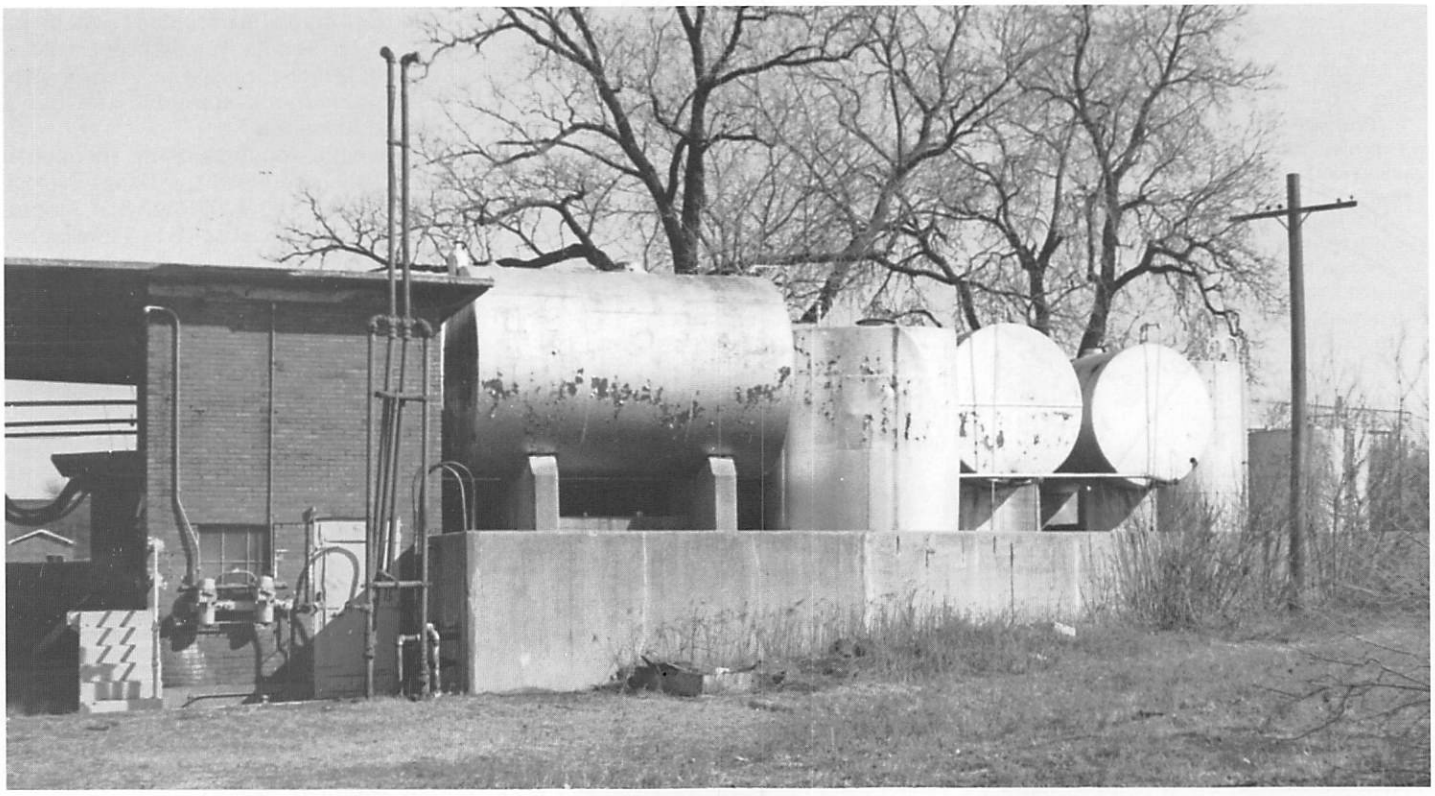
INSIDE BULK OIL PLANTS



Trucks have replaced trains in delivering products to this bulk oil plant in Freeport, Ill., where the rails have been pulled. The unloading rack (or header) is the tall pipe assembly at left. The brick building is a combination pumphouse/truck loading station. On the concrete pad sit a selection of horizontal and vertical storage tanks.

Including instructions on how to effectively model tank car unloading racks used by these once-common railroad customers

BY ED BUSE AND JOHN SWANSON

PHOTOGRAPHY BY JOHN SWANSON

Until about 25 years ago, bulk oil plants were important customers on rail lines throughout the country. When trying to model any trackside industry, it always helps to have an "expert" around who can steer you in the right direction. For bulk oil plants, my source of information is Ed Buse. Ed began working at the Standard Oil bulk plant in Polo, Ill., in 1948. He has a wealth of knowledge about bulk oil plant operations and about how railroads serviced these once-common trackside industries. Talking with Ed provided me with enough information, and inspiration, to effectively model bulk oil plants and, most importantly, incorporate them into my layout's operations.

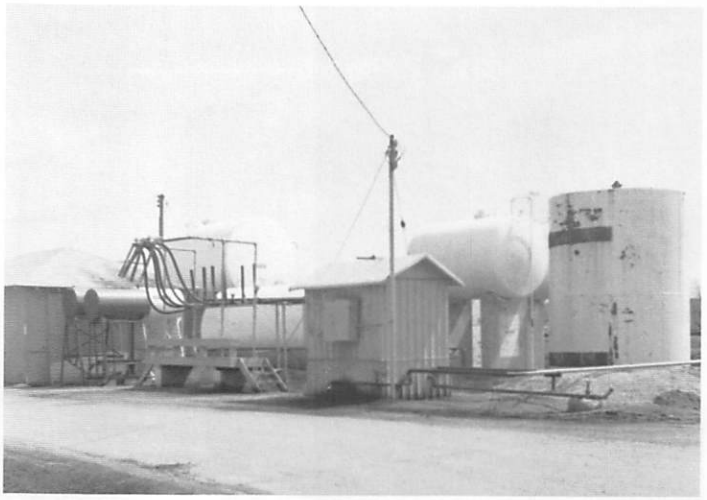
Any discussion of bulk plants should first start with a definition of two terms used to describe fuels, low flash and high flash. Low flash refers to fuels that are ignited at low temperatures, such as gasoline, while high flash fuels require much higher temperatures for ignition. Examples of high flash fuels include fuel oil, kerosene and lube oil.

When Ed started with Standard Oil in 1948, bulk oil dealers were assigned a territory in which to deliver the company products. It was common to have several bulk plants in a single small town, often more than seemingly could be supported, but each dealer also served the needs of surrounding rural areas. Ed's plant handled a very-typical selection of fuels and oils: No. 1 fuel oil, No. 2 fuel oil, diesel fuel (in later years), kerosene (a big item even into the 1950s), regular gasoline, ethel gasoline and power fuel (a mixture of kerosene and gasoline for farm tractors). Other products that the plant handled were Mica grease, two different mineral oils, lube oil, grease and stove and light gas (also called white gasoline).

Bulk oil plants in Midwestern small towns, such as Ed's Standard Oil dealership, had a fairly standardized stable of customers. Typically, bulk plants delivered heating oil to homes in town, gasoline to local service stations, and a variety of products to farms. This was in the days before large gasoline storage tanks and huge semi-tankers, so gas stations often needed daily deliveries. Most farms (and, surprisingly, a large number of rural towns) did not start receiving electricity until the rural electrification projects of the 1930s. Because of this, kerosene for lamps was an important commodity for bulk plants, even into the 1950s.

Products used in small quantities such as lube oil, grease and mineral oil were packaged in drums, barrels and cans and shipped to bulk plants by rail in boxcars; on delivery, these products

The plant at Pecatonica, Ill., (next to the now-abandoned C&NW) featured an unusual header (compare to the "standard" type modeled in this feature) and a collection of vertical storage tanks. The simple wooden building serves as the pumphouse, truck loading rack and warehouse in one package.



Important components of a bulk oil plant scene are shown at this plant in Forreston, Ill.: In the center, the electrically powered pump house; at left, the rack for loading distribution trucks; and to the right and in the background, a variety of storage tanks.

were transferred to the company warehouse and stored before further distribution. Bulk materials, such as fuel oil and gasoline, were shipped to the plant in tank cars. Most petroleum products were shipped in single-dome, single-commodity tank cars. Occasionally, two- and three-dome tank cars were used to haul different grades of the same flash fuel. Multiple-compartment tank cars never held different flash fuels at the same time.

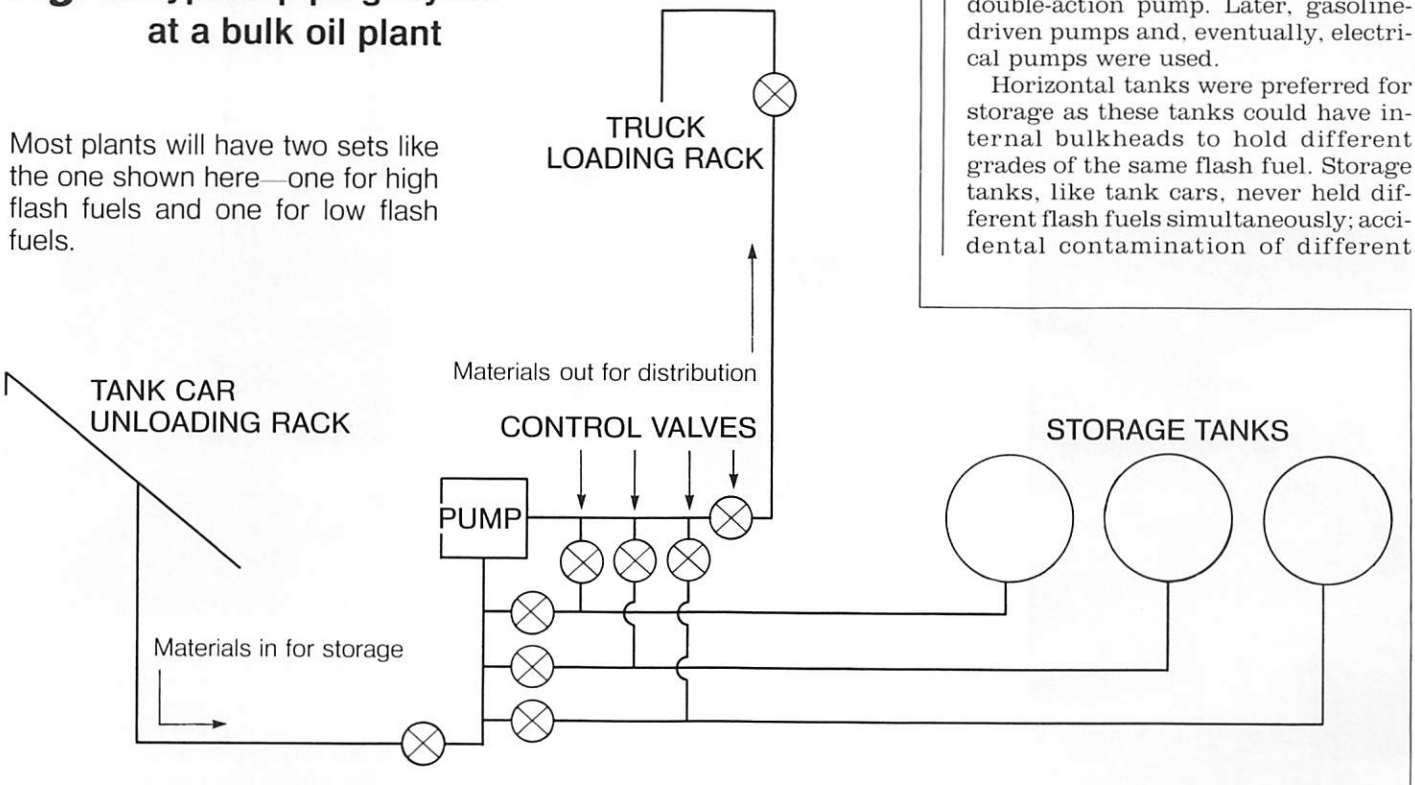
Ed explained to me the operations of the unloading rack or header, something that is difficult to figure out if you've never worked with the equipment. Each header has two unloading lines, one for low flash fuel and one for high flash fuel. To ensure safety in handling the materials, all piping, pumps and tanks for each flash fuel are kept separate—in effect creating two different plants within each bulk plant operation. At the bottom of each pipe rack are two valves for controlling the low flash and high flash halves of the plant.

To unload tank cars, the internal pressure is relieved via a pressure valve, a wooden cover is placed over the dome opening to prevent sparks from entering the car and a 10- to 12-foot unloading pipe is inserted into the top of the car. This unloading pipe is attached to the pipe on the header which has been swiveled down into position over the tank car. Then, the contents of the car are emptied and pumped to a storage tank. Prior to the 1930s, tank cars were unloaded using a manual double-action pump. Later, gasoline-driven pumps and, eventually, electrical pumps were used.

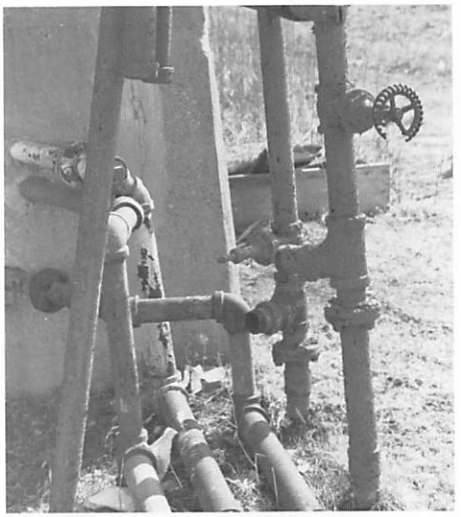
Horizontal tanks were preferred for storage as these tanks could have internal bulkheads to hold different grades of the same flash fuel. Storage tanks, like tank cars, never held different flash fuels simultaneously; accidental contamination of different

Fig. 1/Typical piping layout at a bulk oil plant

Most plants will have two sets like the one shown here—one for high flash fuels and one for low flash fuels.



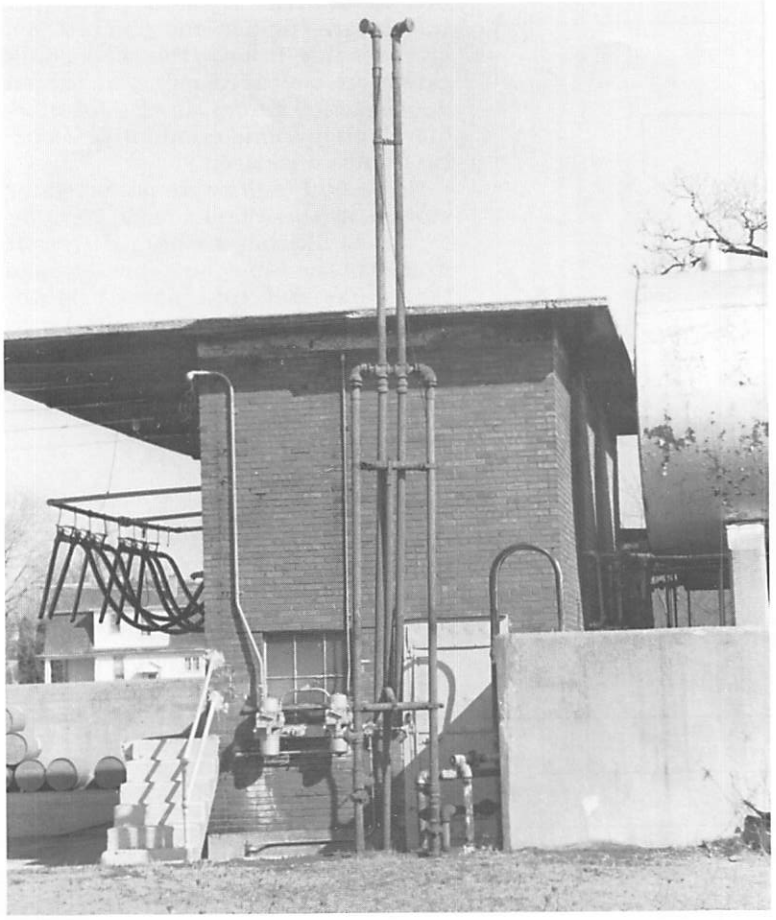
Left: Bulk oil plants all feature their own distinctive collection of oil tanks. This plant in Freeport, Ill., has only vertical tanks, of varying sizes. Note the piping on the ground which is "color-coded" to signify the type of fuel carried. **Below:** A close-up look at the piping at the base of a header.



flash fuels could have disastrous consequences, such as exploding furnaces caused by fuel oil laced with gasoline! Vertical tanks were also used, primarily for storing large volumes of one product, but old photos of bulk plants confirm that horizontal tanks were much more common.

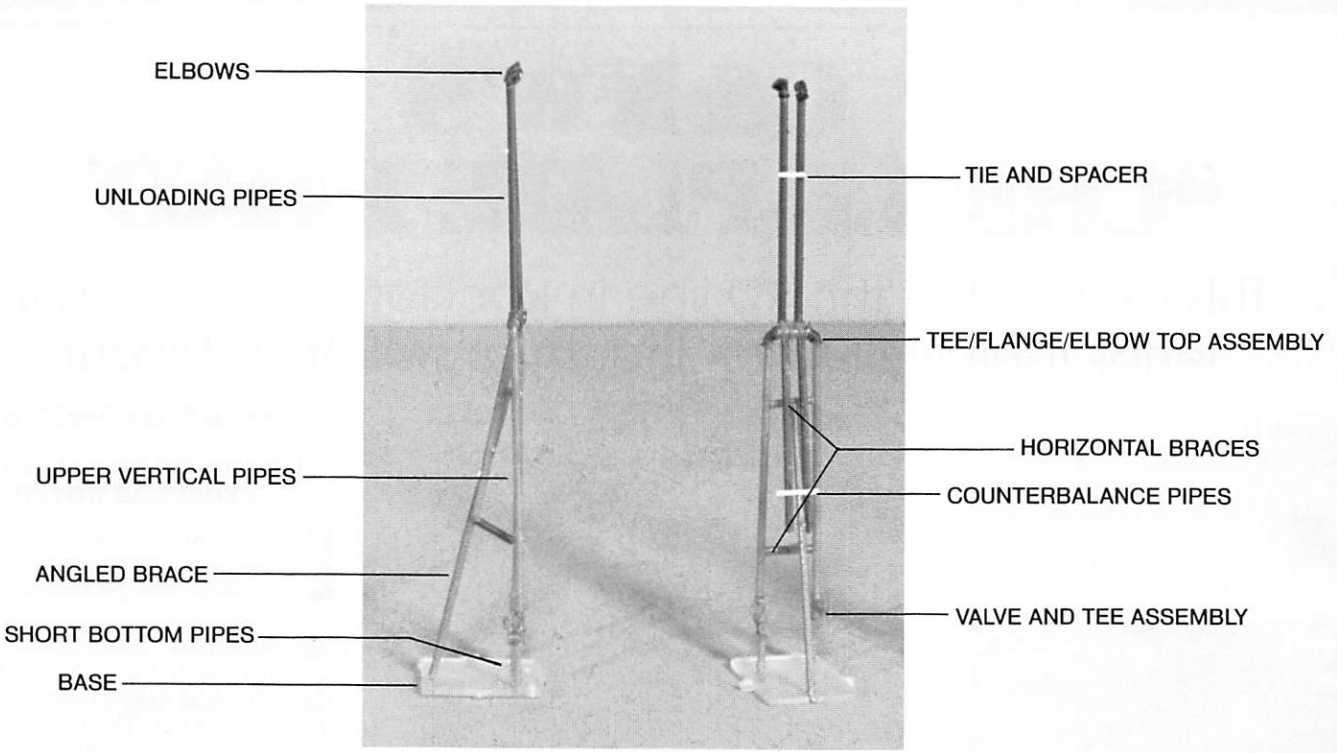
Storage tanks were kept separate and assigned exclusive use of different products. Tanks were filled and emptied through a single pipe at the bottom of each tank. This pipe reached up above the bottom of the inside of the tank. This allowed the product to enter and exit with minimal disturbance above the sediment layer invariably present at the bottom of the tank.

Even though bulk oil plants are still around, few still receive shipments by rail. By the 1950s, natural gas and electricity became important energy sources for consumers, replacing the fuel oil and kerosene used previously, and pushing many small dealers out of business. The existing businesses started opting for trucks to ship in



Two views of a typical header used for unloading tank cars. **Above:** The tall unloading pipes swiveled down to the right, over tank cars, and another pipe attached at the elbow reached through the dome to pump out the petroleum products. **Left:** This view clearly shows the two unloading pipes that are used to keep separate high and low flash fuels.

Fig. 2/Modeling a pipe unloading rack



their products; the development of the Interstate highway system and large semi-tankers ensured that trucks could deliver products more quickly and at a good price. In Illinois, at least, the rail traffic to bulk oil plants dried up in the early 1960s.

Modeling a pipe unloading rack

In modeling a bulk oil plant, there are three main components needed to fill out the scene: storage tanks, an office/warehouse building and unloading racks. There are plenty of acceptable models available for storage tanks and small warehouses, but the headers pose a problem. With Ed Buse's help, I had the information in hand to model visually correct unloading racks if I could just find the right components to work with.

About the same time I started planning this project, I happened upon Williams Brothers' Pipe Lines and Fittings kit (No. 620) at a local hobby shop. The kit consists of injection-molded styrene parts and includes pipe, elbows, tees, flanges and valves—almost everything I'd need to built an accurate unloading rack. The only thing missing is the four-way fitting at the top of the rack, but this omission is not readily apparent on the finished header. Also, this kit satisfied my usual criteria for modeling projects: inexpensive, easy-to-build and easy-to-repair.

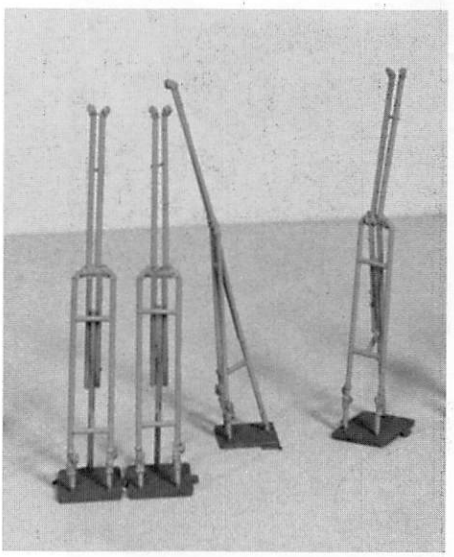
Start assembly by gluing valves and tees together (two per rack); allow plenty of drying time for this and all other gluing procedures or else you'll end up with some strangely angled racks (yes, I found this out the hard way). Next, assemble the tees, flanges and elbows that form the top assembly of the rack. While these other parts are drying, cut pipes to the various needed lengths. You'll need: two long upper vertical pipes, two short bottom pipes, two horizontal braces, two unloading pipes, two counterbalance pipes and one long pipe and one short pipe for the angled brace.

For a base, I used injection-molded, clear styrene "window glass" provided in many kits. Using the top tee/flange/elbow assembly to determine correct spacing, drill holes for the vertical pipes. Then, measure and drill a hole for the angled brace pipe.

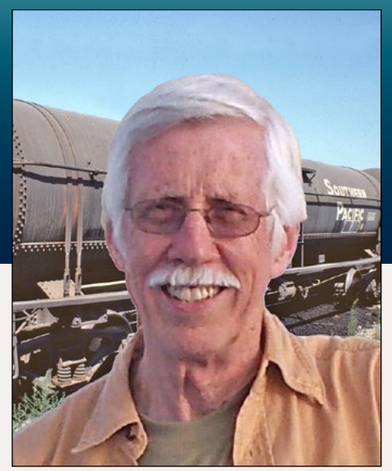
Glue the two upper vertical pipes between the valve/tee assemblies and the top assembly, and then glue in the two horizontal pipe braces. When this assembly dries, glue on the short, bottom pipes below each valve. Allow further drying time; then, glue this assembly to pre-drilled base and also glue on the angled pipe brace.

While the rack/base assembly dries, glue the elbows on the unloading pipes. Then, glue the unloading pipes to the rack using pieces of Evergreen 1 x 2 strip (No. 8102) as ties and spacers. The final assembly step in to glue the counterbalance pipes to the bottom of the top rack. Again, use Evergreen 1 x 2 strip as ties and spacers.

With assembly complete and everything dry, spray the rack Floquil Caboose Red (No. 110020) and brush the base Floquil Roof Brown (No. 110070). The latter step allows the base to blend into surrounding scenicking material.



A few of John Swanson's finished unloading rack models with a coat of paint applied. All the parts were taken from the Williams Brothers' Pipe Lines and Fittings kit.



Modeling a bulk oil dealer

Modeling real railroads and what they do

Reader Feedback (click here)

Getting Real column

by Tony Thompson

How to arrange elements of this commonly found industry ...

Many small towns in the transition era had at least one bulk oil dealer, which usually was affiliated with a major oil company. Around 1940, there were more than 30,000 of them across the United States. Thus the rail sidings for these dealers represent a significant industry throughout North America. My own modeling is set in the coast of central California in 1953. I plan eventually to have at least one oil dealer in each town on my layout, and will choose appropriate regional oil companies where possible. Sure, national brands like Texaco and Shell may well have been present, but why not add to the identification of the region modeled, by choosing companies like Union Oil, Richfield, or Associated? I may even include Standard Oil of California, in the 1950s using the marketing name “Chevron” (today the whole company is renamed Chevron).

I have long photographed and collected photos of surviving bulk oil dealerships, many of which were rail-served at one

time. They readily depict the main features of such businesses. There are usually two to five tall vertical tanks, rarely all identical, and often one or more shorter vertical tanks. Many dealerships also had horizontal tanks, but not all. The piping connecting tanks to the rail unloading point, and to the usual truck loading point, may be above or below ground. Groups of tanks almost always had walkways up top and ladders or stairways to access them. You then have an office building, often combined with a warehouse for lubricants and other packaged materials, and usually a pump house.

Before continuing, I should mention that there is a very helpful Kalmbach book on the general topic of the petroleum industry, *The Model Railroader's Guide to Industries Along the Tracks,* by Jeff Wilson, Kalmbach, 2004. This volume was the first of a multi-volume series on lineside industries, and unfortunately is out of print, but can be found for sale by online dealers in used books.

There also have been a number of articles over the years in model magazines about oil dealers. Two especially good ones, because they contain plans, were in *Railmodel Journal* (now available at trainlife.com). One was in December 1994, the other in April 1996, and both include partial construction articles (full citations in the Bibliography).

The oil company for the model I am building in this column is Associated. My brief history of Associated, an interesting company, is listed in the Bibliography.

Prototype Bulk Oil Dealers

I know from my own photographs of bulk oil dealerships, that since the 1970s few of them are still rail-served, but often one can detect where the rails once were, and sometimes the abandoned siding is still in place. I will just present illustrative examples here, chosen to be reasonably representative of prototype variety.

1: A Texaco bulk oil dealer, in Woodland, California, December 17, 1939. The siding is part of the Sacramento Northern (by this time a property of the Western Pacific).This silver tank car is a relatively rare car with such a paint scheme, assigned to deliver consumer products and thus given a brighter paint scheme. Note also the adjoining dealership, with its Signal Gasoline tank logo – Wilbur C. Whittaker photo.

One of the better prototype photos out there is this one from Woodland, California (1), taken by Wilbur Whittaker. It shows a Texaco dealership, with the next-door Signal Oil company tank just visible. The tank car is that modeler's favorite, the silver tank with black lettering. But nearly all the tank cars in every oil company fleet were plain black, and in most cases only a few cars, assigned to consumer products such as kerosene, would receive the silver paint scheme. Nevertheless, as

this photo illustrates, the one place such cars did go was to local oil dealers.

Another interesting example of a bulk oil plant is a Standard Oil of California facility in Waterford, California, about 12 miles east of Modesto. This plant had two large vertical tanks of different heights, and a pair of large horizontal tanks. It is shown in (2). The tanks of different sizes, combining vertical and horizontal, were common at these facilities, likely reflecting construction at different times.

2: A Standard Oil of California bulk oil dealer in Waterford, California (east of Modesto). Here there are two vertical tanks, with two horizontal tanks between them, all painted silver. Barely visible behind the right-hand tank is a truck loading platform, and in the distance is the warehouse. This 1973 photo was included in the April 1996 *Railmodel Journal* article listed in the Bibliography. – Robert Schleicher photo.

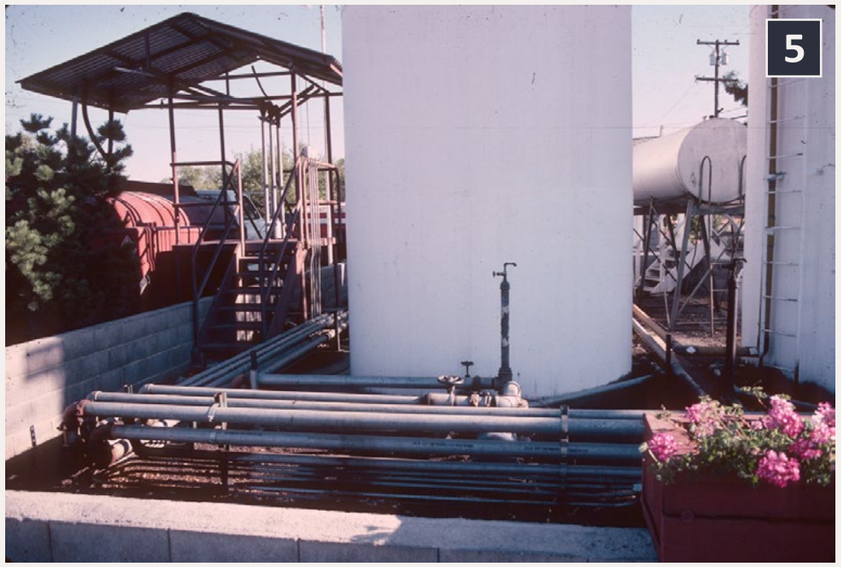
3: This dealership in Ukiah, California had four vertical tanks of the same height (the fourth is behind the visible three), and two shorter tanks, along with horizontal tanks, in 2008. – Author photo.

My third example was found in Ukiah, California, an independent dealership. There were four tall vertical tanks of the same height, two shorter vertical ones, and several horizontal tanks. It is shown in (3).

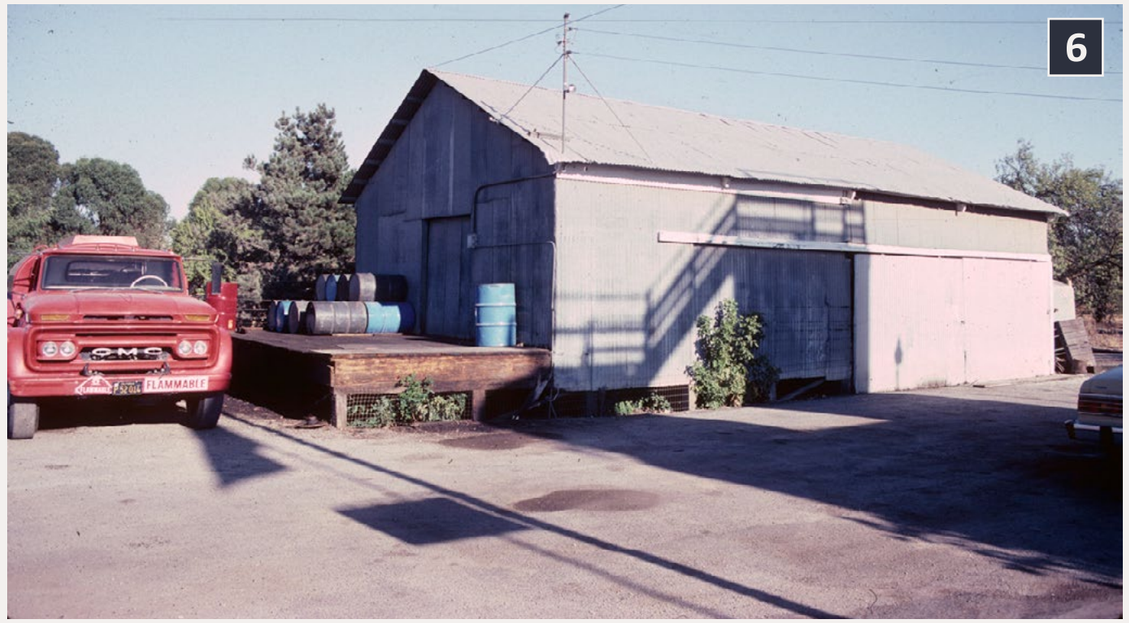
One additional prototype dealer to be shown was photographed in 1981 in Livermore, California, by which time it was no longer rail-served. It had all the elements: vertical and horizontal tanks, truck loading facilities, and a warehouse. It is shown in (4, 5 and 6). It's notable that the tanks shown are white. I have also seen light gray tanks, but silver is the most common color.

What was in those tanks? It depends on era. Before World War II, kerosene was widely used for lighting, cooking and tractor

4: This bulk oil dealership in Livermore, California had a trio of vertical tanks of the same height (one is hidden), and one taller tank. The dealership was named for its owner, Bob Frydendahl, and did not exhibit any oil company logos, though a painted-out Texaco emblem could be seen. Photos taken in August 1981. – Author photo.



5: Looking between two vertical tanks, one of the horizontal tanks can be seen. This plant had exposed piping, as visible here. The truck loading platform is at left. –Author photo



6: The Frydendahl facility in Livermore also had this smallish corrugated steel warehouse, with a loading platform at truck height. Lots of oil drums are stacked on the platform. – Author photo.

fuel in rural areas. Gasoline went from a minor product to a major one in the 1920s, but increasingly the oil companies delivered directly to filling stations. However, oil dealers continued to stock and sell gasoline as a farm fuel. Heating oil was and is quite regional is use, with some areas far more dependent than others. But virtually the same material, “fuel oil,” is used for a wide variety of commercial and industrial needs. Diesel fuel was almost non-existent at bulk dealers before about 1950, but in the years since, has become a major part of bulk oil sales.

A particular dealer might have as few as two or three tanks, or as many as a dozen. Moreover, some tanks might be much smaller than others, for small-volume fuels. And as mentioned, within bulk oil dealer facilities, a variety of tanks are visible, often similar but not identical. These are characteristics desirable to capture in a model.

The all-but-universal walkway across the tops of tanks was for maintenance access. These walks varied considerably and were obviously designed to suit the particular arrangement of tankage. Piping between tanks, and connecting to pumps and inlet and discharge facilities, might be entirely underground, partly underground, or entirely above ground. Looking at a wide variety of photos, I would say they show all combinations, so the modeler can choose how much piping to include. Even at large oil refineries, as I have often seen in northern California, there is visible piping to some tanks and none to others.

7: I Tank car unloading hoses at Standard Oil's plant in Bayway, New Jersey. The platform above is for car loading. –Standard Oil Company photo, Rob Evans collection.

The liquids being unloaded required only a hose and a fitting which could attach to the bottom outlet of a tank car (7). This is, of course, quite easy to model. But pumping would be needed to get the product into a tank, often well above track level, so a small pump house is a typical part of these bulk oil facilities. Usually the pump house is well away from other structures.

An important and visible part of one of these dealerships was a warehouse, where the plant office could be located,

8: This Union Oil warehouse in Livermore California, was photographed in June 1985. The flush lading door toward the right end of the side is a common arrangement. The building has few windows and a large company logo. – Author photo.

along with storage for packaged oils and greases, anywhere from cartons of quart cans to full-size drums. These products could arrive by rail, and if that was the case, there would be a trackside unloading door. Delivery to local consumers would be by truck, so there should be a corresponding door with truck access. An example of such a building is in (6); another is shown in Figure 8, a warehouse belonging to Union Oil.

Finally, it was common to have a loading facility for tank trucks for local delivery. A small platform and shed roof was common (see 5), but some facilities arranged to load directly from tanks. One example is the Keystone Oil facility in New Cumberland, Pennsylvania, as shown in (9). This photo also shows that support framing for horizontal tanks need not be massive.

With these elements in mind – tanks of various sizes and kinds, a warehouse, an unloading spot with pump house, a truck loading platform, and piping between elements if desired – let's turn to modeling. It should be evident even from the small sample of prototype photos included here that arrangements of the elements in bulk oil plants are quite variable, and thus can be realistically modeled in a variety of ways. My focus here is a particular bulk oil plant which I freelanced using prototype information, but I will show also a couple of other models to indicate the range of possibilities in this kind of modeling. And it should be evident that this is not one of those industries you can model by building one structure.

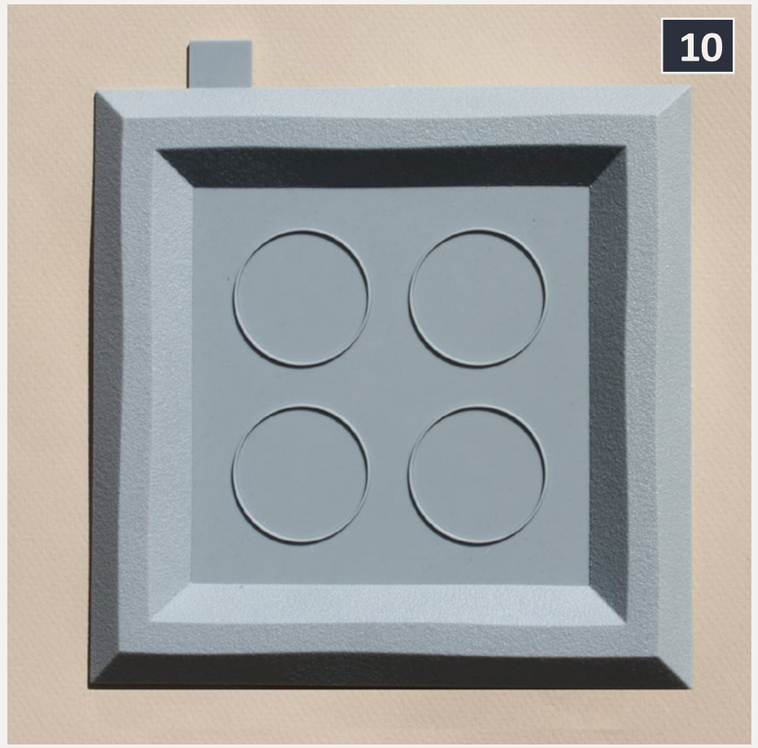
9: This oil dealer, in New Cumberland, Pennsylvania, was photographed in May 1985. The stairway leads to a minimal platform, and loading pipes come directly from tanks. In the background can be seen the top walkway on a four-tank set of vertical tanks. – Author photo.

The Model

For this project, I began with the Walthers McGraw Oil kit. I wanted to change it in several ways, however, so it is mostly a kitbash. First, my space is longer than it is wide, so I needed to modify the arrangement of tanks from the four-square pattern provided in the kit. Second, I wanted to alter the look of the kit in any event, so it is not so obviously a commercial product. I used my knowledge of prototype bulk oil dealers to do the rearranging and selection of details. Here is how I did all this, starting with building the various storage tanks.

The tank base

I set out to convert the tank base in the Walthers kit to a lengthwise configuration. The berm surrounding this base looks good, so I wanted to include it in the new arrangement. 10 and 11 show the original base, and the six cuts I made in that base.

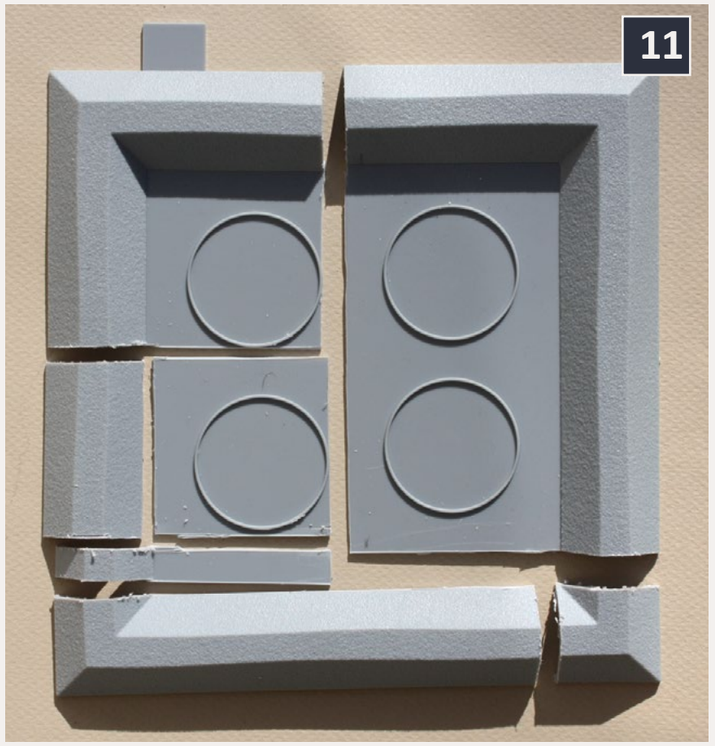


10: This is the tank base as provided in the Walthers McGraw Oil kit. It is about 6.75 inches square. –All model photos by author.

I used a razor saw for each cut through the berm, and simply scribed and snapped the cuts through the flat portions.

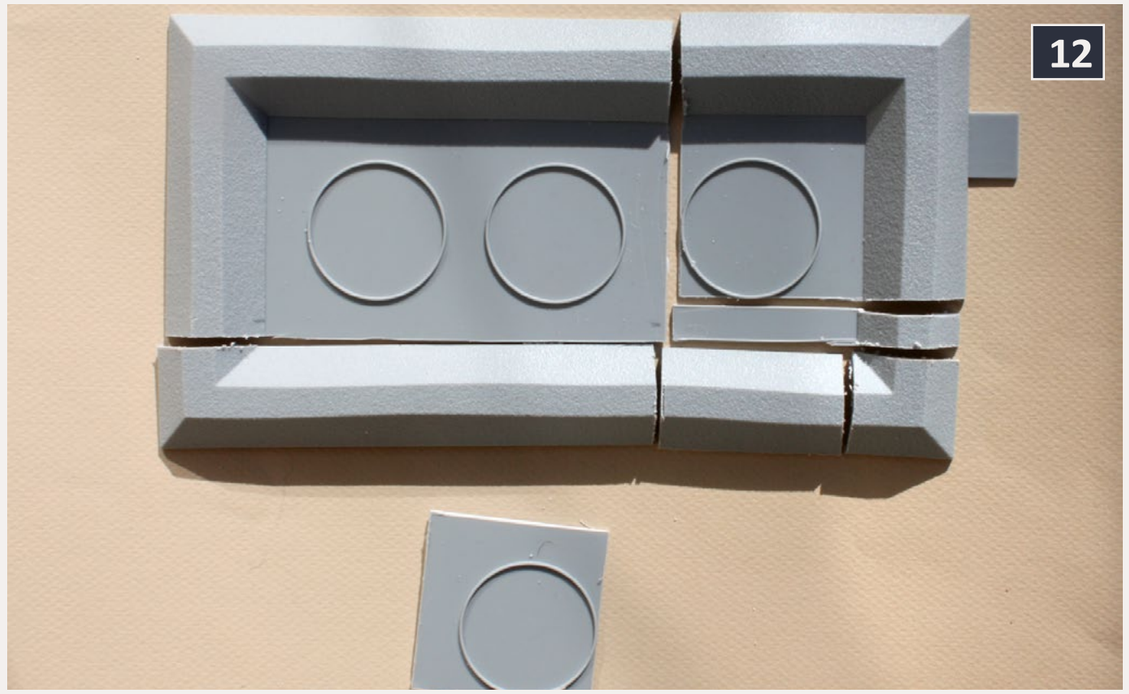
These cuts were chosen to permit reassembly of the cut pieces into a three-tank arrangement, including the use of the entire berm of the original base. Just one piece is left over in this process. The rearranged pieces are shown in (12).

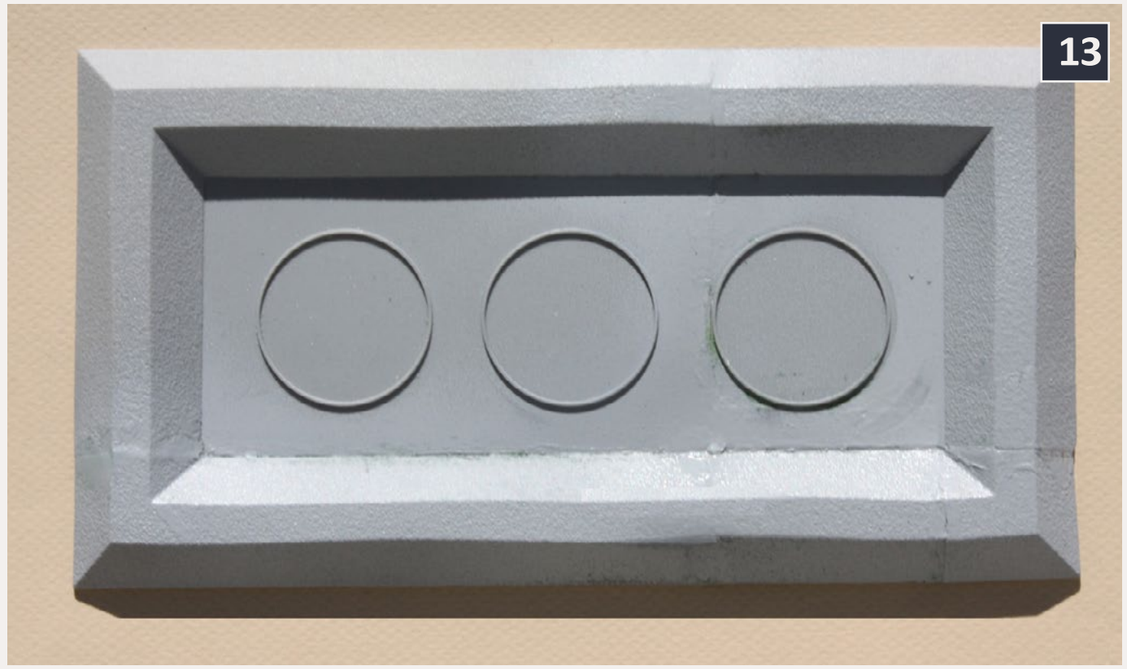
The simplest reassembly is to use styrene solvent cement and butt-joint all the pieces together, without adding a base underneath. That's what I did, adding some reinforcement strips of styrene inside the joints in the berm. But partly in the interests of getting everything square, and partly to facilitate filling of any gaps, I also cemented the assembly to a base of manila file-folder stock. Gaps due to saw kerf were filled with modeling putty. The completed base is shown in (13).



11: Here are the cuts I made in the Walthers tank base. There are six of them, and the long horizontal cut along the bottom berm, and the vertical cut in the center, are easiest to do first.

Berms like these are often made of asphalt or oiled earth. Either way, they are a dark color, for which I chose Southern Pacific Lark





12 - 13: Shown here are the rearranged pieces from Figure 11, along with the left-over tank base piece below the assembled pieces. Figure 13, the assembled tank base, with gaps filled with modeling putty, and gray primer sprayed on.

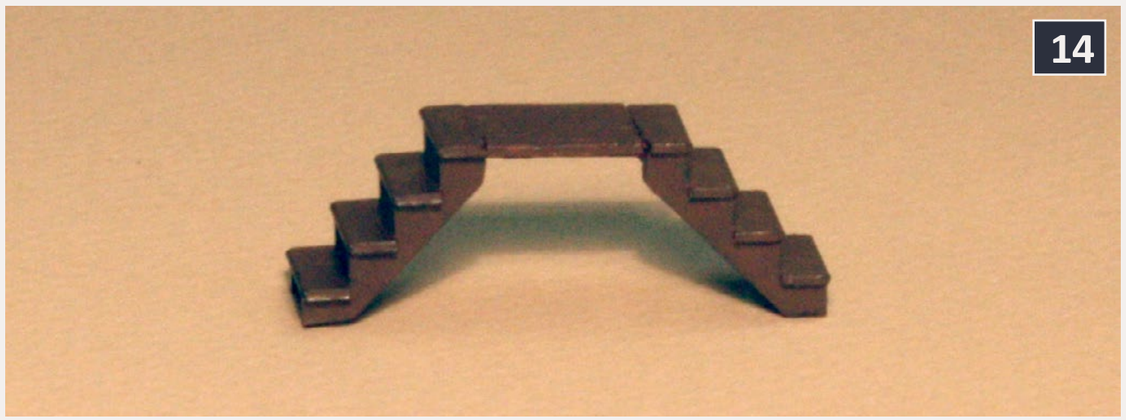
Light Gray. The flat area around the tanks was usually dirt, for which I used Woodland Scenics Dark Soil.

The Walthers kit provides a stile for workmen to cross the slanted sides of the berm. Such stiles are common on the prototype, and I have seen them both with and without handrails. I felt the Walthers one was kind of oversize, so I didn't use the kit stile. Instead, I used some styrene steps from the Central Valley Steps and Ladders set, no. 1602. This set was also used for other parts of this project. Stiles like these are often painted a dark color, or may be unpainted wood. For mine, see (14).

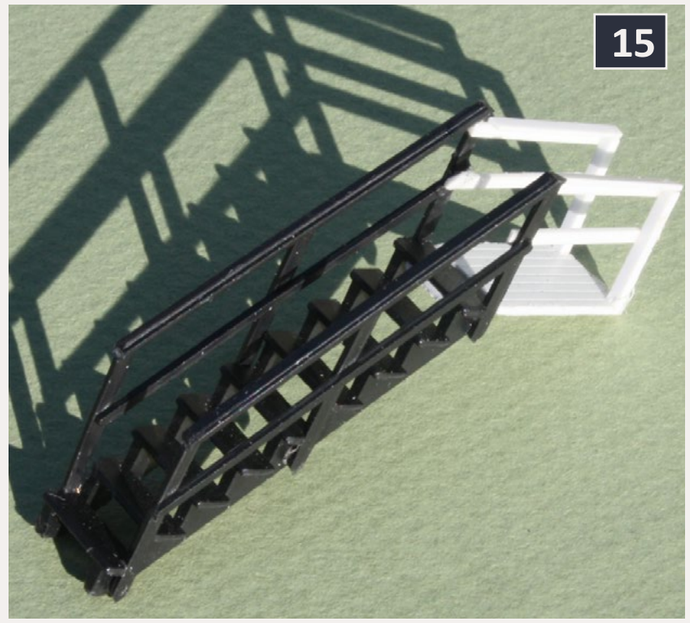
The vertical tanks

For the Walthers vertical tanks themselves, I used only three of the four provided in the McGraw kit. The kit tanks are represented as welded tanks. The kit's weld lines are a bit heavy, a good two scale inches high, from which any welder I know would recoil in horror. I replaced them with the decal-transfer weld lines from Archer Fine Transfers (set no. AR88018). These do indeed look better, but unless your tanks are going to be close to the front of the layout (mine are not), the gain in appearance is probably not worth the effort.

I wanted to duplicate the common prototype appearance of non-identical tanks, so I simply omitted one course on one of the Walthers tanks. I also decided to represent it as an older, riveted tank, and accordingly



14: The stile to facilitate passage over the tank berm was made from two segments of Central Valley stairway from the CV Steps and Ladders set.



15: The Central Valley stairs and railing (black) received a horizontal top walk with Evergreen styrene (white).

sanded off the weld lines and added Archer rivets, set no. AR88025.

The McGraw kit includes top walkways, designed to connect tanks of the same height. This is fine for my pair of identical tanks, but I needed to connect those two with the shorter tank. As is common in the prototype, I chose to arrange a stairway to connect the shorter tank to the adjoining tall one, then a ladder from the ground to the top of the short tank.

The ladder was made from a length of the ladder in the Central Valley Steps and Ladders set, which includes rounded ladder-top returns. I used short lengths of scale 2 x 4" styrene for standoffs between the tank and ladder.

The stairway is also from the same Central Valley set, along with the side railings. I then needed a short horizontal walk at

16: This view from beneath the stairway assembly may clarify the construction of the horizontal walkway, and clearly shows the splice plate attaching the two parts.

17: The Walthers tanks ready for paint. The center tank has Archer weld lines on two segments. The shorter one at right has received Archer rivets and has the Central Valley ladder attached.

the top of the stairs. The thickness of the CV stair treads is about 0.030", so I simply used a piece of Evergreen 0.030" styrene for the walk, and added a pair of scale 4" x 4" end posts. The nearest match to the Central Valley railings appeared to be about 2" x 4" lumber, so I added that also. The assembled stairway and top walk is shown prior to painting in (15), while (16) shows the assembly from underneath. The piece of styrene used to splice the stairs to the horizontal walk can be seen.

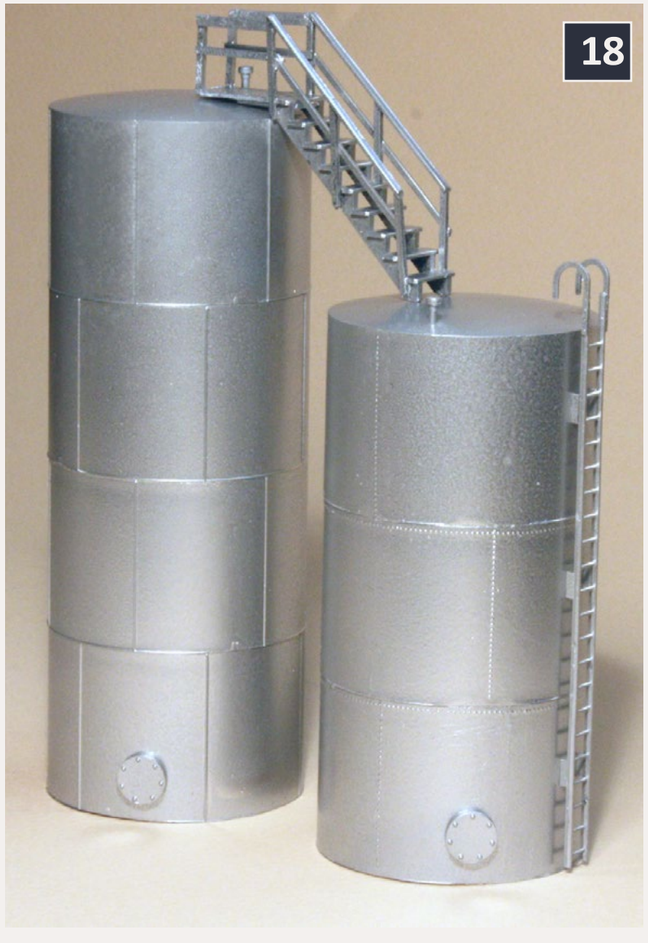
17 shows the tanks ready for paint. The ladder arrangement is clearly visible. With tanks and walkways separate, I airbrushed

all of them a silver color. The painted walkway is shown as it would be arranged when the tankage is completed, in (18).

The final touch was to add to the center tank an Associated Oil Company logo (the “Flying A”) from Microscale set 87-874. Once the tank decoration was done, I gave the tanks an overcoat of flat finish so I could lightly weather them. One could regard these as freshly painted tanks, but I decided it was a little more likely that they had been in service awhile since their last paint job. I used washes of acrylic paint, mixing gray, brown, and black to suit, to lightly dirty and streak them, then added a final coat of flat finish to take care of any glossiness from the acrylics.

One comment: In most bulk oil depots I have seen, patches or streaks of rust are usually absent (Figure 3 shows an exception), so I recommend omitting rust on tanks like these.

With all tank painting and weathering done, and the tank base ready to accept the tanks, they were all attached with styrene cement. Small word of warning: not every tank may have a square bottom. This is worth checking before you cement tanks which are out of plumb in place. Then (19) shows the vertical tanks at this point.



18: In this view, the tanks have been painted silver, and the stairway and top walk assembly is shown approximately where it will be located after the final tank assembly is made. The walkway assembly is not yet glued on. That step will be taken after the tanks are attached to the base, to ensure correct spacing.

The horizontal tank

A horizontal tank or two is such a common feature of prototype bulk oil dealers that I wanted to add one. I decided to make the tank by the old-fashioned method, just to compare with Archer rivets. I started with a segment of toilet paper roll, and made riveted overlays for it. I used 0.005" transparent styrene

for the overlay, and manually impressed rivets with a scriber. The great advantage of the transparency is that you can position graph paper underneath, to guide the formation of exactly spaced and aligned rivets.

For supports, I cut two from 1/8" balsa sheet, with an upper radius to fit the tank. I painted these a concrete color, as shown in (20).

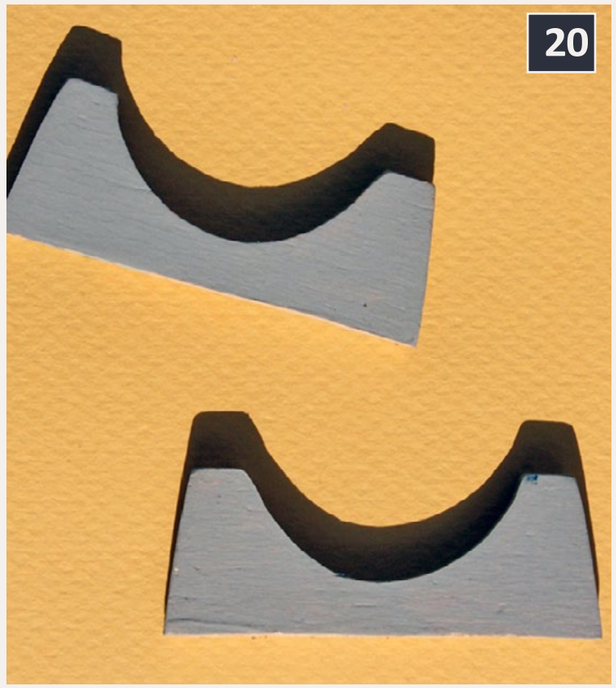
The rivet-impressed overlay sheets were glued to the paper tube with canopy glue. Then I sprayed the finished tank with gray primer, and it is shown on the supports in (21). The finish color was silver, followed by weathering with acrylic washes.

The propane tank

19: Completed, painted and weathered tanks are attached to the base, with walkways and the stile remaining to be attached.

Propane was a relatively new fuel in 1953, but some dealers in rural areas were beginning to supply it. I decided to add such a capability to my bulk plant. I began with a length of Plastruct tubing, 7/8" diameter, which I cut to about a 6-1/2" length. Plastruct makes hemispherical ends for this tube diameter, part no. VHH-28, so I purchased a set of those and added them to the tubing, using Plastruct's own Plastic Weld cement.

Plastruct also offers tank supports for this diameter tubing, part no. VS-28, and I added those also. To get them all aligned, I drew a lengthwise line approximately at the tank bottom, and lined up the supports touching that line. The tank at this point is shown in (22).



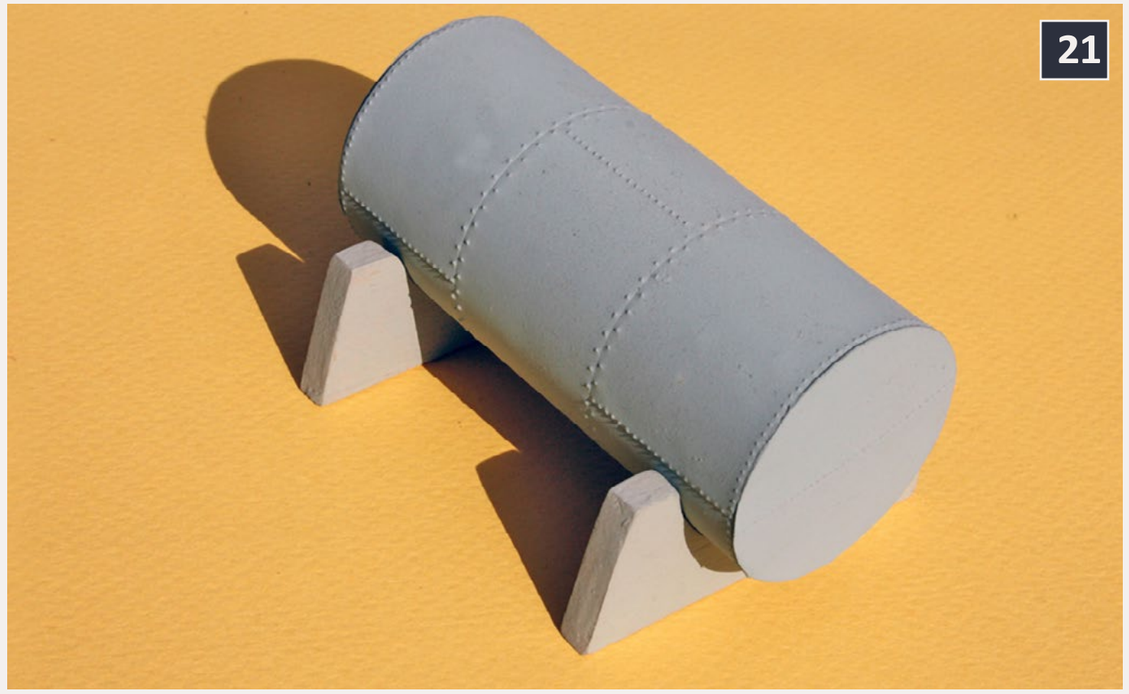
20: Supports for the horizontal tank, cut from balsa sheet, sanded smooth, and painted.

The tank color was planned as the same silver as the other tankage, so I airbrushed this tank that color along with the other tanks. Prototype tank supports like the ones on this model are often concrete, and I decided to make mine look that way too. I used a mix of light gray with a bit of brown to get a tawny look, a color which reflects the color of the sand used to make the concrete.

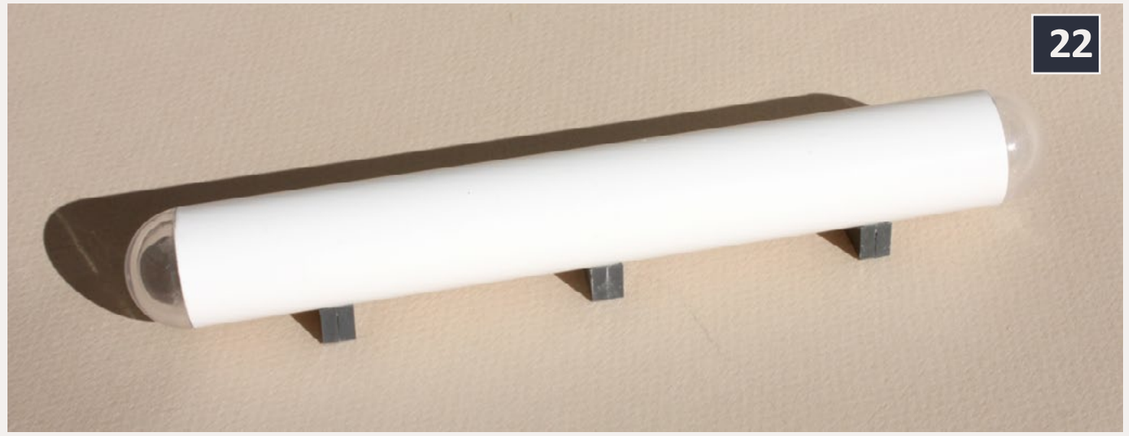
Propane unloading platform

A high-pressure tank car, in which products like propane are shipped, had in the transition era a tank-top structure some modelers might assume was an expansion dome, but which was in fact a valve housing. Inside it are the attachment points

... On to next page of text ➔



21: The completed horizontal tank, sprayed with gray primer, and resting on its “concrete” supports.



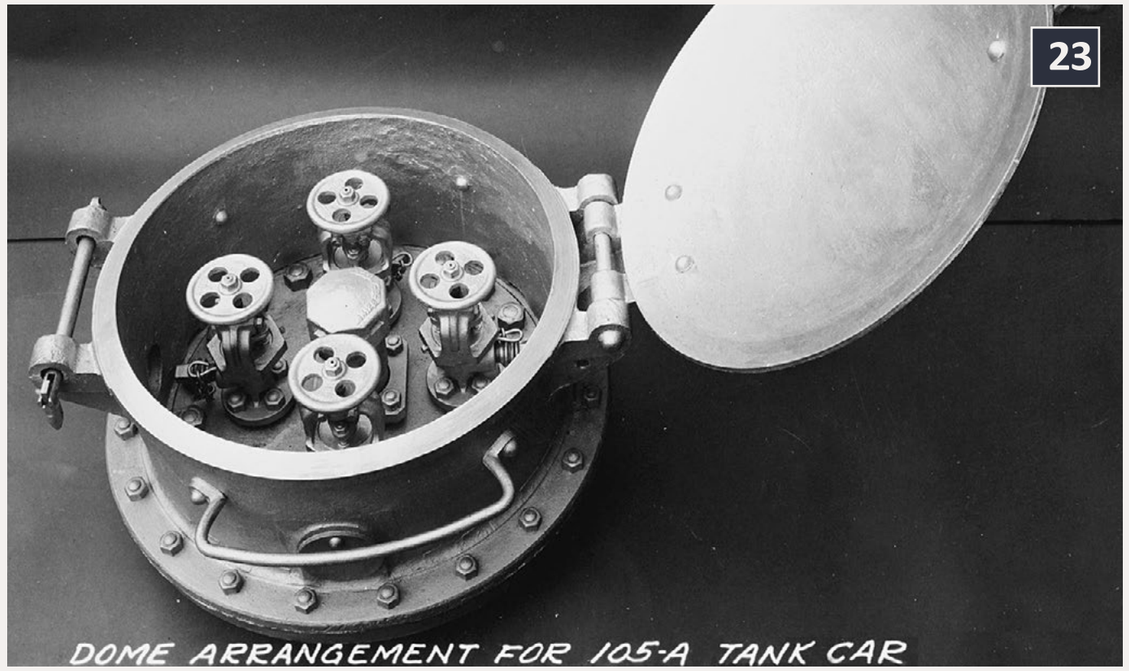
22: The propane tank ready for paint, as assembled with Plastruct tubing and tube ends, plus tank supports from the same source.

← back to previous page of text ...

for loading and unloading the cargo, and appropriate valves. 23 shows the interior of such a housing.

A workman would climb the car's side ladder to the walkway, or step across from a platform. Either way, he had to work safely around the high-pressure fittings for the car's cargo. It was common to provide some sort of elevated platform, roughly 10' off the ground, to make it easier to do this work.

24 shows a workman loading a tank car, but you can see that he has used a plank to reach the tank top from the platform, and he is simply standing atop the tank. This might be not be satisfactory if he had to make pipe connections and manipulate the valves and fittings of a high-pressure car as part of the job.



23: The interior of the valve casing on a high-pressure tank car (ICC 105). – American Car & Foundry photo, courtesy Ed Kaminski.

24: Loading oil at the Phillips refinery in Borger, Texas in November 1942. The boom with rotating pipe joints is fed from the platform. The workman has crossed to the tank from the platform at left with a length of lumber. – John Vachon photo, Library of Congress, no. LC-USW3-011638.

I decided to make a small platform for this purpose. It only needs four legs, a top, and a ladder or stairway for access. I first cut the four legs from scale 4" x 4" styrene and braced them across the ends with scale 1" x 6" styrene, 25. I also added some brass ladder stock. The piping and the railing are taken from the McGraw Oil kit. The resulting structure is quite simple, (26).

The warehouse

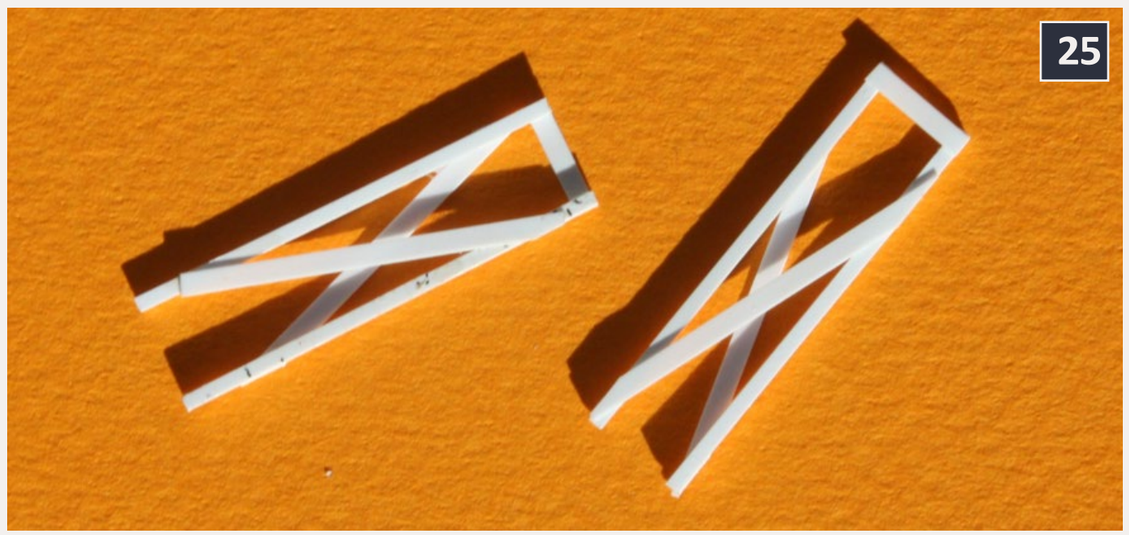
For my available space, I designed a building which is 18' x 31' in size. I decided to model it with Evergreen clapboard siding, their

no. 4061. This was chosen in part to harmonize with my pump house. The walls and ends are simple to cut from the sheet.

The windows I used for this structure were Grandt Line no. 5030, with a Tichy Train Group no. 8032 door. The larger loading doors were scratchbuilt in the same way as the doors in my Southern Pacific depot, described in my column for Model Railroad Hobbyist in **November 2012**, page 36, and are described below.

With the sizes of window and door openings identified, they were laid out and then cut from the Evergreen sheet. To achieve a snug fit, I like to cut these openings close to the exact size and then file the openings so the parts will drop in.

Once these wall openings were correctly sized, I assembled the building. I used scale 6" x 8" styrene strip inside each corner, and added exterior corner trim of scale 1" x 6" styrene, as you see in (27). Next was to airbrush the entire assembly. I chose a single paint color for the structure, along with all trim strips,



25: The first step in building the platform is to make a pair of end supports from styrene.

since on many buildings like this, the trim is not a separate color. My color choice was light gray.

The sliding doors at the loading end of the warehouse were made from Evergreen car siding, material no. 2037, framed with scale 1" x 6" styrene. I built these with the car siding taped inside the building, then removed them so they could be separately painted the trim color, (28).

The traditional Associated trim color was bright red. I mixed about half and half Floquil SP Scarlet and SP Daylight Red,

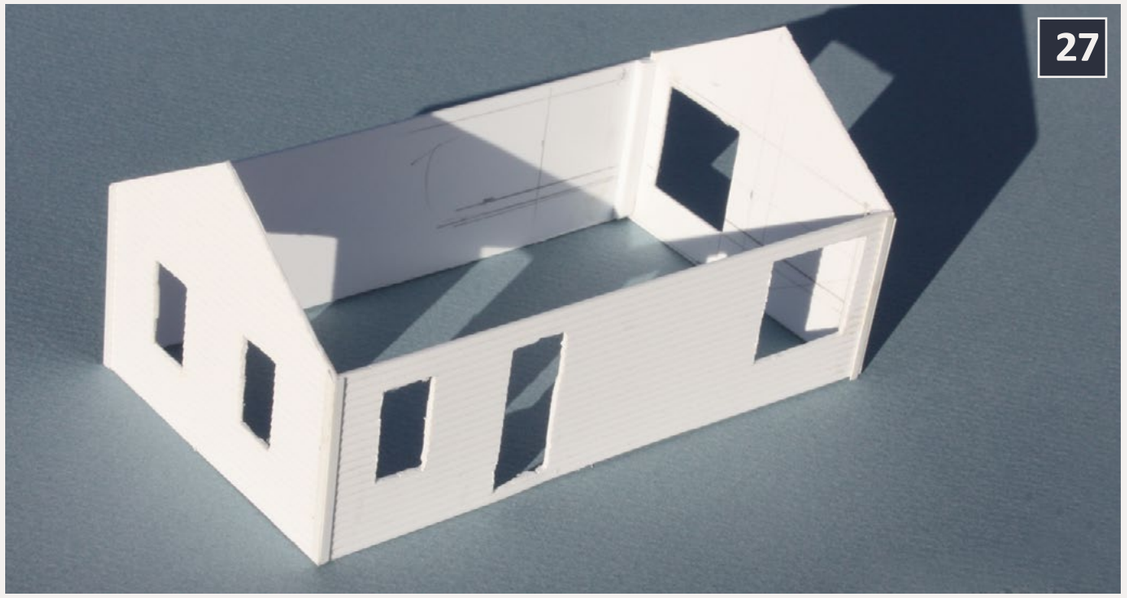
26: Here is the complete platform. I may add a plank like the one shown in Figure 24.

and airbrushed all the door and window moldings, along with some scale 1" x 4" styrene strip to use for trim around the loading doors. While I was at it, I masked and painted the windows and door for the pump house, and the body of the delivery tank truck (both described below).

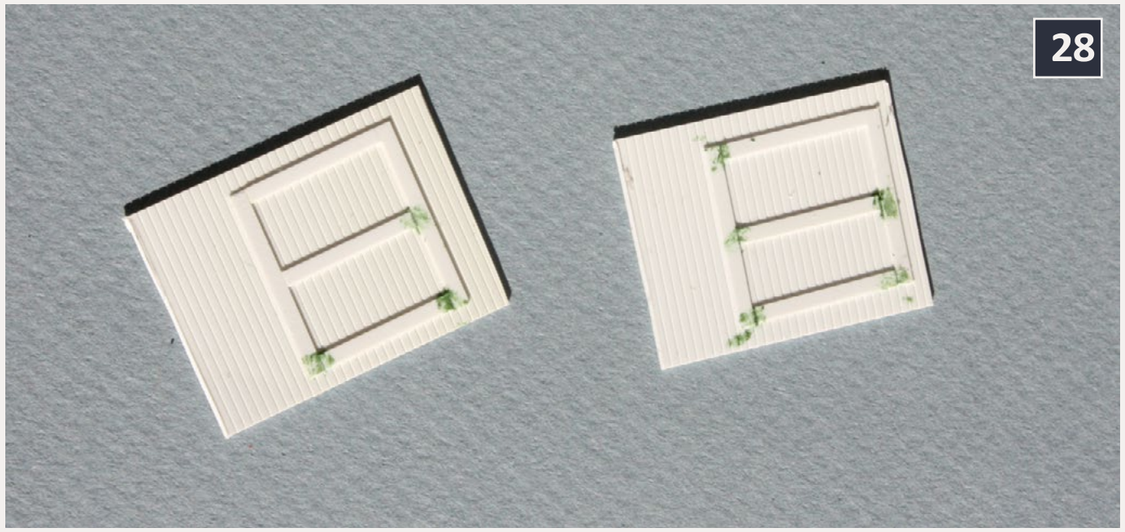
The detail parts of the warehouse could now be glued in place, along with the trim around the loading doors, (29). Visible here is the cross-wall of 0.060" styrene I made to add some stiffness to the structure. Some light weathering of the building was also added at this point.

The roof on these kinds of buildings is often corrugated steel, and I had on hand a fine set of material from the English company Wills, their part SS MP 219. [Wills was a brand name of Ratio Models; Ratio is now part of Peco.] I have used this material before and am quite pleased with the result, though it is intended for OO scale. It is actually meant to represent corrugated asbestos siding (and you could make this roof that way if you prefer), but it also gives a good representation of corrugated iron. I used 1/16" styrene rod (Evergreen no. 222) as a ridge piece, and added a chimney vent with a piece of brass tubing.

Once assembled, the roof was painted dark gray, and a ridge sign added. This was taken from an old graphic that advertised Associated. Though the original was black and white, I converted the black to red, using Adobe Photoshop, and printed the resulting image at my local copy shop on glossy stock, using a high-resolution color printer. The sign is shown in (30).



27: The rough warehouse structure. Window and door openings look a little ragged, but the trim around these openings will conceal those irregularities. Corners have been trimmed with styrene strip. Next step is painting.

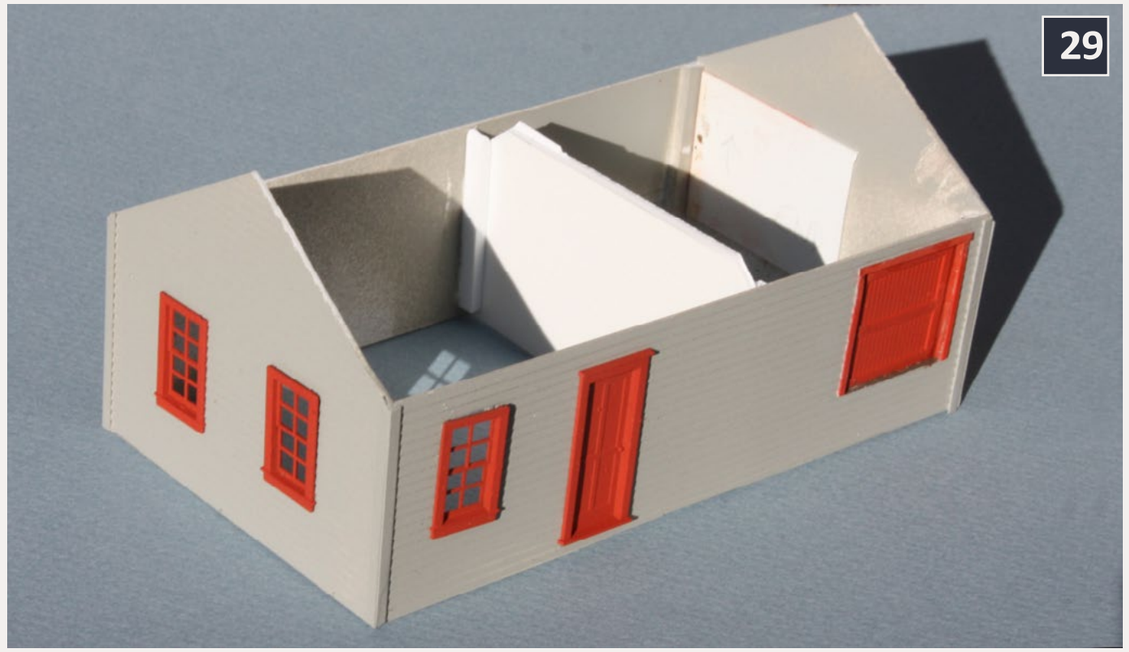


28: The warehouse loading doors were fabricated from styrene strip and scribed sheet, with overlap provided all around, so they can be glued in place from the inside. Modeling putty fills a few gaps.

Since I have included propane in this dealership, I added a sign on the warehouse, “Propane now sold here,” and an additional, smaller company sign on the building end. I also added a buffer timber underneath the truck loading door on the building end, simply a piece of stripwood.

Last, I added a loading platform for the rail siding. Inspired by (6), I decided to make it fairly large, so I could include some barrels or other details on the platform. My dock is a simple styrene box, using scribed siding for the deck, and the same clapboard siding as the main building for the enclosure underneath. Eventually I will add some oil drums and other detail to this dock.

The completed model is presented in (31). The photograph is taken with the building oriented as it will be seen from the lay-out aisle.



29: The completed warehouse, with the roof still to be added. A cross-brace has been added to stiffen the structure.

30: The rooftop sign for the warehouse, adopted with Adobe Photoshop from an old graphic image.

31: The completed office/warehouse, with roof and rooftop sign installed, signs on end of building, and trackside loading dock attached.

The pump house. These are always small buildings, usually containing only the valves and pumps needed to move product around, into, and out of the tanks. I had on hand part of a Like-Like Trains kit for a stock pen, which, as a frame structure, looked suitable to me. (More recent versions of this Life-Like kit don't include the building.) The McGraw Oil kit provides small brick structures for the office and the pump house, but would not be typical in the east or midwest, but is typical in the west.

I simply painted the structure the same light gray as the warehouse, and then painted the door and windows the same shade of red used on the warehouse trim.

Tank car unloading

For the kinds of petroleum products handled at oil dealers like this one, a simple hose to attach to the tank car bottom outlet would suffice for gravity unloading (though the pumping system was used to move the product to its storage tank). All that needs to be modeled is some suitable hoses on the ground. Figure 7 shows the kind of thing I mean. The simplest way to do this is to use the unloading pipe from the McGraw Oil kit parts, which is what I did. For hose, I used a coiled piece of No. 22 wire with black insulation, painting each end Tamiya "Dark Copper" to represent bronze couplings. One can show such a hose connected to piping, or not.

32: The truck loading facility, white styrene attached to the gray platform from the McGraw Oil kit, before adding a roof and painting.

The truck loading facility

Bulk oil dealers usually operated tank trucks for local delivery, and, of course, had to be able to load trucks from the storage tanks. I built a simple, small facility of this kind, starting with the platform for the smaller structure in the McGraw Oil kit, plus the loading pipe from the kit. I added side walls and a roof, as is common in these structures. It's shown unpainted, before attachment of the roof, in (32).

33: An Associated delivery truck, made from a Mini-Metals 1941–46 Chevrolet tank truck, shown at a grade crossing.

A delivery truck

One way to help identify your oil dealer is to have a highway delivery truck alongside your loading platform. I used a Classic Metal Works ("Mini-Metals") 1941–1946 Chevrolet tank truck, and repainted it. These models can be disassembled from underneath, handy for painting, since glazing can be removed and the tires kept separate.

The tank supplied with this model looks too big for the kind of trucks built in 1946 and before, so probably represents a later addition to an older chassis.

Although I don't know exactly how Associated delivery trucks were painted, I chose to paint mine the same red color used for trim on the structures. For emblems and lettering, I used the same Microscale set used for the vertical tank emblem, 87-874, along with pieces from their O-scale set, 48-434.

... On to next page of text ➔

34: An Associated tank car, photographed at Tacoma, Washington on February 19, 1955. The car is a Type 11 design from American Car & Foundry, and it was last reweighed in April 1921, nearly 34 years earlier! Unlike other freight cars, tank cars did not need to be reweighed regularly, as their cargoes were billed by gallonage, not weight, thus the light weight of the car was not important. – Chet McCoid photo, Bob's Photo collection.

← back to previous page of text ...

I also added correct 1953 California commercial truck license plates. I discussed how to do this in one of my blog posts; a link is given in the Bibliography, under "Plates." The completed truck is shown in (33).

Tank Cars

The tank cars which would serve this facility are not really part of this column on building the industry, but for clarification I show an example of what I need. This also illustrates the opportunity to strengthen the regional layout image with an oil company like this one.

As late as the 1950s, Associated, though a part of Tidewater Associated Oil Company since 1926 (see Bibliography for more on the history), continued to operate its own tank cars under the reporting mark AOX. (34) shows a prototype photo taken in 1955 of such a car.

I have a couple of models of these cars, one of which is a Sunset brass “TM8” car. The other is a stand-in, an old Soho tank car lettered with decals from Funaro & Camerlengo (F&C). There is also a resin tank car kit from F&C for an Associated tank car, for those interested in building one. Upgrading this kit was the topic of an article by Ted Culotta from his series on Essential Freight Cars (see Bibliography). My stand-in is shown in (35).

The completed bulk oil depot

Assembling all the component parts shown above, my concluding photos depict the facility as it appears on my layout, (36 and 37). The two different viewpoints of the photos illustrate all the component parts.

35: The Soho brass tank car, lettered with decals from Funaro & Camerlengo, as a stand-in for the prototype car shown in Figure 34.

36: A view from the northeast of the Associated bulk oil dealer, in place in my layout town of Shumala. At far left can be seen the platform for unloading propane tanks, and at far right is the truck loading platform. That’s the Shumala yard office in the foreground.

Other Bulk Oil Dealer Models

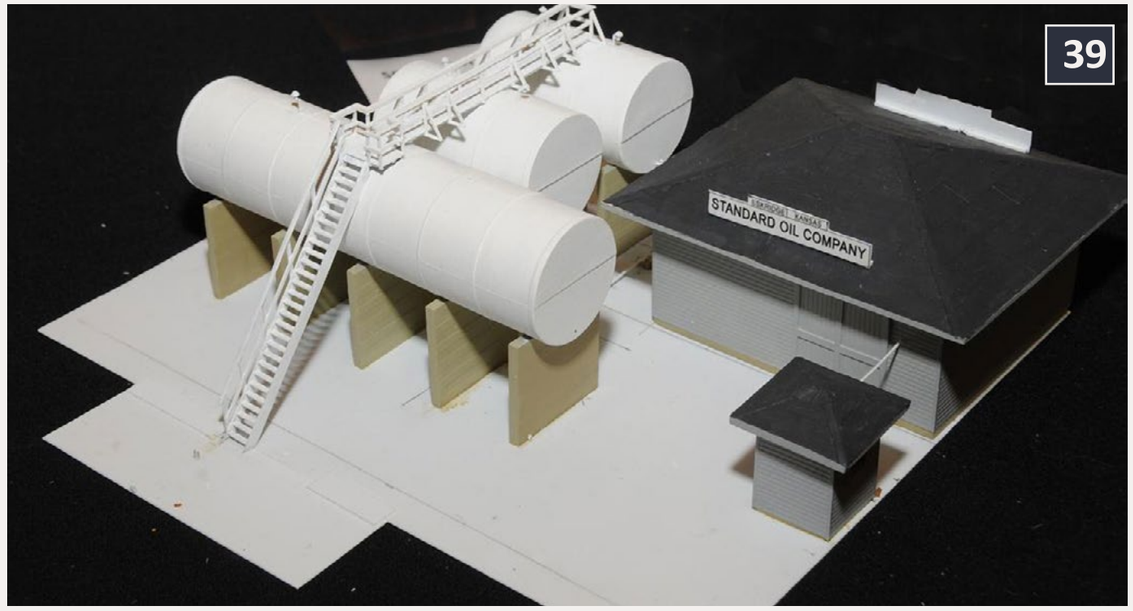
One other model I have built is the old Chooch kit, no. 9015, now out of production, which I put together as a Union Oil Company dealer. It is shown as (38). The tanks are somewhat smaller than the Walthers tanks and are arranged differently. I have included some barrels painted in Union’s blue and orange colors.

Jared Harper is modeling Santa Fe’s Alma branch in Kansas, and has put together two bulk oil dealerships based on prototype photographs. These form an interesting contrast to the kind of arrangement I have modeled, and with Jared’s permission, I show two of his models here, (39 and 40). The models rest on a plain styrene base, but the structures themselves are

... On to next page of text ➔

37: A view from almost the opposite direction. The propane tank and unloading platform are at left. Between that platform and the pump house is the pipe and coiled unloading hose for tank cars. The fuel and water cranes are part of the Shumala engine terminal.

38: This is the Chooch kit for a bulk oil facility, though I have added the warehouse at left of center as a scratchbuilt structure. The kit contained three tanks, two of greater height than the third, and a suitable pump house, all to be built on a base which includes a berm to surround the tanks. Note I have spotted a Union Oil tank car in front of it.



39: This Standard Oil dealership has three tanks, all horizontal, one of them quite large. There is also a building to house the warehouse/office, and a pump house. – Author photo.

40: This dealership has four vertical tanks, three of the same size and one taller, with an interesting arrangement inside a berm. A truck loading platform is at far right, behind the warehouse. – Author photo.

← back to previous page of text ...

complete. The black cloth backgrounds of both model photos help make the models stand out.

These models, though each is different from what I chose to model, show the various ways this kind of oil facility may be arranged. ☑

Bibliography

Ted Culotta, “AC&F Type 11 tank cars,” Essential Freight Cars: 45, Railroad Model Craftsman, July 2009, pages 80–89.

Olaf Melhouse, “Modeling the Oil Industry: Texaco Bulk Oil Depot at Devils Lake, N.D.,” Railmodel Journal, December 1994, pages 12–18. Plates: modelingthesp.blogspot.com/2012/11/vehicle-license-plates-in-ho-scale.html

Robert Schleicher, “Standard Oil Co. Depot at Waterford, California,” Railmodel Journal, April 1996, pp. 14–22.

Anthony Thompson, “Associated Oil Company—background,” blog post, link at:modelingthesp.blogspot.com/2013/12/associated-oil-company-background.html

Gerald T. White, Formative Years in the Far West [history of California oil companies prior to 1919], Appleton-Century-Crofts, New York, 1962.

Jeff Wilson, The Model Railroader’s Guide to Industries Along the Tracks, Kalmbach, 2004.

Reader Feedback (click here)