



SS-130 is flowed into Indian Bend pond which lost 600,000 gals. of water daily before treatment.

Seepage Stopper

**Indian Bend GC in Arizona Is Testing Site
for Promising New Water Conservation Chemical**

THE 4,000,000-gal. pond system on the new Indian Bend GC, just north of Scottsdale, Ariz., was losing water through seepage at the rate of more than 600,000 gals. in every 24-hour period. Between 15 and 20 per cent of the water, which was pumped from wells into the pond system, disappeared into the earth every day. The pump was working 10 out of every 24 hours just to stay even. Last July 17th the owners added to the pond 4,000 gals. of a viscous, milky liquid from two tank trucks. They stirred it into the water with a small motor boat until the pond resembled a huge saucer of milk. Then they sat back and waited. By the following evening seepage had dropped 60 per cent to a rate of only about 240,000 gals. per 24-hour period.

The milky chemical compound used at Indian Bend is SS-13. Currently this brand new chemical seepage stopper is being applied commercially to leaky course ponds and road contractors' earth water storage tanks. It is being applied on a test basis to sections of irrigation canals and to test farm land planted with a variety of crops. So far tests indicate that SS-13 may well be the most practical and economical means yet devised for conserving water in arid lands.

In the case of Indian Bend (a \$4500 project) water savings will cover the cost of treatment within six months — with additional savings in electricity and wear and tear on the pump. Cost of treatment varies from job to job because of varying problems of labor and location. Laboratory tests made with soil samples from the bottom of the pond indicated a possible seepage reduction of 94 per cent.

Tested in Arid Regions

To date SS-13 has been used only in the sandy soils found in arid regions where there is hard water and soils have a high calcium content. In arid areas, where these conditions are the rule, tests indicate that the new product will have a number of important uses in addition to those for which it is currently marketed. Used on sandy soils of irrigation farm lands, it holds irrigation water and fertilizer in the root zones of plants for long periods of time to reduce the number of irrigations necessary to raise a crop while at the same time increasing its rate of growth and yield. Dumped into the turbulent water churning down irrigation canals it can often reduce seepage loss by more than 60 per cent to make more water available for opening up new irrigated farm lands.

SS-13 was developed by George Brown,



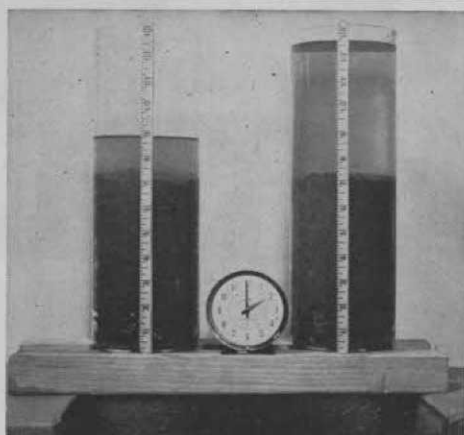
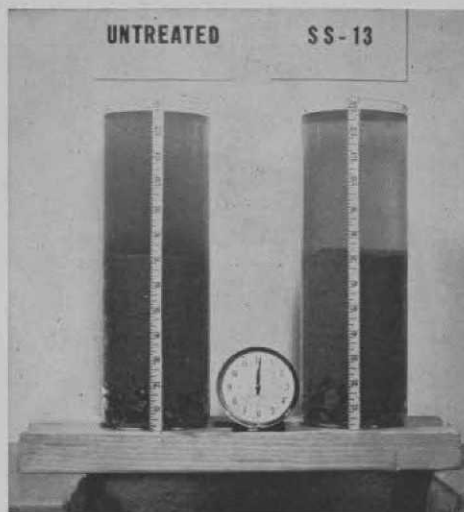
Motorboat is mixmaster for SS-13 as H. R. Bone of SS-13 Sales Co., does pouring.

owner of Brown Mud Co., Torrance, Calif., and his associate in the same company, J. Harlan Glenn. Both men are specialists in soil chemistry. Brown Mud Co. makes drilling mud for use in drilling oil wells. Brown, Glenn and Harold R. Bone of Phoenix, who owns the SS-13 Sales Co., are extremely conservative in their claims. To date, in spite of very successful tests made by Arizona's Salt River Project with the help of an Arizona State University professor, Robert E. Cron, Jr., these men adopt the conservative approach. Everything, they say, looks good so far in canal treatment, but the section near Phoenix being tested has only been treated for a limited time. So far there has been no loss of effectiveness. Brown, Glenn and Bone have other tests behind them showing no loss of effectiveness for more than 18 months but they see no reason as yet for going overboard.

Three Years in Development

Brown and Glenn took three years to develop SS-13. They saw a need for it because special clays, which are often used in an attempt to seal irrigation canals, are very expensive to apply and aren't very effective in calcium soils. Concrete lining costs even more. Treatment with SS-13 is inexpensive — in many instances about 1/35th the cost of using concrete.

SS-13 consists of resinous polymers and heavy atoms mixed in a carrier of common diesel fuel. Its function is to increase the ionic attraction of soil particles for water, thus increasing the thickness of the hygroscopic envelope of water around each particle. This decreases the passages through

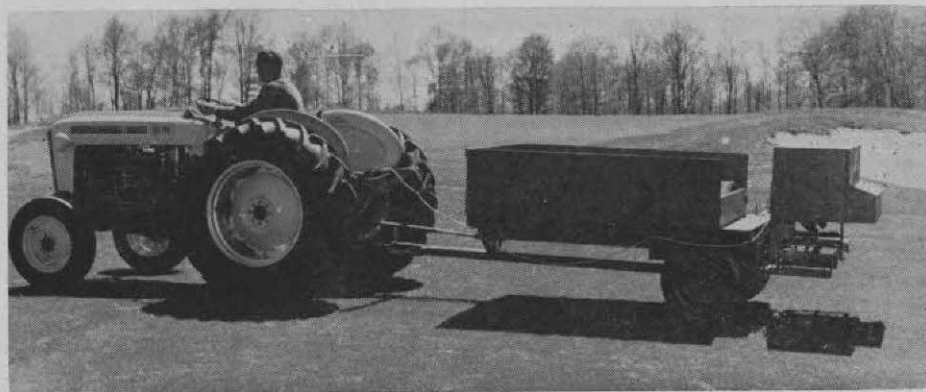


Each glass jar contains soil taken from bottom of Indian Bend pond before filling and before treatment with SS-13. Each glass jar has $\frac{3}{4}$ -in. hole in bottom; a $1\frac{3}{4}$ -in. bed of gravel and earth above the gravel bed. Soil in jar at right was treated with SS-13 solution in same manner as pond. Soil in jar at left was not treated . . . Both jars were filled at noon. Picture shows full jars, clock and drip pans to catch water seeping through soil samples.

which water can move and reduces flow through the soil. The SS-13, which is mixed in the water, is carried into the soil by the seeping water itself. It leaves no film on water or on earth. When mixed in water at an average ratio of one part SS-13 to 1,000 parts of water, it makes the water look like milk. It remains in suspension until the treated water is carried away by pumping, seepage or draining. When fresh water is added it remains clear.

(Continued on page 152)

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***Skibbe* Manufacturing Co., Sodus, Michigan.**

Seepage Stopper

(Continued from page 98)

In the west water is expensive and precious and seepage is the principle way in which it is lost — 8 to 20 times more than is lost through evaporation. Western road contractors, for instance, often use more than 100,000 gallons of water a day on the job and pay for it at a cost of anywhere from 25 to 40 cents per 1000 gals. They scoop out earth tanks and run lines to them from the nearest water source, whether a well or water company outlet. Often so much seepage occurs that contractors must pay for more than three times as much water as they actually use. Sometimes, even by pumping night and day, they cannot keep up with seepage and still have enough water on hand to keep a job going at full pace. Very often wells must be used that will produce no more than 300 gals. a minute. When this type of water shortage occurs, contractors are forced to haul water in trucks or tanks — both highly expensive propositions.

Works Outward

Tests indicate that SS-13, if used to seal irrigation canals, will not only save vast quantities of water but will preserve

farm land near the canals which, in a number of areas is being rendered useless by water seepage from them. Unlined or untreated canals lose anywhere from 10 to 30 per cent of the water they carry to seepage. Seepage water raises the water table in the surrounding land, waterlogs and turns it sour by forcing Boron and alkali to the surface. In some areas, land 1,500 ft. from a canal has been affected. If this process is allowed to continue, damage within 10 years, may be caused as far as 5,000 feet away. By using SS-13 to treat canals, seepage has been cut by more than 60 per cent. In a turbulent canal, no motor boat or other mixer is necessary. SS-13 mixes readily with the running water.

Tests with actual crops indicate that, where sandy soils exist, SS-13 does nothing but good to crops. By partially sealing the soil, it holds irrigation water and fertilizer in the root zones of plants for a much longer time than heretofore allowing the plants to pick up more water and nourishment from fewer irrigations. In one castor bean experiment where the same number of irrigations was used on treated and untreated soil, plants growing in the treated earth were, at maturity, 14 ins. tall-

er than those grown in untreated soil.

Reclamation Bureau Interested

Though no effort has been made heretofore to give SS-13 much general publicity, the word concerning this new product has gotten out through various farm publications and through word of mouth. Mexican officials are studying it and watching its progress carefully. U. S. Bureau of Reclamation is interested. If SS-13 performs as well in as many ways as experience so far indicates, it can be of tremendous importance to the 17 western states.

Full Entertainment Fare for Wives at Houston

Wives, who accompanied husbands to Houston for the GCSA convention, didn't become lobby sitters while their mates were in the Emerald room learning how to cope with sod webworm and greens that have poor drainage.

They were entertained in the following way:

A hospitality center on third floor of the Shamrock Hilton was always open to them. There were teas, cocktail parties, and on one occasion, authentic Texas dep-

uties put on a riding and roping exhibition for the visitors. A bus trip to San Jacinto and return by boat also was on the schedule. At San Jacinto, the ladies were treated to a Texas barbecue, toured the museum there and also visited the battleship, Texas.

There were also theater parties, style shows, shopping and museum tours and a lecture, "Fun with Flowers," by Mrs. Leroy Walker of Houston.

Mrs. Edie Martin of Houston was in charge of the women's entertainment program.

SCGA Folder Describes Association's Services

Members of the Southern California GA recently received a folder outlining the functions and services of the association. Illustrated with appropriate cartoons, it describes the SCGA handicap system, interclub competition, assistance given in legislation and tax matters and through accounting studies. The folder adds that the association provides member clubs with various forms, bulletins, bag tags, official score sheets, etc.

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