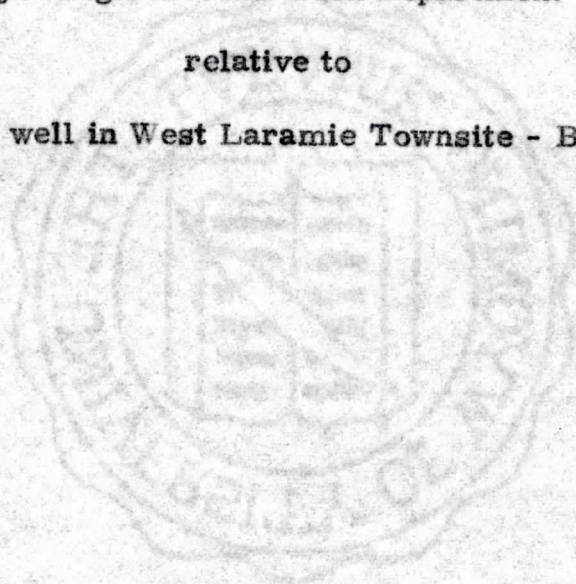


Memorandum
prepared for
Wyoming Game and Fish Department
relative to
a proposed well in West Laramie Townsite - Block 120.



By: D. L. Blackstone, Jr.
State Geologist
Geological Survey of Wyoming
April 14, 1969

MEMORANDUM

Mr. John S. Ogden
Research and Development Division
Wyoming Game and Fish Department
Cheyenne, Wyoming 82001

Re: Proposed Well
Block 120, West Laramie
T.16 N., R.73 W.

Dear Mr. Ogden:

In response to your inquiry relative to the groundwater possibilities at a proposed building site in Block 120, West Laramie Townsite plat (attached) the following information has been assembled.

1. A small plat of Block 94, 95, 96, 97, 98, 99, 118, 119, 120 in the West Laramie Townsite is attached showing all wells known to us in the immediate area, and the water bearing formation from which it is producing. There are six wells producing from the alluvial terrace material, and three producing from the Jurassic Morrison formation.

The depth to the groundwater table in the alluvium is approximately 15 feet depending upon seasonal water table fluctuation.

2. The water quality is rather poor in all possible shallow sources. From data at hand the alluvium (shallow free ground water) has between 600 and 800 ppm total dissolved solids. The water is reported to be high in sodium but is below the 1000 ppm limitation for continued use. Contamination is known to exist locally in West Laramie, and any new well would have to be tested, and stand on its own merit.

Data concerning the water derived from sandstones in the Morrison formation indicate that the total dissolved solids range from 1000 to 1800 ppm. The latter figure is above the limit for human consumption. A specific analysis for a West Laramie well was not available.

No information is available as to the water producing capability of a thin sandstone in the Sundance formation. Apparently no well in the area has been completed in this specific formation.

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Memo to:
Mr. John S. Ogden

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Many wells have derived water from the Chugwater formation, (red beds underlying Laramie) from thin sandstones. The yields are usually low, and the waters are known to have a high sulphate content, ranging from 744 - 1050 ppm. which is near the limit for human consumption.

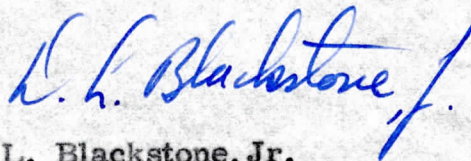
Several wells in Laramie produce water from a thin (20' +) sandstone in the basal Satanka shale. This apparently has not been drilled to and tested in the West Laramie Townsite. This sandstone should not be considered as a sure, and likely water source.

The deepest water bearing unit in the Laramie area is the Casper formation. Several sandstones in the formation may yield water, and under some artesian pressure. A well in West Laramie would not be likely to flow, but would have a static level well above the aquifer. The water usually has a high carbonate hardness, and the total dissolved solids would likely be near 1000 ppm.

Recommendation:

The best short term solution to the water supply problem would probably be a well into the shallow groundwater zone in the alluvium. This well should have a fairly large diameter, and be installed with a gravel packed screen. If the water contains bacterial contamination, it may be necessary to install some type of chlorine purification unit.

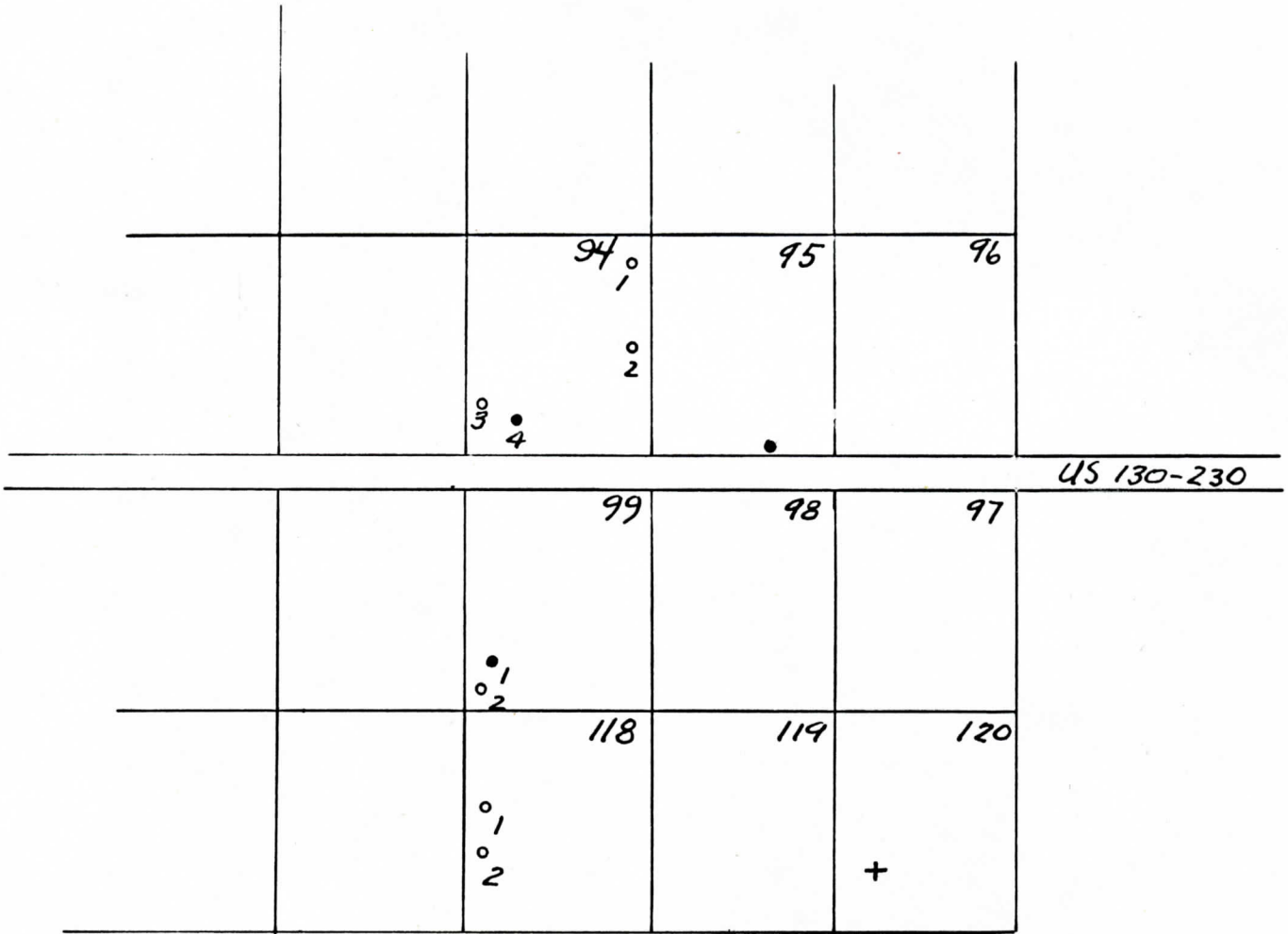
Respectfully submitted,



D. L. Blackstone, Jr.
State Geologist

DLB:sa

LOCATION OF WATER WELLS
PART OF W. LARAMIE TOWNSHIP



Scale 12" - 1 mile

- Quaternary alluvium
- Jurassic Morrison

Table 1 - Well Data part of West Laramie Townsite (see attached plat)

Block Number and Well Number	Depth of Well in Feet	Depth to water level in Feet	Water producing formation	Yield in gals./min.	Quality total dissolved solids in ppm.	Owner or other data
94 - 1	12		Alluvium			
94 - 2	14		Alluvium			
94 - 3	14		Alluvium		730	
94 - 4	50	20	Morrison		1500	O. R. Clemens
95 - 1	55	8	Morrison	45		West Laramie Fly Store
96						No wells
97						No wells
98						No wells
99 - 1	50	8	Morrison	45	1190	L. C. Koenig
118 - 1	22	18	Alluvium			
118 - 2	28	14	Alluvium			
119						No wells
120						No wells

Table II - Approximate depths to water bearing formations.

The approximate depths were based on electrical logs of the Halbert & Jennings #1 Biddick, sw nw nw sec. 4, T. 17 N., R. 74 W., and the Wasatch Oil Co. #1 Bamforth Lake se ne sec. 15, T. 16 N., R. 74 W., Albany County, Wyoming. These are representative logs for the area.

Muddy - 1904	Chugwater - 2580
Thermopolis - 1955	Forelle - 3310
Cloverly - 2040	Satanka - 3340
Morrison - 2120	Casper - 3500
Sundance - 2460	

At the proposed site in Block 120, West Laramie Townsite - the following depths could be anticipated.

	Depth	General Lithology
Surface to Morrison	50	
Surface to Sundance	240	Thin ss. capability unknown
Surface to Chugwater	360	Thin sandstones - low yield
Surface to Forelle	1070	Thin ls. - no water possibility
Surface to Satanka	1100	Basal ss. may produce water
Surface to Casper	1210	Interbedded sandstones and dolomite. Good possibility for water. Probably high carbonate hardness.