

PLIAG Test Well

3048-01

6 April 1965

Mr. R. E. Bacon
Chief Officer
Public Utility Agency
Government of Guam
P. O. Box 517
Agana, Guam

Subject: Harmon Well X-1

Dear Sir:

Transmitted herewith is pertinent data relevant to the drilling and testing of Harmon Well X-1 located at Military Co-ordinates 61.7 - 93.7.

This well was drilled under the lease-management contract between Layne International and Government of Guam dated 17 September 1964.

The equipment used was a Fanning Rotary Drill Model 1500 HD using 2 7/8" drill pipe and 6" collars.

Drilling commenced on February 26, 1965, and demobilization was complete on 12 March 1965.

This hole was primarily an exploration hole to determine if sufficient potable water could be developed to serve the immediate area including the new Government of Guam Public Works facility now under construction.

A log of the well is attached hereto.

The well site selection was based primarily on information given to us by J. Bloom of Foremost Dairies in December 1964. He advised that they had a good well of excellent quality water. Prior to this information we considered this area as marginal but based on Mr. Bloom's representation we felt safe in recommending this site for a well. However we have now found out that the information given to us by Foremost was incorrect.

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The well was drilled to - 18 ft. M.S.L. or 170 ft. below ground level. The static water level was at +4 ft. above sea level.

The well was bailed to determine the general quality of the water. Bailing reflected that the water contained a strong hydrocarbonic odor in the odor threshold range of 60. This is higher than allowed by U.P.H. standards.

The chloride was 173 ppm. This is within potable water limits. The analysis of the water is attached hereto.

The well was tested for 3 days at 200 gpm and had a drawdown of 1 ft. at 200 gpm with a complete recovery within 15 seconds.

Our further investigation of the Foremost well records disclosed that the same odor and chlorides exist in their well.

Water samples and other data was forwarded to Layne for examination and recommendations.

Layne concurs with us, that the water is potable except for the odor which must be removed to make it palatable. The odor is caused by an organic hydro-carbon gas probably resulting from fuel-oil seepage originating at the ground surface.

The odor can be removed by running the water through activated charcoal. This is the method used by Foremost Dairies. The charcoal filter must be capable of removing the odor using peak demand periods of 250 gpm. The constant odor removal requirement would necessitate a dual filter arrangement to insure uninterrupted odor removal during filter repair and/or recharge.

The cost for the odor removal equipment installed would be approximately \$26,000.00.

Completed well cost including odor removal equipment.

\$48,400.00

This cost is out of proportion to the income which could be expected.

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It is Layne's considered opinion and recommendation that this well be abandoned because of the marginal chlorides (173 ppm), the high cost for odor removal equipment and the ultimate high cost per 1000 gals. (21¢).

This well has been given much more study than normal because of the problem of alternate Navy water supply from the Tumon booster. However the extremely high cost to provide potable water from this well dictates that the only practical solution is to abandon the well and provide water from the Tumon Loop booster now serving the adjacent area.

The Tumon booster should not be considered reliable for very long because it is inadequately designed. The booster pumps directly into a dead end system and operates under constant speed. This will result in high maintenance costs and reduced pump life.

Summary and Recommendations:

1. The water from the well contains a hydrocarbonic odor which can not be economically removed.
2. Odor removal will cost \$26,000.00.
3. The well should be abandoned.
4. Temporary water should be supplied from the Tumon booster.

Note: For record purposes the nature and source of the odor is still under study by Layne Research. However the results of the study will be academic in nature and would not change the above recommendations.

Yours truly,

LAYNE INTERNATIONAL-GUAM

Douglas O. Craddick
Vice President
Engineering Division

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