

January 24, 2007

Mr. Keith Quigley
Clear Springs Foods, Inc.
P.O. Box 712
Buhl, ID 83316

RECEIVED

MAY 18 2007
DEPT. OF WATER RESOURCES
SOUTHERN REGION

Re: New Well Operation

Dear Keith:

This letter report summarizes the final results and hydrologic details associated with the new groundwater source well drilled under drilling permit #794502 specifically relating to the potential for impacts to existing spring sources due to operation of the new well. Several factors indicate that the well production zone is a separate system from the spring flow and will not produce any noticeable impact to annual spring flows. This opinion is primarily based on measurements of creek flow recorded throughout the drilling program and pump test in addition to comparison of water chemistry between spring water samples and samples taken from the well at the end of the pumping test conducted in May, 2006.

Background

The new well is located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 2, Township 9 South, Range 14 East. The completed depth of the well is 397 feet. The well contains a 12" steel inner casing extending to the full depth of the well with screens placed at several production zone locations to develop the maximum quantity water supply. The proposed pump bowl depth is 240' below ground surface (BGS). The static water level (SWL) in the well was measured to be 104.5' below ground in May of 2006 prior to any pumping.

Well Construction Details

In order to minimize potential impacts to spring flows in the local area, a solid steel 16" casing extends approximately 200' below ground which has an outer bentonite clay seal extending no less than 60' below ground. The first open screen interval from which ground water can enter the well bore occurs at a depth of 250' below ground. Additional screen sections occur at increasing depth. A drawing showing overall well construction and lithology logged

during the drilling program is attached. A significant amount of clay layers were encountered which serve to restrict ground water migration vertically providing additional evidence against lack of direct connectivity between the ground water extraction zone and the spring source water

Spring Creek Flow Monitoring During Test Pumping

In order to evaluate the potential impact of ground water diversion on the nearby springs, a pressure transducer and recorder were installed just upstream of the existing 4' contracted weir which is located on the spring fed stream just prior to entering a culvert which exits on the Wright property to the west. Water level measurements were automatically recorded at 5 minute intervals prior to and throughout the pumping test and for two weeks after to develop a good baseline for evaluation. The weir data collected during well construction and pump testing does not exhibit any noticeable effects on spring flows into Kanaka creek due to well construction or diversion of ground water from the newly constructed well. The pumping test occurred over a 24 hour period on May 10-11th, 2006. A chart showing the recorded weir data with the test pump period superimposed is attached. During the weekend of the test, the measured weir flow is approximately 4.5 cfs with normal weekend variation as low as 3 cfs. It is clear that the 1.2 cfs pumped from the well did not directly reduce spring flows by any noticeable fraction.

Water Quality Comparison

Water quality samples were taken near the end of the well pumping test on Sunday, June 11th 2006. Comparison of available water quality parameters from regular spring source testing shows significant differences in water chemistry. This indicates that the ground water well and the nearby springs originate from significantly different systems. Five individual parameters were specifically compared: Arsenic, Nitrate, Alkalinity, Chloride and Fluoride. In each case, the chemical analyses show strong differences in the quantity of each constituent indicating separate source waters. For instance the chloride concentration, which is a good indicator of differences in ground water origin, shows that the spring samples are more indicative of recent contributions from surface water leaching compared to the well water from deeper sources.

Conclusions

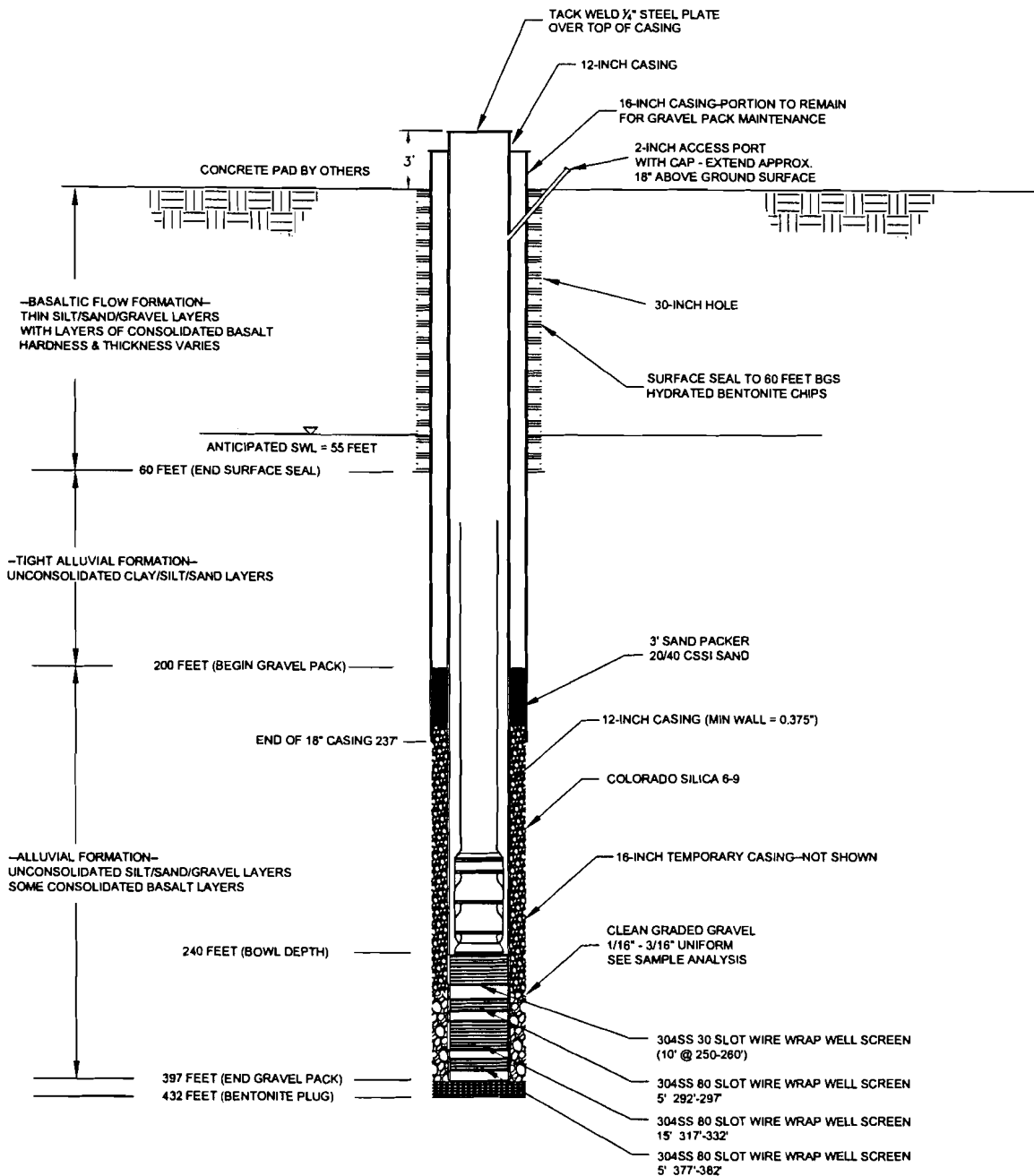
Based on analysis of the criteria and data discussed above, no significant impact to the spring flows in the immediate vicinity of the new well is anticipated due to continuous operation of the ground water supply well.

If you have any questions or need additional information please don't hesitate to call.

Sincerely,

Charles E. Brockway, Ph.D., P.E.

Attachments: Figure – Well Construction Drawing
Graph – Stream Flow Weir Data
Charts – Water Quality Parameter Comparisons (4 pgs)



NOTE:
DRAWING SHOWS FINAL DESIGN CASING, SCREEN, AND GRAVEL PACK CONFIGURATION BASED ON ANALYSIS OF SOIL COMPOSITION AND LOCATION OF WATER-BEARING STRATA. - SEE ATTACHED LOG SCHEMATIC

THIS DRAWING HAS BEEN PREPARED BY BROCKWAY ENGINEERING, PLLC FOR A SPECIFIC PROJECT TAKING INTO ACCOUNT THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH BROCKWAY ENGINEERING & THE CLIENT IS GRANTED

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BROCKWAY ENGINEERING, PLLC
HYDRAULICS - HYDROLOGY - WATER RESOURCES
2016 NORTH WASHINGTON, SUITE 4
WTIN FALLS, ID 83301
(208) 736-8543

CLEAR SPRINGS FOODS

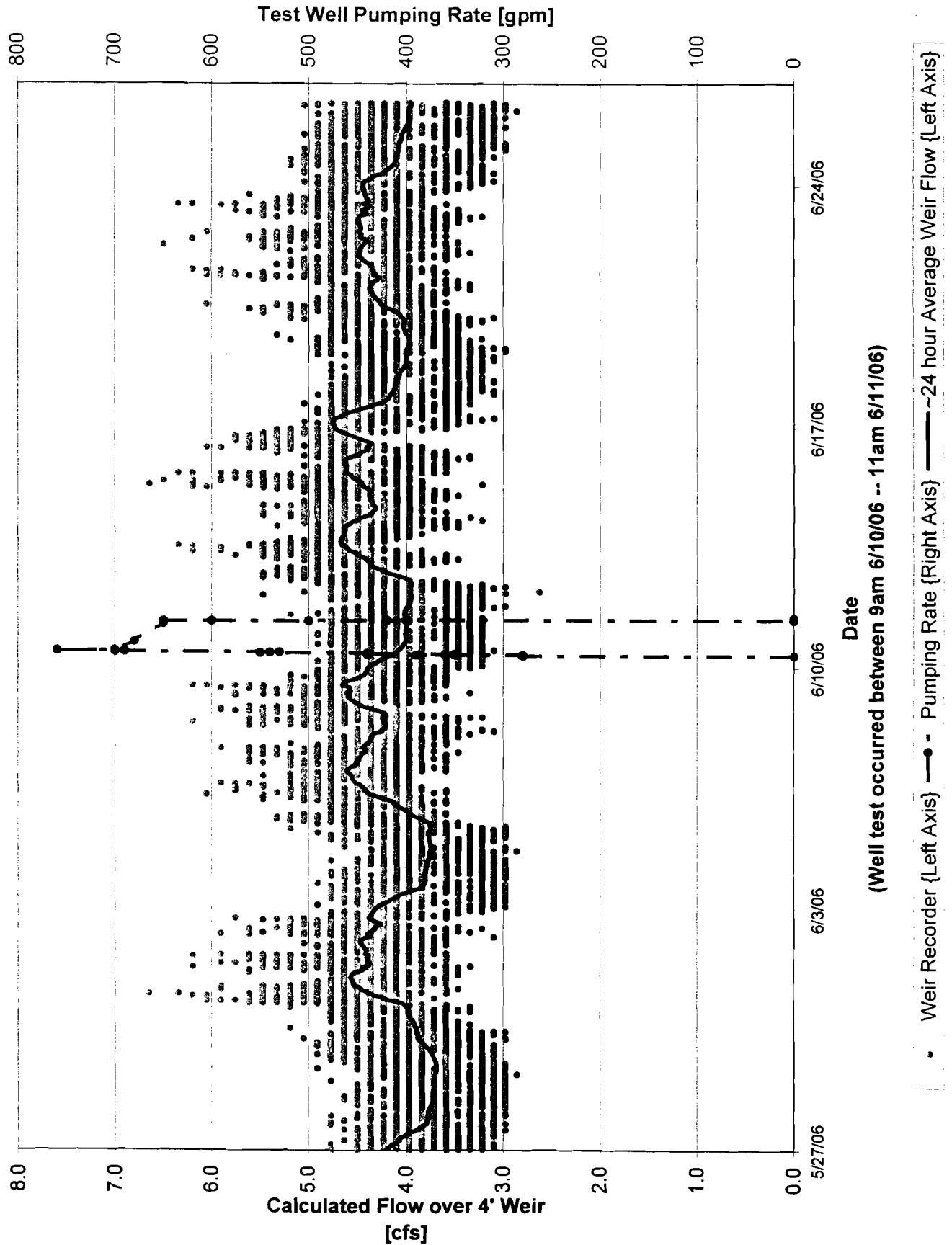
NEW WELL SECTION - AS BUILT

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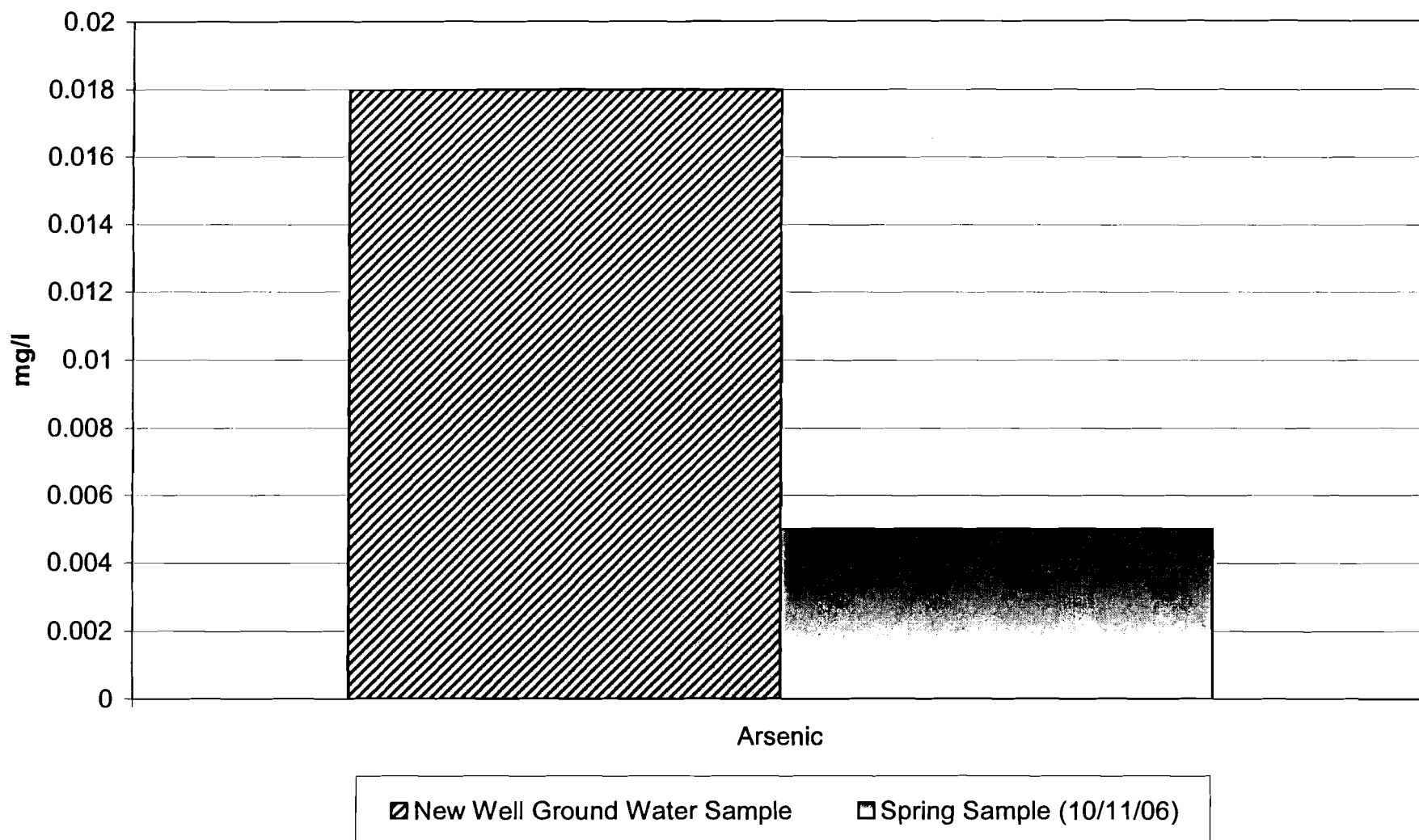
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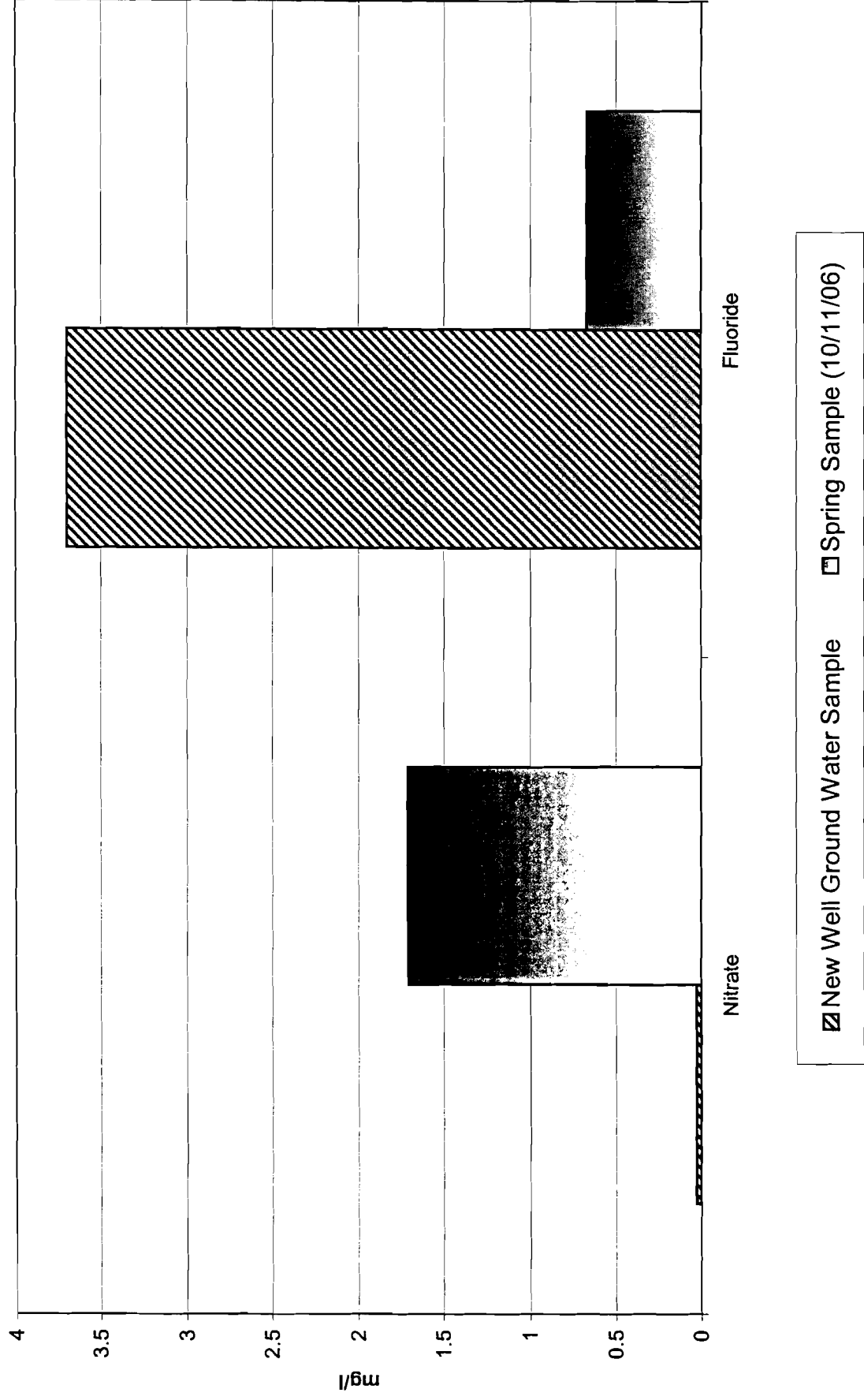
Clear Springs Foods New Well Weir Recorder Data



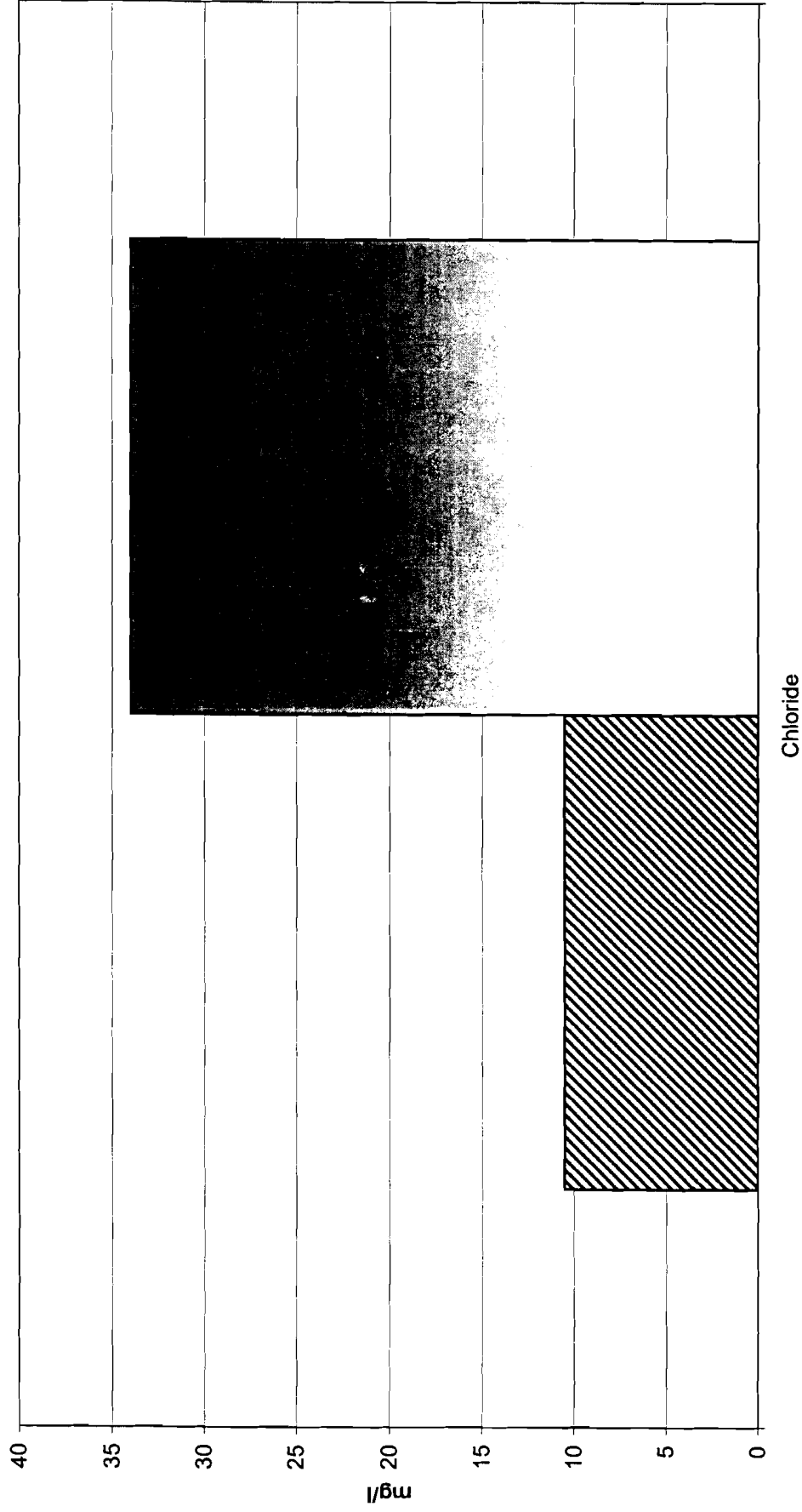
Relative Concentrations of Characteristic Water Quality Constituents



Relative Concentrations of Characteristic Water Quality Constituents



Relative Concentrations of Characteristic Water Quality Constituents



☒ New Well Ground Water Sample
 ☐ Spring Sample (10/11/06)

Relative Concentrations of Characteristic Water Quality Constituents

