

Desert Water Holes: Material Know-How Pays Off

A Contractor's Experience Helped Provide an Adequate
Water Supply for Arizona's Bighorn Sheep



BEFORE — This is the clay bottomed Black Bottom water pot hole near Gila Bend, Ariz., that was sealed and waterproofed with Thoroseal and Acryl 60 in a team effort led by Bob Gray, of Gray Plastering, Phoenix, Ariz.



AFTER — This is the same Black Bottom pot hole filled with rain water and ready for use by Arizona's desert bighorn sheep. The pot hole was named after the Luminite used to accelerate setting up time of cement.

The only problem with most natural holes in Arizona is this: They don't hold the water very well.

Many of the rock formations are porous: the soil is often sandy, and simple capillary action allows the water to seep away.

For the members of the Arizona Desert Bighorn Sheep Society, a group given to the preservation and growth control of these magnificent animals, lack of water was a persistent and vexing problem.

Without an adequate water supply, the size of the herds diminished to the consternation of conservationists and of hunters.

Experience Pays Off

It was a serious problem, that is, until three years ago when an iaWCC member, Robert S. Gray, of Gray Plastering Company, Phoenix, Arizona, brought his plastering experience and know-

ledge of water proofing materials to bear.

Bob is a member of the Arizona Desert Bighorn Sheep Society and his solution to the leaking pot hole was so dramatic that he was later asked to—and did—present a paper on the subject before the prestigious Desert Bighorn Council, the organization of professional conservationists.

His answer: use Luminite (TM by U.S. Steel Corp.) to accelerate the setting time of the cement used in building the dam, and then waterproof the natural setting with Thoroseal, using Acryl 60 as a bonding agent.

"Our local society had been building about 6 dams a year," Bob explained, "but they were not holding the water satisfactorily. As a plasterer who deals in cement products every day it was only a matter of interpolation to adjust waterproof materials to fit the

needs of these water problems."

Until Bob, a bighorn hunter and sheepguide with Arizona Outfitters, who enjoys taking other hunters out, began participating in the cooperative effort to improve water holes the Society, under the direction of the Arizona Guide and Fish Department, had been struggling with mere three-foot-high dams, propping them up in an effort to keep them from falling over until the cement set.

Using Bob Gray's expertise, the Society in 1973 completed their biggest dam to date—called Hidden Tank—some 60 miles north-east of Yuma, Ariz. A double dam, it measures 8 feet high and 12 feet across and was finished by a team in one day, using no props.

"We sank rebar into the rock," Bob said, "and laid up two courses. The core we filled with concrete and then, using Acryl 60 as a bond-

Continued on page 54

WATER HOLES

Continued from page 29

er between the mortar and the bedrock, we applied Thoroseal to waterproof the project.”

Luminite is Key

Government officials, with the Bureau of Sports Fisheries and Wildlife, snapped to quick attention when the Arizona plasterer’s solution when the latter led a team into the Senita Pot Hole, also near Yuma, and restored a dam the government had written off as useless for 12 years.

The Senita Pot Hole had been blasted out of the rocks but refused to contain the water. After the Gray treatment, it not only retained the water but a quick check a year ago showed the water level only 18 inches below the high water mark.

Luminite’s contribution to the accelerated setting up time of the

cement earned for itself a place in history when the dam makers named the 1972 Black Bottom Pot Hole after the black color that used to characterize Calcium Aluminated Cement. This pot hole is located in the Saucedo Mountains near Gila Bend, Arizona.

In his fourth year with the Arizona Desert Bighorn Sheep Society, Bob is the Society’s immediate past president. Using his methods, the Society has completed work on some 13 natural water holes.

While the tools and equipment vary with the size of the project and of the crew, Bob’s plan follows a strict formula: First, all objectionable rock formations, overhangs, loose debris and the like are removed and the water hole is cleaned out carefully.

Rebars are set into holes drilled into the bedrock and the holes are grouted with mortar containing Luminite. Acryl 60 is paint brushed over the bedrock and six inches

up the dam base before unaccelerated mortar is applied.

The team proceeds with the laying of the single—or preferably a double—wall to the desired height, and the entire perimeter is then painted with Acryl60 followed by the mortar levelling coat.

Acryl60 is next added to Thoroseal and this is applied after an application of undiluted Acryl60.

Critical Week

“The first seven days after completion are the most critical,” Bob explained. “Therefore the height and hydraulic pressure of the storage area should be considered before filling in with water or praying for rain prior to that time.”

If the job is done carefully the only remaining leaks, which become apparent in the first fill, will heal up through the process of “efflorescence”.

Concluded Bob: “It’s really just a matter of using commercially available materials to seal and waterproof a natural water hole. But after a good rain, it’s then that the tingle goes up your spine and the sense of satisfaction creeps over you and you smile to yourself and say, ‘Yep, she’s holding water.’”

As a matter of fact, the spine tingling feeling of building successful dams inspired Bob Gray to try his hand at poetry, entitled “An Ode to a Pot Hole :”

I’ve watched you below the
rocks on high
And raise your glasses to the
sky
I’ve watched you shovel sand
all day
And bury your pots deep in
the clay
I’ve listened as the embers
glow
And ‘Dear Old Girl’ is all you
know
I’ve watched you as you’ve
toiled away
From all across the U.S.A.
And when you’ve gone I went
to see
Just what you left behind for

rid there behold deep in the
rocks
A watering place for all my
flocks!