#2

Ramirez, Angelica Public Comment

LATE DIST

From: Marc Chytilo <marc@lomcsb.com>
Sent: Monday, February 14, 2022 3:19 PM
To: sbcob
Subject: Ex SYR Subterranean Stream Determination SWRB Buellton Grow 2-16-19.pdf - item # 2
Attachments: Ex SYR Subterranean Stream Determination SWRB Buellton Grow 2-16-19.pdf

Pls include in the record for item # 2, subject to the Board's acceptance

Marc

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

TO: James Bishop
Engineering Geologist
Cannabis Cultivation Regulatory Program
Central Coast Water Board
James.Bishop@waterboards.ca.gov

FROM: Zach Mayo, Engineering Geologist
Sacramento Valley Enforcement Unit
Division of Water Rights

DATE: FEB 0 6 2019

SUBJECT: SUBJECT: SUBTERRANEAN STREAM DETERMINATION, BUELLTON, SANTA YNEZ RIVER, SANTA BARBARA COUNTY

This memorandum concerns one groundwater well near the Santa Ynez River in Santa Barbara County. The well is screened at a single gravel and sand interval and is drawing water from underflow of the Santa Ynez River from course grained alluvium. The well is located southeast of the town of Buellton and is drilled into alluvium underlain by Espada Formation, Sisquoc Shale, and Monterey Shale (Upson and Thomasson, 1951; Dibblee, 1966; and Dibblee, 1988). Division staff has been tasked with performing research and interpreting local geology to make a subterranean stream determination for the well. Groundwater is presumed to be percolating groundwater unless it can be shown that the water from a subterranean stream, which is within the permitting authority of the State Water Board.

GARRAPATA 4-PART TEST FOR SUBTERRANEAN STREAMS

For groundwater to be classified as a subterranean stream flowing through a known and definite channel, the following physical conditions must exist:

1. A subsurface channel must be present;
2. The channel must have relatively impermeable bed and banks;
3. The course of the channel must be known or capable of being determined by reasonable inference; and
4. Groundwater must be flowing in the channel.

INTRODUCTION

Division staff has been asked by the Central Coast Regional Water Board Cannabis Cultivation Regulatory Program to perform a subterranean stream analysis on a single well that is located

between the towns of Buellton and Solvang along the south bank of the Santa Ynez River. The subject well is producing water that is being diverted to storage to be eventually used for cannabis cultivation. There are three 5,000-gallon storage tanks that the water is being diverted to. Division staff has performed this analysis in order to determine if the subject well is drawing water from a subterranean stream, to determine if the well owner is complying with the Cannabis Cultivation Policy, and if they are required to obtain a Cannabis Small Irrigation Use Registration (SIUR) water right.

GEOLOGY

The Buellton area lies adjacent to the Santa Ynez River on Quaternary alluvium that is underlain by Vaqueros Sandstone, Sespe Formation, and Espada Formation to the south and Paso Robles Formation, Careaga Sandstone, and Sisquoc and Monterey Shale to the north (Figure 1; Upson and Thomasson, 1951; Dibblee 1966; Dibblee, 1988). Vaqueros Sandstone is early Miocene aged sandstone and pebble conglomerate and the Sespe Formation is predominantly Oligocene aged sandstone with siltstone, claystone, and conglomerate (Figures 1 and 2; Dibblee, 1988). The Espada Formation is a late Jurassic to early and middle Cretaceous aged series of well-bedded argillaceous to sandy shales with thin interbeds of hard arkosic sandstone (Figures 1 and 2; Dibblee, 1988). The Espada Formation has no defined sequence of beds with shale making up approximately 90 percent of the formation, sandstone about 10 percent, and limestone and conglomerate a small fraction of 1 percent (Dibblee, 1966). The Quaternary alluvium is comprised of stream-channel sands and gravels (Figures 1 and 2; Dibblee, 1988). To the north, the Santa Ynez River is bound by the topographic high of foothills and structural anticlines which are locally comprised of Quaternary alluvium and alluvial terrace deposits underlain by Paso Robles Formation, Careaga Sandstone, Sisquoc Shale, and Monterey Shale (Figures 1 and 2; Dibblee, 1988). The Paso Robles Formation is a nonmarine weakly consolidated conglomerate of sand and clay and the conglomerate is composed largely of Monterey Shale detritus. The Careaga Sandstone is a shallow marine regressive unit composed of locally pebbly sandstone. The Sisquoc Shale is a marine diatomaceous shale unit that is late Miocene in age and the Monterey Shale is a siliceous and cherty shale that is early to late Miocene in age (Figures 1 and 2; Dibblee, 1988). To the south, the Santa Ynez River is bound by a structural anticline that plunges to the west and exposes the Espada Formation near the well location (Figures 1 and 2; Dibblee, 1988).

GROUNDWATER WELL

Division staff evaluated a single 12-inch groundwater well (the Hart B well) southeast of the town of Buellton that was completed in 2005 (Figure 1). This well is reported to be drilled to approximately 52-feet below ground surface (bgs) with a cement seal to 23-feet bgs. The well location is approximately 400-feet south to southwest of the Santa Ynez River. The well completion report for this well reported a production volume of 50 gallons per minute (gpm) during a pump test, no time duration of the test or drawdown was reported on the well completion report.

The subsurface geological log of the Hart B well completion report shows alluvium to a depth of approximately 42-feet bgs, clay from approximately 42 to 50-feet bgs, and shale bedrock from 50 to 52-feet bgs. The well is screened using 6-inch PVC casing at a single interval from 28 to 49-feet bgs. The alluvium interval is logged as large gravel and sand from 0 to 42-feet bgs on the well completion report.

SUBTERRANEAN STREAM ANALYSIS

Groundwater being pumped from the subject well adjacent to the Santa Ynez River near the town of Buellton does meet the criteria of a subterranean stream. The well is screened from approximately 0 to 42-feet bgs and is drawing water from a subsurface channel in alluvium that is bounded by relatively impermeable shale rock formations to the north and south. Since the alluvium interval is screened, and the water flowing through the alluvium meets the criteria for a subterranean stream, as explained below, the water extracted from the subject groundwater well is, therefore, within the permitting authority of the State Water Board.

GARRAPATA 4-PART TEST

Subsurface Channel

The subsurface channel is bounded by hills of shale bedrock to the north and south of the Santa Ynez River valley. Relatively impermeable shale bedrock is mapped in the foothills north and south of the Santa Ynez River with the bedding mapped with opposing dips (anticlines) indicating the formations intersect at some depth below the Santa Ynez River forming a valley filled with Quaternary Alluvium.

Impermeable Bed and Banks

The Santa Ynez River is bound to the north by Sisquoc and Monterey Shale and is bounded to the south by Espada Formation (Dibblee, 1988). These older and deeper shale formations are exposed to the north and south of the Santa Ynez River and form also the relatively impermeable bed and banks of the subterranean stream. The quaternary alluvium mapped within the river valley is described as coarse-grained river and stream bed deposits (Figure 2) indicating high porosity material that is significantly more permeable than the shale bedrock.

Alluvium

The well log provided to the Division shows that the depth of the water bearing alluvium is approximately 42-feet below ground surface (bgs). Clay is logged below the water bearing alluvium from approximately 42 to 50-feet bgs; however, clay rich soils are typically not productive water bearing units. The depth to static water level is logged at 24-feet bgs and the well is constructed with a screened interval from approximately 28 to 49-feet bgs. The water in the alluvium of the valley of the Santa Ynez River is part of a subterranean stream flowing through a known and definite channel.

Flowing Water

Well data within the area between Solvang and Buellton indicates varying water levels between approximately 20-feet bgs to approximately 45-feet bgs and depth to shale varying between approximately 40-feet bgs to 60-feet bgs. Topography indicates that the Santa Ynez River flows from east to west and has a mean annual discharge of between 11.0 and 25.8 cubic feet per second (cfs) over the last three years; according to the United States Geological Survey (USGS) National Water Information System. The water flow measurements were taken from a USGS stream gauge approximately 1.8 miles upstream near the town of Solvang. Water flow levels are maintained by releases made from Lake Cachuma (Santa Barbary County 2011 Groundwater Report). The alluvium within the river valley is bound at depth by the relatively

impermeable shale units and the river gradient indicates flow from the well location to the mouth of the river at the Pacific Ocean (Dibblee, 1988). Division staff performed analysis of current and historical photos in the areas adjacent to the subject well and observed two saturated pools north and south of the Santa Ynez River that fluctuate with the level of the river, indicating surface and subsurface connectivity. Therefore, water flowing within the alluvium meets the criteria of a subterranean stream.

Figure 1: Geologic Map

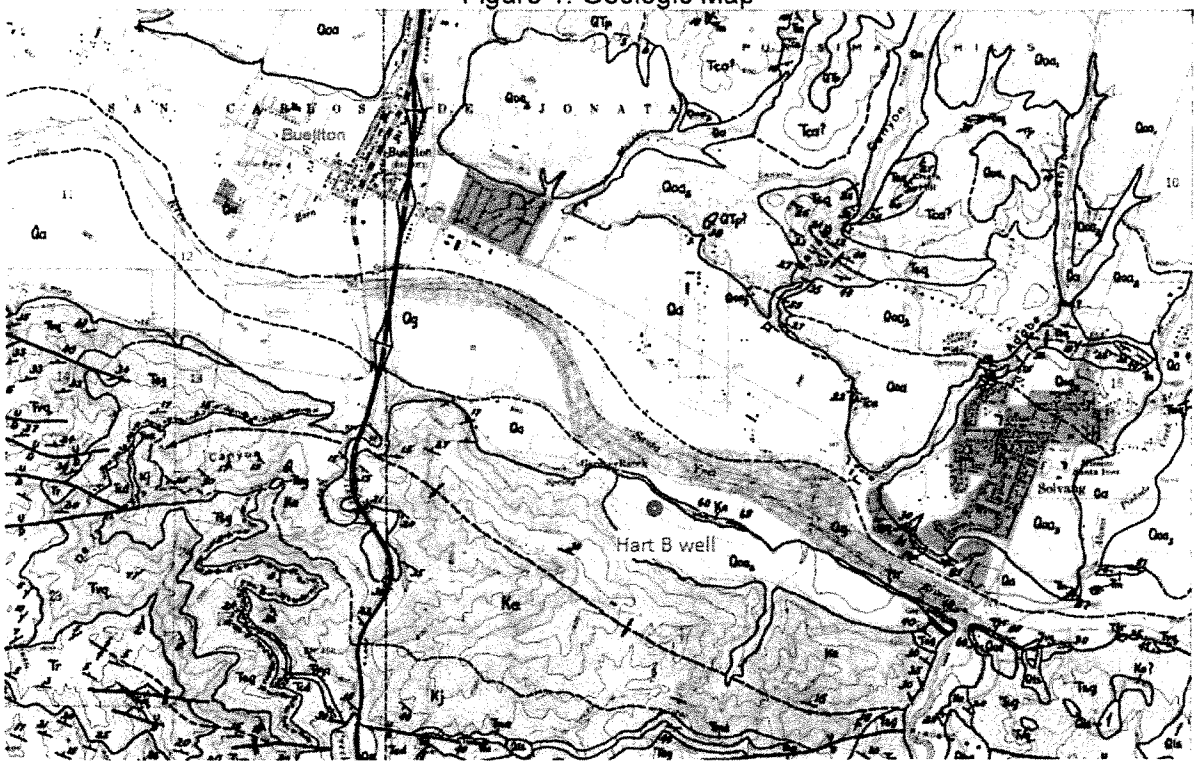
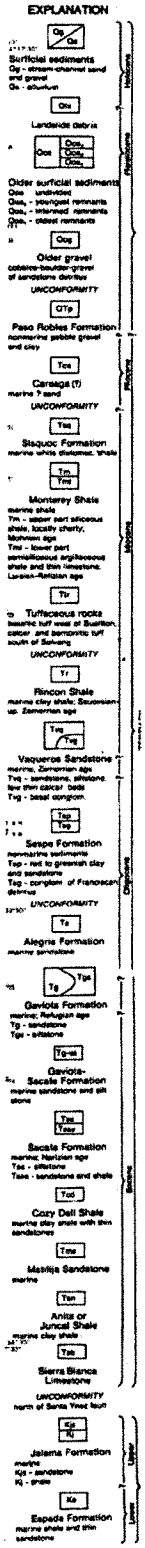


Figure 2: Map Explanation



REFERENCES

Dibblee, T.W., Jr., 1966, Geology of the central Santa Ynez Mountains, Santa Barbara County, California: California Division of Mines and Geology Bulletin 186, 99 p.

Dibblee, T.W., Jr., 1988, Geologic map of the Solvang and Gaviota quadrangles, Santa Barbara County, California: Santa Barbara, Dibblee Geological Foundation Map DF-16, scale 1:24,000.

Upson, J.E., and Thomasson, H.G., 1951, Geology and water resources of the Santa Ynez River basin Santa Barbara County, California: U.S. Geological Survey Water-Supply Paper 1107, 202 p.

http://www.countyofsb.org/uploadedFiles/pwd/Content/Water/WaterAgency/Report%20Document%20FINAL.pdf