

January 22, 2019

MEMORANDUM

To: Gary Spackman, Director

From: Tom Neace, Ground Water Protection Section

RE: Flowing Artesian Wells

An artesian well is defined in Idaho Code §42-1604 as “any well... which encounters pressurized ground water... under sufficient head to rise above the elevation at which it was first encountered whether or not the fluid flows at land surface. If the water stands above land surface, the well is a flowing artesian well.” Department records document a significant number of flowing artesian wells throughout the State of Idaho.

Flowing Wells Identified in the Statewide Wells Database

The Department “wells database” identifies a total of 410 flowing artesian wells statewide, recorded in the following counties.

County	# of flowing artesian wells	County	# of flowing artesian wells
Ada	37	Idaho	30
Adams	12	Jefferson	3
Bear Lake	2	Jerome	1
Benewah	12	Kootenai	45
Blaine	2	Latah	10
Boise	13	Lemhi	4
Bonner	69	Lewis	10
Bonneville	1	Nez Perce	11
Boundary	5	Owyhee	6
Camas	1	Payette	2
Canyon	54	Power	1
Caribou	4	Shoshone	1
Cassia	5	Teton	4
Clearwater	7	Twin Falls	17
Elmore	2	Valley	17
Gem	9	Washington	10
Gooding	3		

The total number of flowing artesian wells statewide as reported in the database is not considered an accurate estimate. Prior to 1987, well reports from many wells were not submitted to the Department, because well permits were not required until 1987.

Historical Records of Flowing Artesian Wells

Morrison-Kundsens Engineers conducted a Phase I - Artesian Well Study in Southern Idaho for the Department from 1987 - 1989. In 1991, a Phase II - Artesian Well Study was conducted by ThermaSource, Inc. as a follow-up to the earlier Morrison-Kundsens study. The studies evaluated over 6,000 wells and identified 770 flowing artesian wells. The Phase II Study determined that over 90% of the wells were reported as 300 feet deep or less and 81% of the wells studied were for domestic use. The wells that were studied at that time are now all greater than 40 years old.

Eagle-Star Area Flowing Artesian Wells

Ninety-nine (99) flowing artesian wells were identified and inventoried during the past five years in the Eagle-Star area. Of those 99 flowing artesian wells, 34 flowing artesian wells have been decommissioned, and 22 have been controlled by repair or reducing either the flow to the applicable water right or the domestic exemption. Approximately 39 of the wells identified were in compliance. Four (4) of the wells remain substantially out of compliance including:

- Carol Lennon Well
- Hoffburg Well
- 4149 State Street Limited Well
- CT Real Estate Well

The Department's State Office and Western Region continue to work with the landowners of the four out of compliance wells.

Additional Western Region Flowing Artesian Wells

Sonny Hornbaker, former IDWR Western Region Ground Water Protection Section Specialist, located additional flowing artesian wells from archived inspections in Western Region, just before his retirement in 2018. Hornbaker added 103 additional sites to the database that need to be inspected in six counties within Western Region.

County	# of flowing artesian wells
Ada	24
Canyon	7
Elmore	2
Gem	20
Owyhee	46
Payette	4

Statewide Estimate of Flowing Artesian Well and Potential Problem Wells

I would estimate, based on the work performed on flowing artesian wells and records in the wells database, approximately 1,000 flowing artesian wells are present in Idaho. Potentially hundreds of flowing artesian wells statewide may be out of compliance with applicable Statutes and Rules. Uncontrolled flowing artesian wells result in the waste of water, commingling of aquifers and loss of artesian pressure in the aquifer.

The cost of repairing or decommissioning the flowing artesian wells could be significant, as much as \$3 - \$5 million, depending on the depth, pressure, condition of the well and complexity of the formation.

This cost estimate was developed using the following assumptions:

- One-thousand (1,000) flowing artesian wells exist statewide.
- Approximately 300 to 500 flowing artesian wells need to be repaired or decommissioned.
- Cost for repair or decommissioning is \$10,000 per well.

Please contact me if you have any questions or wish to discuss further.