by June 2015, follow-up with a year of "running trials" and get ready for a summer 2016 excursion!

The completion of AT&SF 2926 does not depend upon the parallel efforts of the WHEELS Museum nor the city's efforts with the ABQ Rail Yard Development . . . it only depends upon YOU!



Typical turntable and roundhouse layout: The turntable at the AT&SF Rail Shops in Albuquerque is functional. The roundhouse will be rebuilt. Check our web site <http://www.nmslrhs.org> to view proposed floor plan, elevation, and further information on our plans for the future home of 2926, and the coaches it will pull for excursions—excursions that will allow New Mexicans and tourists from everywhere to experience a bit of our state's rich railroad history.

WELL DRESSED 2926 RESTORATION CREW MEMBERS

Striped Bib Overalls Were First Produced Specifically For Railroad Employees

About the time 2926 restoration work began, NMSL&RHS President, Dr. Mike Hartshorne, located a store in Western Oklahoma that offered a good deal on hickory stripe bib overalls. The brand they carried even had a rail related name and logo—**Roundhouse**. He bought a few pair, others joined in, and soon Roundhouse striped bib overalls, manufactured for more than century in Shawnee Oklahoma, became the standard for well dressed Society members. A bit of research and a visit to the Roundhouse plant revealed much more about this particular type of workman's (and workwoman's) clothing.

The name 'overalls', (never the singular 'overall') dates from the 1700s. Nothing like bib overalls of today, the first overalls were an over garment used to protect the dress fashion of that time—breeches and stockings. They were also referred as slops, indicating a working or 'lower class'.

By the mid to late 1800s, through customization, overalls had evolved to the bib overalls of today. The changes included use of denim cloth and utilitarian design features. Those features included a variety of pockets designed for specific tools, measuring devices, pens, and in the case of railroaders, the all important pocket watch.

In the 1800s, overalls also became 'color coded' according to the wearer's job. White became the color for plasterers and painters, blue for farmers and other laborers, and striped for railroad workers.

Overalls continued as a working folks favorite through the first half of the 20th century. Many people had 'work overalls' and 'dress overalls', wearing overalls for virtually all occasions in many parts of the country. When many of us were young, bib overalls were daily wear for school. Now, bib overalls are not just work clothes. Starting in the 1960's bib overalls became a fashion statement for many, and are found in many styles and colors.



Raising money for Rail History: A group of Roundhouse clad Society members at a fundraising event.



1902: Shawnee's Santa Fe Depot a year before the founding of Roundhouse Inc. Only one guy in this picture has some sort of overalls. Looks like a good opportunity for Roundhouse.

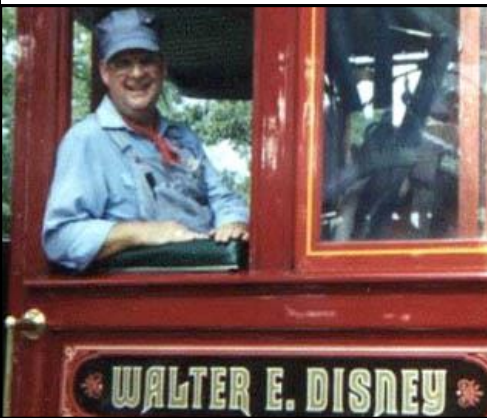
After wearing Roundhouse Bib Overalls for several years, it seemed to be a good idea to check out the source. We learned that Roundhouse was founded in 1903 when 100 trains per day passed through Shawnee (then Indian Territory). Roundhouse work clothes quickly became the favorite for railroad employees at the Santa Fe and Rock Island railroad shops in Shawnee. We also learned that Roundhouse Inc. was the oldest continuously operated manufacturing plant in Oklahoma. I decided to look farther, and in June, on a trip to Oklahoma, I stopped by the Roundhouse plant in Shawnee. Greeted by Roundhouse VP David Antosh, I was surprised to discover that he was preparing a shipment to Korea.

To Korea?

I didn't know of any American clothing manufacturers shipping to another country. All the labels I see in American clothing stores are imported from some other part of the world. But Roundhouse does export from the U.S. They ship to more than twenty countries and throughout the U.S., to a total of more than 2000 retailers. The company has a photo archive of the various styles and colors of their products being worn by a number of celebrities, including Christopher Walken, Jennifer Anniston, Jessica Simpson, Neal Patrick Harris, and even Donald Trump.

It seems our members are in good company. However, some of the current fancy styles and colors offered by Roundhouse competition don't seem to fit our gang. We will stick with the Roundhouse railroad style hickory stripe. Our guys and gals look good in them and we will be decked out in that proper attire at our open house September 28. —*Editor*

Left: Disney Railroad Engineer Bob Schall in his engine at Disney World. All Disney Railroad Engineers wear Roundhouse stripe bib overalls. Center: Neal Patrick Harris, Albuquerque born actor wears faded blue Roundhouse overalls on movie set. Right: Two old Okies. At a fundraiser a few years before his death longtime movie and TV actor Dale Robertson chats with Doyle Caton. Robertson commented on our use of bib overalls as a dress uniform for the fundraiser. He grew up in Harrah Oklahoma, about 15 miles from the Roundhouse plant, and said that he wore the Roundhouse brand as youngster, though they were often hand-me-downs from older family members.



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ANNUAL ADMINISTRATIVE RITUAL

For our Society, the end of year's second quarter usually means there is a hot race for positions on the Board of Directors. This year Gail Kirby and Bob DeGroft battled at the polls to win back their seats for another three year term. The race was a bit cooler because they had no challengers. Seems everyone thinks they are doing a great job.

In other action, Don MacCornack was appointed to the Board of Directors vacancy created by the death of Andy Rutkiewicz. Don will fill out the remaining year of Andy's term that ends next summer.

Thanks Don! Thanks Gail! Thanks Bob! Thanks to all who participated in the elections! We are good to go for another year.

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AND LOOKING TO NEXT YEAR

Along with other 2926 memorabilia in the NMSLRHS store, we are introducing a spectacular 2014 Commemorative 2926 Calendar. The calendars are now on sale at the store for \$15 each.

The 2926 Commemorative Calendar has a art print for each month. The 12 wonderful paintings and drawings are different representations of 2926 by four different artists.

These 2014 calendars will make great Christmas gifts. They would look good in any office or home.

Of course, along with next year's calendar, our store is always stocked with many other 2926 related items that would make great gifts. Included are T-shirts, hats, cups, train art, and books, as well as collectibles like the lantern pictured below.

All proceeds of the sale of memorabilia and collectibles support the restoration of 2926.

**COLLECTIBLE
 RR LANTERNS
 AT THE 2926 STORE**

The railroad lantern pictured at right dates from the early 1900s. It is one of more than fifty collectible lanterns from a variety of different railroads.

A great gift for any rail fan!



ANNUAL OPEN HOUSE

Annual Event At The 2926 Restoration Site Is Set For Saturday September 28

Late September in Albuquerque is a wonderful time of the year. The temperature is moderate. The bright blue skies are filled with colorful balloons. The smell of roasting chili fills the air. It is good to be outside.

And it is time for the 2013 Open House at the 2926 restoration site.

Once again, there will be free hot dogs, soft drinks, and other treats. The food will be accompanied with a variety of music. There will be games and model trains for the younger set, along with an opportunity to blow the locomotive's whistle, and ring it's huge bell.



OPEN HOUSE 2012

Above: Little folks enjoy models, as—the adult crowd, takes a close-up look at the real thing.

Below: More youngsters take front row to watch New Mexico's champion fiddler perform.

Below Right: Brisk business at the 2926 store. All proceeds from sale of caps, T-shirts, cups, art, and other items go to the restoration effort.



For those who are tracking the progress of our hard working restoration crew, there will be a number of things to see. Last year, the locomotive's cab was just a metal shell. Now it has a nice wood lining, painted Cascade green. Numerous restored parts, piping and appliances have been reinstalled since last year's Open House. Those components, especially the sparkling side rods reflect our progress toward bringing 2926 back to life.



Inside the 2926 cab with the twin sunroof panels open.



Shiny drive rods, freshly painted drive wheels and appliances mean progress.

COME ON OUT TO 1833 8TH STREET NW AND JOIN US.

Help us celebrate another year of progress in bringing an icon of New Mexico's rich railroad history back to operating condition.

Gates to the site are open for visitors at 9:00 AM, Saturday September 28.

Some of our neighbors, such Reliance Steel provide parking space. There is additional space alongside the south side fence of our site, and additional parking along 8th St.

And be sure to bring your camera!