APPENDIX R
WELL SITES EVALUATION

Technical Memorandum

To: Mr. Mike Cho
TRG Land, Inc.

From: Thomas Harder, P.G., C.HG.
Thomas Harder & Co.

Date: 26-Aug-19

Re: Evaluation of Potential Well Sites for the Chadwick Ranch Estates

1 Introduction

This technical memorandum (TM) summarizes the results of Thomas Harder & Company's (TH&Co's) evaluation and ranking of five potential well sites located in the San Gabriel Valley Groundwater Basin near Duarte, California in Los Angeles County. The siting study focused on potential sites that could accommodate a new well to be used as a water source for the proposed Chadwick Ranch Estates development in Bradbury, California (see Figure 1). The well siting analysis was focused on potential sites within Cal American Water's Duarte service area as the proposed development will be served by them.

1.1 Purpose and Scope

The purpose of this investigation was to identify and rank five sites for their potential as production well sites. This TM presents the data, criteria, methodologies, and results for the site rankings and recommendations for future test drilling.

The scope of work consisted of:

- Obtaining and reviewing background data including groundwater elevation records, estimation of aquifer thickness, pumping test data, potential sources of groundwater contamination, aerial photographs of the Study Area, and parcel information.
- Identifying five potential sites for further investigation.
- Conducting site visits to each of the five sites.

- Ranking of the five potential well sites.
- Providing a recommendation for future drilling.
- Preparing this TM summarizing the findings.

1.2 Study Area

The Study Area was selected to be completely within Cal American Water's Duarte service area as shown on Figure 1. The Study Area is primarily south of Bradbury and west of the 605 Freeway. Land use in the area generally consists of urban residential areas, schools, commercial businesses and parks. Identification of potential well sites focused on vacant land, public properties or large undeveloped lots with available open space.

2 Hydrogeological Setting

The San Gabriel Valley Groundwater Basin (the Basin) is a structural basin filled with permeable alluvial deposits, underlain by relatively impermeable rock. It is located in eastern Los Angeles County and includes the water-bearing sediments underlying most of the San Gabriel Valley. The sediment that makes up this basin consists primarily of unconsolidated to semi-consolidated alluvium deposited by streams flowing out of the San Gabriel Mountains (see Figure 2). These alluvial sediments make up the primary aquifer system that supplies groundwater to most of the production wells in the area.

The bedrock underlying the alluvium consists of consolidated basement rocks of the San Gabriel Mountains[1]. The nonwater-bearing formations include igneous and metamorphic rocks. Although considered nonwater-bearing, wells drilled into them may intersect fractures containing water and can produce up to 15 gallons per minute (gpm)[2].

A major northwest/southeast trending fault system is located at the base of the San Gabriel Mountains near the Chadwick Ranch Estates (see Figure 2). The primary fault in this system is the Sierra Madre Fault but it also includes the Duarte Fault, which is approximately 0.5-mile south and parallel to the Sierra Madre Fault. These faults act as groundwater flow barriers, impeding groundwater flow from the base of the mountains into the alluvial groundwater basin. Further, the low permeability nature of the sediments at and near the faults restricts well yields. Accordingly, it is advantageous to locate well sites away from the fault traces in order to maximize potential well yield.

[1] California Department of Water Resources (DWR). 2004. Bulletin 118. California's Groundwater. South Coast Hydrologic Region. *San Gabriel Valley Groundwater Basin*.
[2] Stetson Engineers, Inc, 2016. San Gabriel Valley Groundwater Basin Salt and Nutrient Management Plan. Prepared for the Main San Gabriel Basin Watermaster, Revised November 2016.

2.1 General Aquifer Characteristics

Alluvial sediments in the Study Area generally consist of sand, gravel, and boulders with some interbedded silt. Based on a review of the California Department of Water Resources (DWR) Driller's Log[3] for Buena Vista Well No. 2, which is located less than a mile from the potential sites, the subsurface sediments in this area consist primarily of sand, rock and gravel from ground surface to approximately 730 ft bgs (see Attachment A).

Where saturated in the subsurface, the permeable alluvium forms the aquifer that supplies water to wells. A pumping test of a well on the west side of the San Gabriel River at Huntington Drive was conducted at 3,500 gallons per minute (gpm) with 53 ft of drawdown after 28.5 hours (see Attachment A). The Buena Vista Well, located south of Interstate 210 and west of Interstate 605, yielded approximately 2,240 gpm during pumping tests in 2011. The Lemon Well, located north of Interstate 210 on the southwest border of Bradbury city limits, had a well yield of approximately 380 gpm in 2016, as determined from the Driller's Log (see Attachment A). Therefore, it is anticipated that wells south of the 210 freeway are anticipated to have greater potential well yield than wells north of the freeway.

2.2 Groundwater Occurrence and Flow

Groundwater level elevations have not changed from 2014 to 2019 in the Study Area. Based on a 2014 groundwater elevation contour map, groundwater generally flows in southwest direction[2]. Depth to groundwater beneath the potential sites is estimated to range from approximately 240 to 340 ft bgs, based on 2018-2019 simulated groundwater levels from the Main San Gabriel Basin Watermaster[4].

2.3 Groundwater Quality

Groundwater quality within the Study Area is anticipated to be relatively good with respect to total dissolved solids (TDS) and nitrate concentrations. TDS concentrations in groundwater from area wells ranged from approximately 250 to 500 milligrams per liter (mg/L) in 2011-2012[2], which is less than the secondary maximum contaminant level (MCL) for TDS of 500 mg/L. Nitrate concentrations in groundwater from wells ranges from approximately 2 to 25 mg/L, as reported in 2011-2012 (nitrate reported as nitrogen). Nitrate is likely associated with historical agriculture in the area and higher concentrations will be detected in the shallower aquifer system. Isolated zone testing will be an important aspect of the well drilling process to

[3] California Department of Water Resources (DWR) Well Completion Report Map Application. https://dwr.maps.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37. Accessed 2018-2019.
[4] Stetson Engineers, Inc. Prepared for Main San Gabriel Basin Watermaster, Simulated 2018-19 Basin Groundwater Contours, Figure 18. https://docs.wixstatic.com/ugd/af1ff8_5c0ffdec3be548f6acef9e6ddaf92428.pdf

ensure that the well is designed with a perforation interval below the shallow zones of high nitrate.

In addition to general water quality issues, there are a number of previously identified sources of groundwater contamination in the vicinity of the Study Area (see Figure 3). Possible point-sources of contamination were identified using the State Water Resources Control Board (SWRCB) Geotracker[5] website. Various potential contaminating activities in the Study Area include, but are not limited to, permitted underground storage tanks (USTs), land disposal sites, and closed Leaking Underground Storage Tank (LUST) cleanup sites, as shown on Figure 3. The constituents of concern at these sites are primarily associated with gasoline and oil.

Volatile organic compounds (VOCs) have also been detected in groundwater in the Study Area. There are multiple Superfund National Priority List (NPL) Sites in the San Gabriel Valley Groundwater Basin[2]. NPL Sites are hazardous waste sites eligible for long term remedial action (cleanup) financed by the federal Superfund program. The NPL site closest to the Study Area is located in the city of El Monte in the western portion of the Study Area (see Figure 3). The VOCs associated with this site include Trichloroethylene (TCE), Perchloroethylene (PCE) and Carbon Tetrachloride[6]. For wells sites in the western portion of the Study Area, isolated aquifer zone testing that includes testing for VOCs will be critical to avoid designing the well with perforations in aquifers with high VOC concentrations.

[5] State Water Resources Control Board (SWRCB), http://geotracker.waterboards.ca.gov/. Accessed 2019.
[6] United States Environmental Protection Agency (EPA). https://www.epa.gov/superfund/search-superfund-sites-where-you-live#map. Accessed 2019.

3 Evaluation of Potential Well Sites

Based on a review of online aerial imagery, vacant parcels, and parcel ownership, TH&Co identified five preliminary site locations within the Study Area for further evaluation as potential well sites (see Figures 1 and 4. Vacant parcels were identified using Los Angeles County's parcel database (dated 2016). TH&Co gave the proposed respective Assessor's Parcel Number (APN) to TRG for review on the First American title database to determine parcel owner and property value. TH&Co visited each of the five preliminary sites on 25-Jun-19 to evaluate the following:

- Rig access from the main roads
- Levelness of the property
- Presence of overhead utilities
- Signs of underground utilities
- Site dimensions
- Nearby potential contaminant sources (e.g. sewer manholes)

The following items were noted during the site visit but were not used in the ranking and evaluation of the potential sites:

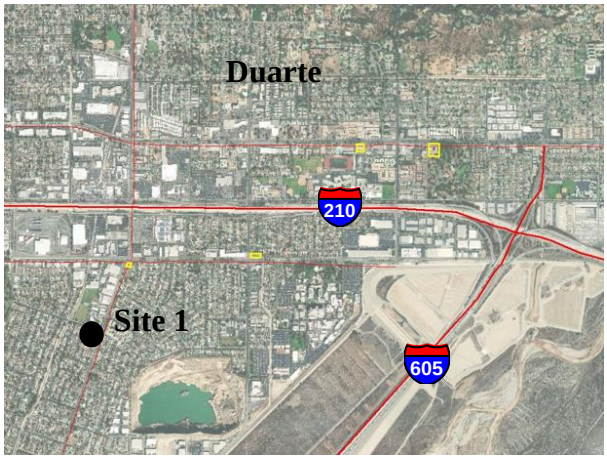
- Locations for discharge water generated during drilling
- Potential sources of water for drilling (i.e. fire hydrants)
- Need for noise control attenuation
- Amount of traffic surrounding the site

Further work to identify subsurface utilities will be necessary prior to finalizing the exact drilling location on each of the sites.

The following summarizes the evaluation of the five sites based on the site visit.

3.1 Site 1 – New Hope Church's Undeveloped Lot

Site 1 is a vacant, undeveloped parcel located at the intersection of Mountain Avenue and Euclid Avenue (see Figure 5). The parcel is privately-owned by New Hope Church of God in Christ in Duarte. The site contains adequate space for drilling rig and equipment. There are some trees on the site that might need to be removed.



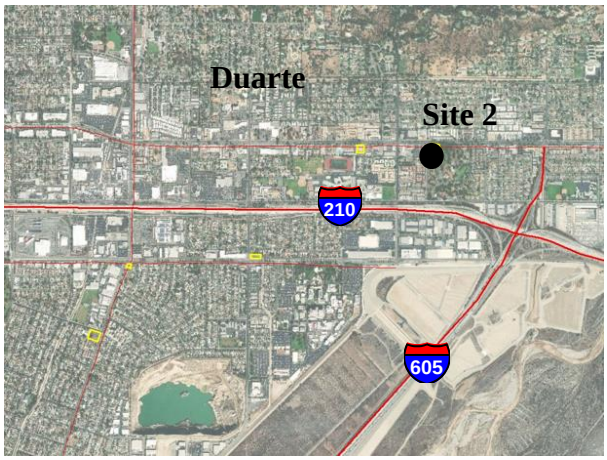
Evaluation Criteria – Site 1

Property Access/Ownership	Private Property owned by New Hope Church
Assessor Parcel Number (APN)	8521-008-047
Proximity to Existing Pipeline	Unknown
Proximity to Existing Well	Approximately 3,700 ft
Approximate Property Dimensions (Length x Width)	200 ft x 200 ft
Rig Access	Driveway from Euclid Avenue. Accessible level land. Minor site preparation might be required to remove trees (if necessary).
Observed Utilities	No overhead power lines trending across the site.
Potential Contaminant Sources	No sewer manholes observed on site.
Distance from Existing Active or Closed Clean-Up Sites	Approximately 0.3 miles away
Noise Control	Noise control (i.e. sound walls) will likely be necessary due to the surrounding residences.

Construction Water	Fire hydrant located across the street from the site on Mountain Avenue.
Traffic	Low – High (especially on weekends when church is in session)

3.2 Site 2 – Westminster Garden

Site 2 consists of a mostly vacant, undeveloped parcel owned by Westminster Gardens. Westminster Gardens is a senior living retirement community. The site is located within a residential neighborhood near the intersection of Santo Domingo Avenue and Huntington Drive (see Figure 6). The site contains adequate space for drilling rig and equipment. There are boulders and trees on site as well as unlevel land, so site maintenance will likely be necessary. A review of aerial imagery suggests this site is periodically used as a parking lot for the senior community. At the time of the site visit, there were no cars and gates were closed and locked.



Evaluation Criteria

Property Access/Ownership	Privately owned by Westminster Gardens
Assessor Parcel Number (APN)	8529-014-029
Proximity to Existing Pipeline	Unknown
Proximity to Existing Well	Approximately 1,380 ft
Approximate Property Dimensions (Length x Width)	230 ft x 270 ft

Rig Access	Driveway off of Santo Domingo Avenue through gate; Minor site maintenance may be necessary.
Observed Utilities	No powerlines extending across the site.
Potential Contaminant Sources	Sewer manhole located on Santo Domingo Avenue.
Distance from Existing Active or Closed Clean-Up Sites	Approximately 0.25 miles away
Noise Control	Noise control (i.e. sound walls) will likely be necessary due to the surrounding residences.
Construction Water	Fire hydrant located across the street from the site on Santo Domingo Avenue. Storm drain located across the street on Santo Domingo Avenue.
Traffic	Low traffic on side street, high traffic on Huntington Drive.

3.3 Site 3 – Undeveloped Lot Off of Mountain Avenue and East Duarte Road

Site 3 is a vacant, undeveloped parcel located at the intersection of Mountain Avenue and East Duarte Road (see Figure 7). The parcel is owned by the City of Duarte. The site contains adequate space for drilling rig and equipment. Some minor site preparation may be necessary to grade the site. The site dips steeply downwards from the surrounding sidewalk on the north and west portions of the site.

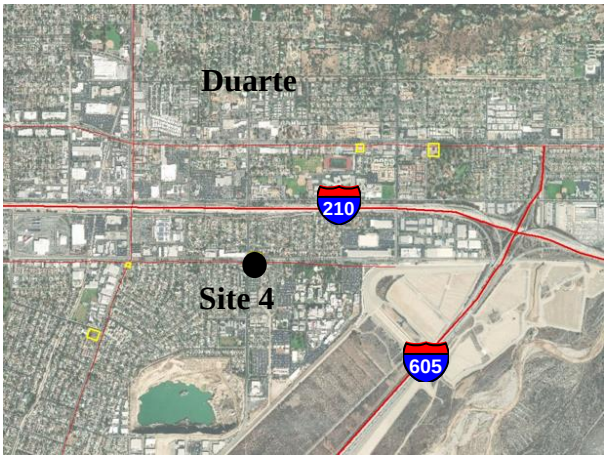
Evaluation Criteria

Property Access/Ownership	Property owned by the City of Duarte
Assessor Parcel Number (APN)	8531-017-903
Proximity to Existing Pipeline	Unknown
Proximity to Existing Well	Approximately 3,200 ft
Approximate Property Dimensions (Length x Width)	110 ft x 140 ft
Rig Access	There is no driveway into the lot but would be best to enter over the curb on Mountain Avenue. Minor site preparation may be necessary to grade the steep sides of the site.
Observed Utilities	Electrical vaults located in the sidewalk along East Duarte Road. No overhead power lines trending across the site.
Potential Contaminant Sources	Sewer manholes were not observed.
Distance from Existing Active or Closed Clean-Up Sites	Approximately 0.1 miles away
Noise Control	Noise control (i.e. sound walls) will likely be necessary due to the surrounding residences.
Construction Water	Hydrant located across the street on Mountain Avenue.
Traffic	Moderate - High (busy intersection)

3.4 Site 4 – Dura Properties' Parking Lot

Site 4 is a parking lot adjacent to the train tracks at the intersection of Buena Vista Street and East Duarte Road (see Figure 8). It is privately-owned by Dura Properties, LLC. The site

contains adequate space for drilling rig and equipment. Minor site maintenance might be necessary to remove trees and to redirect a power line trending through the site.



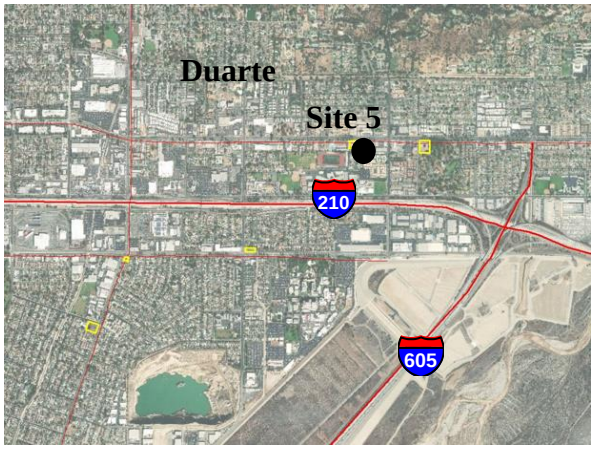
Evaluation Criteria

Property Access/Ownership	Privately owned by Dura Properties, LLC
Assessor Parcel Number (APN)	8528-005-053
Proximity to Existing Pipeline	Unknown
Proximity to Existing Well	Approximately 1,450 ft
Property Dimensions (Length x Width)	220 ft x 80 ft
Rig Access	Driveway into site off of Buena Vista Street. Minor site preparation might be required to remove trees and re-route pipeline (if necessary).
Observed Utilities	Overhead powerline ends on site. Utility building for train control on southern portion of the site.
Potential Contaminant Sources	Sewer manhole located on Buena Vista Street (at least 100 ft away)
Distance from Existing Active or Closed Clean-Up Sites	Approximately 0.05 miles away
Noise Control	Noise control (i.e. sound walls) will likely be necessary due to the

	surrounding residences.
Construction Water	Fire hydrant located at intersection of Buena Vista Street and Three Ranch Road. Storm drain located on Buena Vista Street sidewalk.
Traffic	Moderate - High (busy intersection)

3.5 Site 5 – Undeveloped Lot off Huntington Drive

Site 5 is a vacant, undeveloped parcel located off of Huntington Drive and Pops Road (see Figure 9). The parcel is owned by the City of Duarte. The site contains adequate space for drilling rig and equipment. The southern portion of the site has a berm and the western portion of the site dips down. Currently the site contains plants and trees with irrigation lines and hoses along the perimeter, so minor site preparation may be necessary to grade the site and remove any plants as deemed necessary.



Evaluation Criteria

Property Access/Ownership	Property owned by the City of Duarte
Assessor Parcel Number (APN)	8530-023-917
Proximity to Existing Pipeline	Unknown
Proximity to Existing Well	Approximately 2,250 ft
Property Dimensions (Length x Width)	140 ft x 135 ft

Rig Access	Access over the curb from Huntington Drive. Minor site preparation may be necessary.
Observed Utilities	No overhead powerlines trend along the site.
Potential Contaminant Sources	Two sewer manholes observed on Pops Road.
Distance from Existing Active or Closed Clean-Up Sites	Approximately 0.08 miles away
Noise Control	Noise control (i.e. sound walls) will likely be necessary due to the surrounding residences.
Construction Water	Fire hydrant located on site off of Huntington Drive.
Traffic	Moderate – High traffic along Huntington Drive

4 Methodology of Site Ranking

Each of the potential well sites evaluated for this study was ranked according to the following evaluation categories:

- Ease of property access
- Proximity to existing wells
- Potential well yield
- Proximity to potential contaminant sources
- Adequate space to drill the well
- Drilling rig access

Each evaluation category was assigned a subjective weighting factor (between 0.1 and 0.3) based on its relative importance to selecting a site. Evaluation categories were further assigned raw scores based on evaluation criteria that would make the site more or less favorable as a well site.

The ranking of the sites is a function of the weighting factor and the assigned raw score for each evaluation category (see Table 1). The product of the weighting factor and raw score results in a weighted score for each category (see Table 2). The sum of the weighted scores results in a final score that is ranked with the other sites. The site with the highest weighted score is ranked first, the next highest score is ranked second and so on.

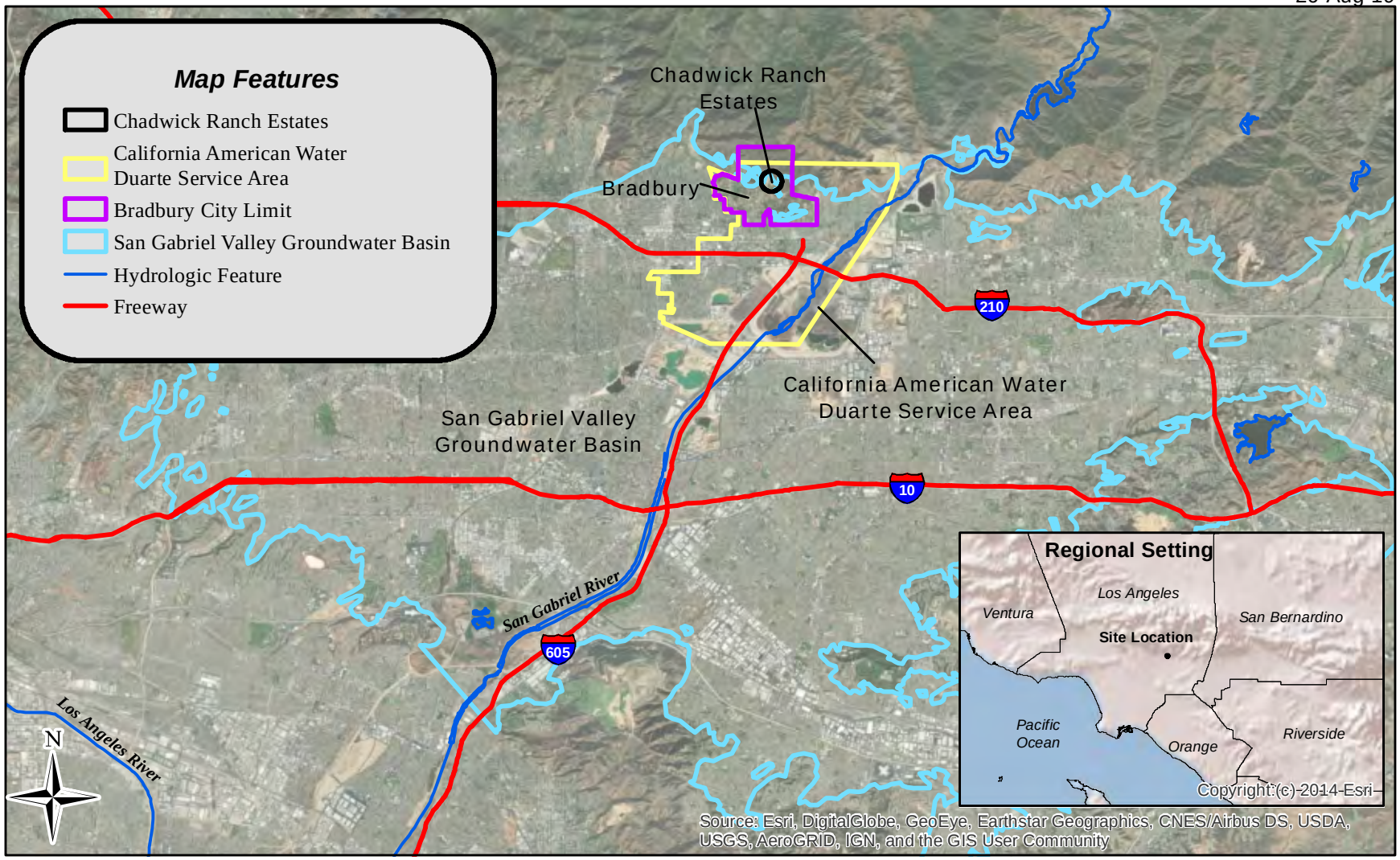
5 Results of Site Ranking and Recommendations

Based on the results of our evaluation, the five potential well sites have been ranked in the following order (in order of most favorable to least favorable):

1. Site 3 (Undeveloped Lot off Mountain Avenue and East Duarte Road)
2. Site 1 (New Hope Church's Undeveloped Lot)
3. Site 5 (Undeveloped Lot off Huntington Drive)
4. Site 4 (Dura Properties' Parking Lot)
5. Site 2 (Westminster Garden)

Of the sites reviewed, all of them score moderately to very high in most of the evaluation criteria categories. Based on the evaluation criteria categories and the weighting factors, Site 3 is the highest ranked based on ease of property access, proximity to existing wells, potential well yield, proximity to potential contaminant sources, adequate space for drilling equipment, and drilling rig access.

Figures



NAD 83 UTM Zone 11

Note: Groundwater basin boundary from Bulletin 118, California Department of Water Resources. Revised 2016.

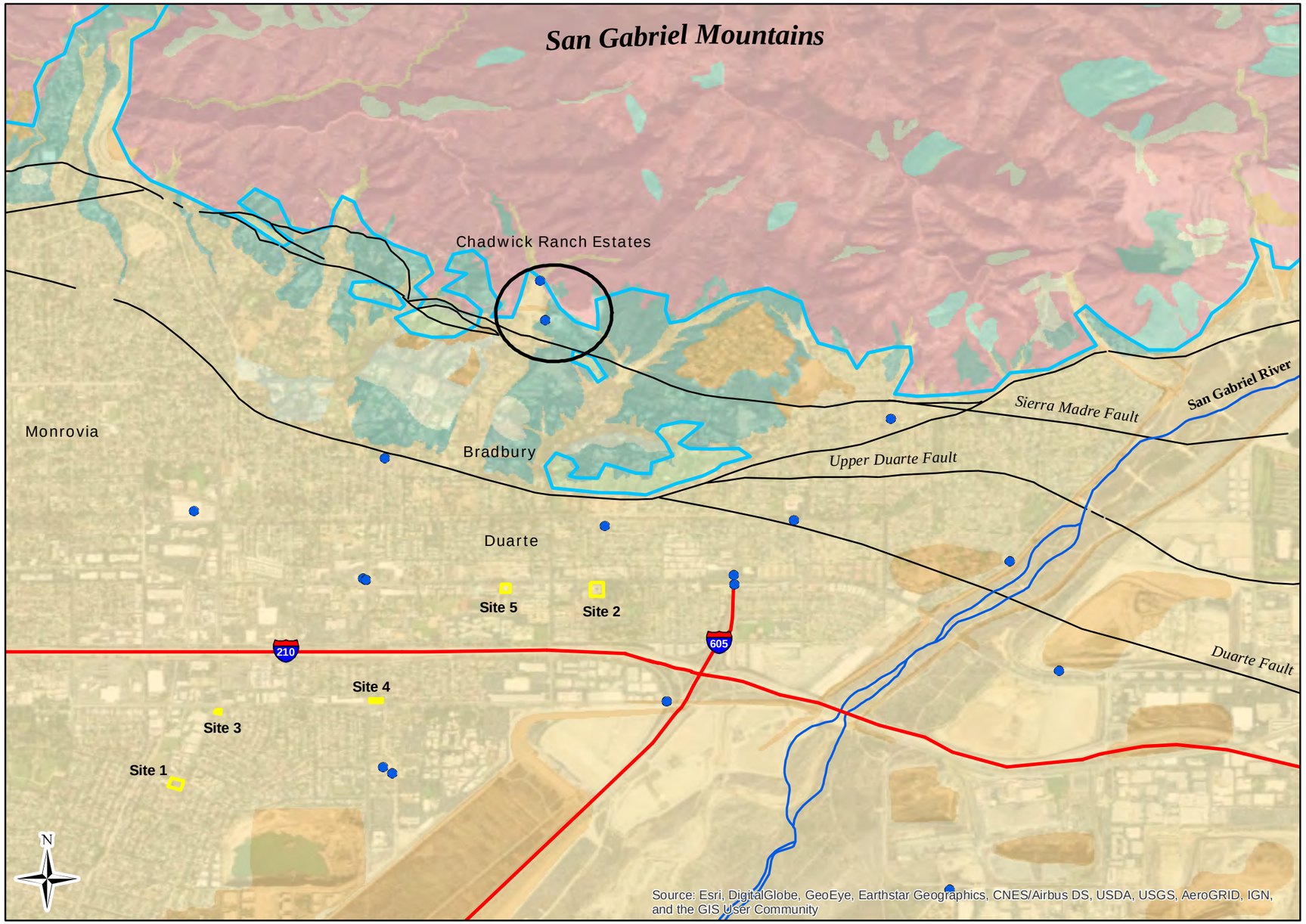
Thomas Harder & Co.
Groundwater Consulting

Area Map
Figure 1

TRG Land

26-Aug-19

Evaluation of Potential Well Sites for the Chadwick Ranch Estates



0 0.25 0.5 1 Miles

NAD 83 State Plane Zone 5

Map Features

Geologic Unit

- Artificial Fill
- Alluvial Deposits
- Old Alluvial Deposits
- Fine- and Coarse-grained Tertiary age sediments
- Coarse-grained formations of Pleistocene age sediments
- Tertiary age formations of volcanic origin
- Crystalline Bedrock
- Landslide Deposits
- Undifferentiated Surficial Deposits
- San Gabriel Valley Groundwater Basin
- Potential Well Site
- Chadwick Ranch Estates
- Fault
- San Gabriel River
- Freeway
- Existing Well

Note: Geology modified from California Geological Survey, Special Report 217 (Revised, 2012) and USGS Open-File Report 2005-1305

Well Locations from CASGEM and DWR Driller's Logs

Thomas Harder & Co.
Groundwater Consulting

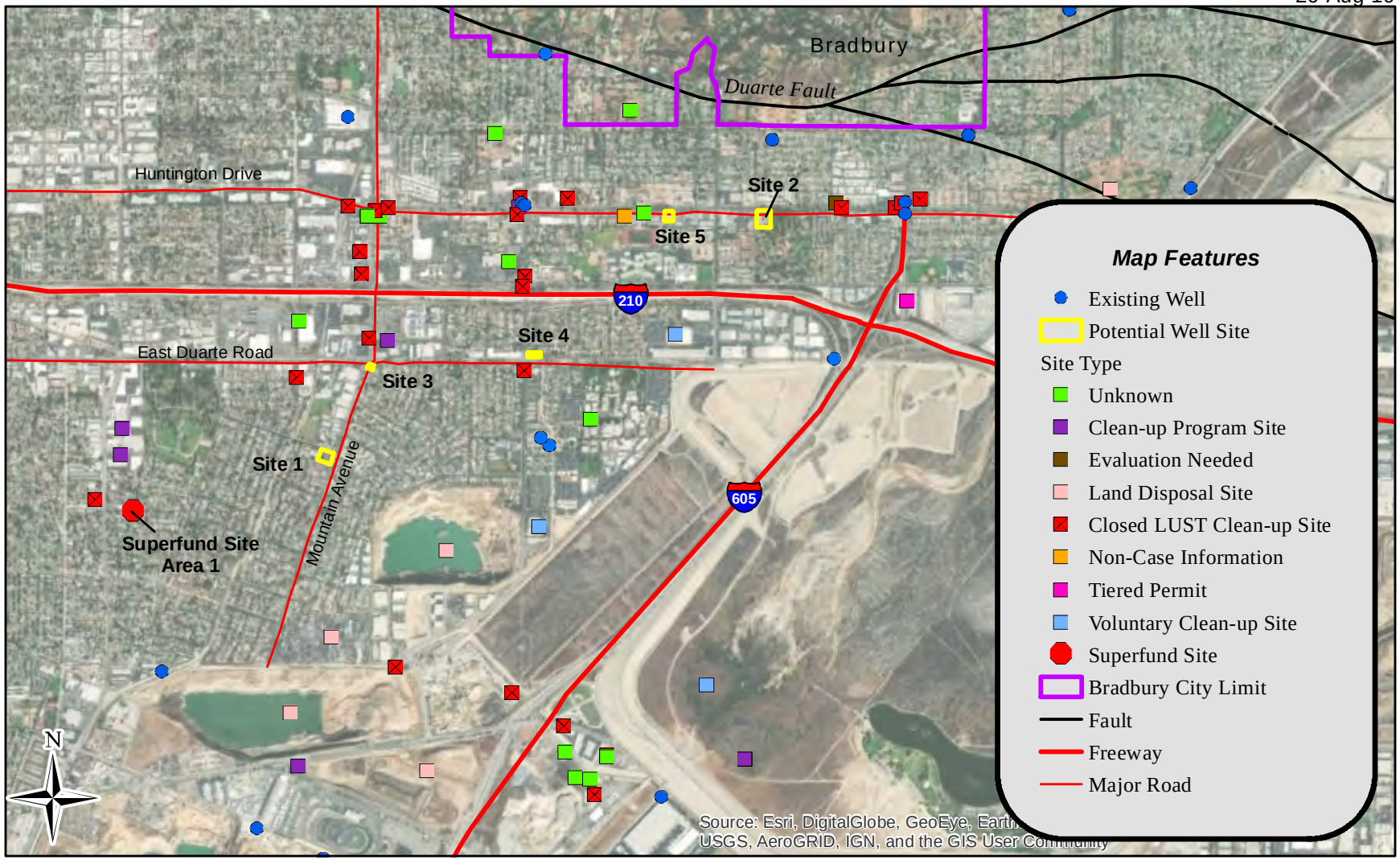
Geology Map

Figure 2

TRG Land

Evaluation of Potential Well Sites for the Chadwick Ranch Estates

26-Aug-19



0 1,000 2,000 4,000 Feet

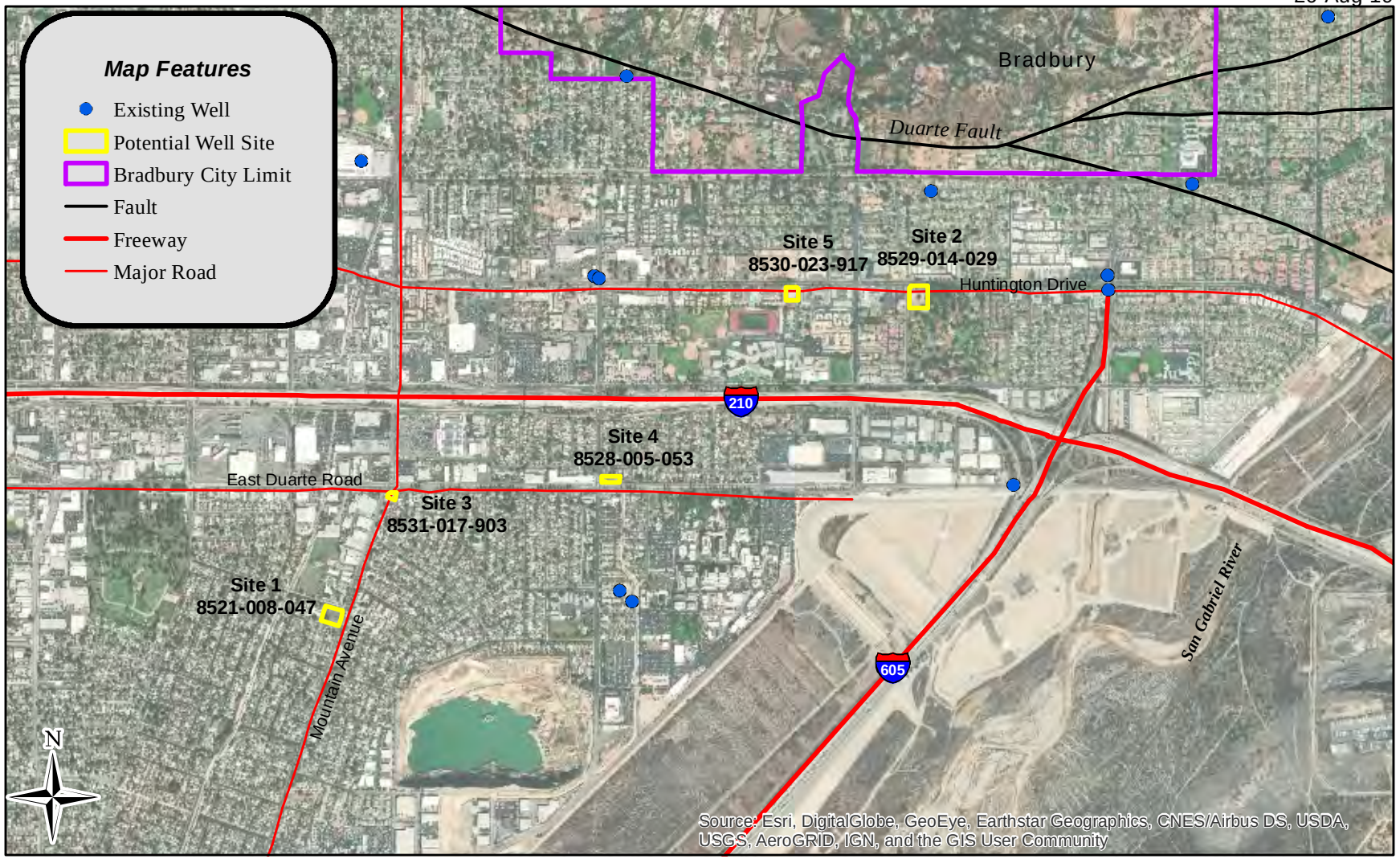
NAD 83 UTM Zone 11

Thomas Harder & Co.
Groundwater Consulting

Note: Well Locations from CASGEM and DWR Driller's Logs.
Parcels from Los Angeles County Parcel Assessor, 2016.
Potential Contaminating activity data from State Water Board Resources Control Board's Geotracker website and EPA website.

Potential Contaminating Activity Sites

Figure 3



NAD 83 UTM Zone 11

Note: Well Locations from CASGEM and DWR Driller's Logs.
Parcels from Los Angeles County Parcel Assessor, 2016.

Thomas Harder & Co.
Groundwater Consulting

Potential Well Sites
Figure 4

0 50 100 200 Feet

NAD 83 UTM Zone 11

Thomas Harder & Co. Groundwater Consulting

Note: Parcel from Los Angeles County Parcel Assessor, 2016.

Site 1
Figure 5

0 50 100 200 Feet

NAD 83 UTM Zone 11

Thomas Harder & Co. Groundwater Consulting

Note: Parcel from Los Angeles County Parcel Assessor, 2016.

Site 2
Figure 6

TRG Land

Evaluation of Potential Well Sites for the Chadwick Ranch Estates

26-Aug-19

0 25 50 100 Feet

NAD 83 UTM Zone 11

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Note: Parcel from Los Angeles County Parcel Assessor, 2016.

Site 3
Figure 7

NAD 83 UTM Zone 11

Thomas Harder & Co.
Groundwater Consulting

Note: Parcel from Los Angeles County Parcel Assessor, 2016.

Site 4
Figure 8

0 25 50 100 Feet

NAD 83 UTM Zone 11

Thomas Harder & Co. Groundwater Consulting

Note: Parcel from Los Angeles County Parcel Assessor, 2016.

Site 5
Figure 9

Tables

Analysis of Potential Well Sites
Well Sites Evaluation Criteria

Evaluation Category	Weighting Factor[1]	Raw Score Criteria	Raw Score
Ease of Property Access	0.3	Public or Local Agency	10
		Private Property/Purchase Required	5
Proximity to Existing Wells	0.2	> 2,500 ft	10
		1,500 - 2,500 ft	5
		< 1,500 ft	1
Potential Well Yield	0.15	Located South of the 210	10
		Located North of the 210	5
Proximity to Potential Contamination Sources	0.15	> 0.5 mile from Active or Closed Clean-up Site and No Sewer Manholes within 100 ft of Site	10
		0.25 - 0.5 mile from Active or Closed Clean-up Site and No Sewer Manholes within 100 ft of Site	5
		< 0.25 mile from Active or Closed Clean-up Site and/or <100 ft from Sewer Manhole	3
Adequate Space to Drill the Well	0.1	≥ 100 ft by 100 ft	10
		< 100 ft by 100 ft	5

Analysis of Potential Well Sites
Well Sites Evaluation Criteria

Evaluation Category	Weighting Factor[1]	Raw Score Criteria	Raw Score
Drilling Rig Access	0.1	Accessible Level Land	10
		Minor Site Preparation Required	5
		Major Site Preparation Required	1
	Total 1		

Notes:

[1]The weighting factor is a subjective term that indicates relative importance for evaluating potentially successful well sites. Higher values are assigned to categories with higher relative importance.

Analysis of Potential Well Sites
Well Sites Ranking Results

Evaluation Category	Weighting Factor	Weighted Score									
		Site 1		Site 2		Site 3		Site 4		Site 5	
		a	b	a	b	a	b	a	b	a	b
Ease of Property Access	0.3	5	1.5	5	1.5	10	3	5	1.5	10	3
Proximity to Existing Wells	0.2	10	2	1	0.2	10	2	1	0.2	5	1
Potential Well Yield	0.15	10	1.5	5	0.8	10	1.5	10	1.5	5	0.8
Proximity to Potential Contamination Sources	0.15	5	0.8	3	0.5	3	0.5	3	0.5	3	0.5
Adequate Space to Drill the Well	0.1	10	1	10	1	10	1	5	0.5	10	1
Drilling Rig Access	0.1	10	1	5	0.5	5	0.5	5	0.5	5	0.5
Totals	1	50	**7.8**	29	**4.4**	48	**8.5**	29	**4.7**	38	**6.7**
	Rank	**2**		**5**		**1**		**4**		**3**	

Notes:

a Raw score between 1-10. This is a subjective value based on the presence or absence of favorable site criteria.

b Weighted score - the product of the weighting factor and raw score.

Attachment A

DWR Well Driller's Logs

JAN 25 1968

N.I. 15415

ORIGINAL
File with DWR

WATER WELL DRILLERS REPORT

(Sections 7079, 7080, 7081, 7082, Water Code)

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Do Not Fill In

No. 35116

State Well No. 01N/10W-29R2

Other Well No.

(N/A

(2) LOCATION OF WELL:

County Los Angeles Owner's number, if any

Township, Range, and Section West side of the San Gabriel River and

Distance from cities, roads, railroads, etc. Huntington Drive, Duarte, Calif

(3) TYPE OF WORK *(check):*

New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐

If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE *(check):*

Domestic ☐ Industrial ☐ Municipal ☐

Irrigation ☐ Test Well ☐ Other ☒

(5) EQUIPMENT:

Rotary ☐

Cable ☒

Other ☐

(6) CASING INSTALLED:

STEEL: OTHER:

SINGLE ☐ DOUBLE ☒

If gravel packed

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
0	600'	- 20"	No. 8 gauge double well casing			

Size of shoe or well ring: 20x14x1-1/4" Size of gravel:

Describe joint

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
350	580	9 holes	per 5	inches

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes ☐ No ☐ To what depth ft.

Were any strata sealed against pollution? Yes ☐ No ☐ If yes, note depth of strata

From ft. to ft.

From ft. to ft.

Method of sealing

(9) WATER LEVELS:

Depth at which water was first found, if known 270 ft.

Standing level before perforating, if known 265 ft.

Standing level after perforating and developing 265 ft.

(10) WELL TESTS:

Was pump test made? Yes ☒ No ☐ If yes, by whom? Roscoe Moss

Yield: 3500 gal./min. with 53 ft. drawdown after 28.5 hrs.

Temperature of water Was a chemical analysis made? Yes ☐ No ☐

Was electric log made of well? Yes ☐ No ☐ If yes, attach copy

(11) WELL LOG:

Total depth 600 ft. Depth of completed well ft.

Formation: *Describe by color, character, size of material, and structure*

ft. to	ft.	
0	190'	Gravel, sand and boulders
190	255'	Sand and gravel
255	275'	Gravel, sand and some boulders
275	300'	Loose sand and gravel
300	320'	Sand and gravel and small gravel
320	405'	Sand and gravel, boulders to 12"
405	412'	Cemented sand and gravel 2"
412	486'	Sand, gravel and boulders to 10"
486	600'	Sand, gravel and boulders to 6"

CONFIDENTIAL - NOT FOR PUBLIC RELEASE

Work started 10-2-67 19, Completed 12-30-67 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Roscoe Moss Company

(Person, firm, or corporation) *(Typed or printed)*

Address 4360 Worth Street

Los Angeles, California.

[SIGNED] (Well Driller) Secretary

License No. 624 C-57 Dated Jan 24, 1968 19

SKETCH LOCATION OF WELL ON REVERSE SIDE

56391-950 10-65 50M TRIP ① △ OSP

35116

Land situated in the County of Los Angeles, State of California, described as follows:

That portion of Section 29, Township 1 North, Range 10 West, in the Rancho Azusa de Duarte, in the City of Irwindale, in the County of Los Angeles, State of California, as per map recorded in Book 6 Page 80 to 82 of Miscellaneous Records, in the Office of the County Recorder of said County, described as follows:

Beginning at the intersection of the Southwesterly line of Tract No. 13436, as per map recorded in Book 294, Page 20 of Maps, Records of said County, with the Southwesterly prolongation of the Northwesterly line of Lot 56 of said Tract No. 13436, thence along said prolongation South 25° 24' 22" West 441.44 Feet, thence North 45° 07' 07" East to the Southwesterly line of said Tract No. 13436 and the true point of beginning; thence Northwesterly along said Southwesterly line, a distance of 55.00 feet, thence South 25° 24' 22" West along a line parallel with the Northwesterly line of said Lot 56 and its Southwesterly prolongation to the intersection of that certain line above described as North 45° 07' 07" East, thence along last mentioned line, North 45° 07' 07" East to the true point of beginning.

CALIFORNIA AMERICAN WATER CO.
SAN GABRIEL VALLEY DIVISION
DUARTE DISTRICT

CROWNHAVEN
WELL PLANT
DESCRIPTION

35116

1N/10W-29R2

76W348 106 REV. Gdb 7-60 — SHEET 1

LOS ANGELES COUNTY
FLOOD CONTROL DISTRICT
Water Conservation Division
WELL DATA

Location and Description: 322' S.W. of S.W. curb of Huntington Drive;
210± E. of E. curb of Crownhaven Drive
59' N.W. of N.W. leg of power transmission line tower #105-3; 113' S.W. of power-pole #1041894E

Use: None-4-29-68

Elev. of average grd. at well: 575±' U. S. G. S. Datum

Elev. of grd. adjacent to well: U. S. G. S. Datum

Water surface reference points:

(a) From 4-29-68 To Elev. 576.3 How det. Topo.
Description: Top of 20" casing, 1.3' above grd.

(b) From 5-14-68 To Elev. 576.7 How det. Topo.
Description: Top of 2½" meas. pipe, 1.7' above grd.

(c) From To Elev. How det.
Description:

(d) From To Elev. How det.
Description:

Type of well: Cable Tool Size 20"-600'

Original depth: 600' Soundings:

Pumping equipment: None-4-29-68

Power used:

Capacity: 3500 GPM Drawdown: 53'; W.L. @ 267 prior to test

Date drilled: 12-30-67 By Roscoe Moss Co.

Artesian characteristics:

Quality of water:

Remarks: Well field checked-4-29-68

(over)

Well Numbers — Owner: Crownhaven Pl. — D.W.R. No. 1N/10W-29R2 Loc. — D.W.R. — F.C. 4256

35116

LOG OF WELL NO. 4256

FROM	TO	CLASSIFICATION OF MATERIALS	FROM	TO	CLASSIFICATION OF MATERIALS
0	190	Gravel, sand & boulders			
190	255	Sand & gravel			
255	275	Gravel, sand & some boulders			
275	300	Loose sand & gravel			
300	320	Sand & gravel & small boulders			
320	405	Sand & gravel, boulders to 12"			
405	412	Cemented sand & gravel 2"			
412	486	Sand, gravel & boulders to 10"			
486	600	Sand, gravel & boulders to 6"			

Perforations 350' – 580'

Placed cement plug in bottom of well.

Struck water at 270'

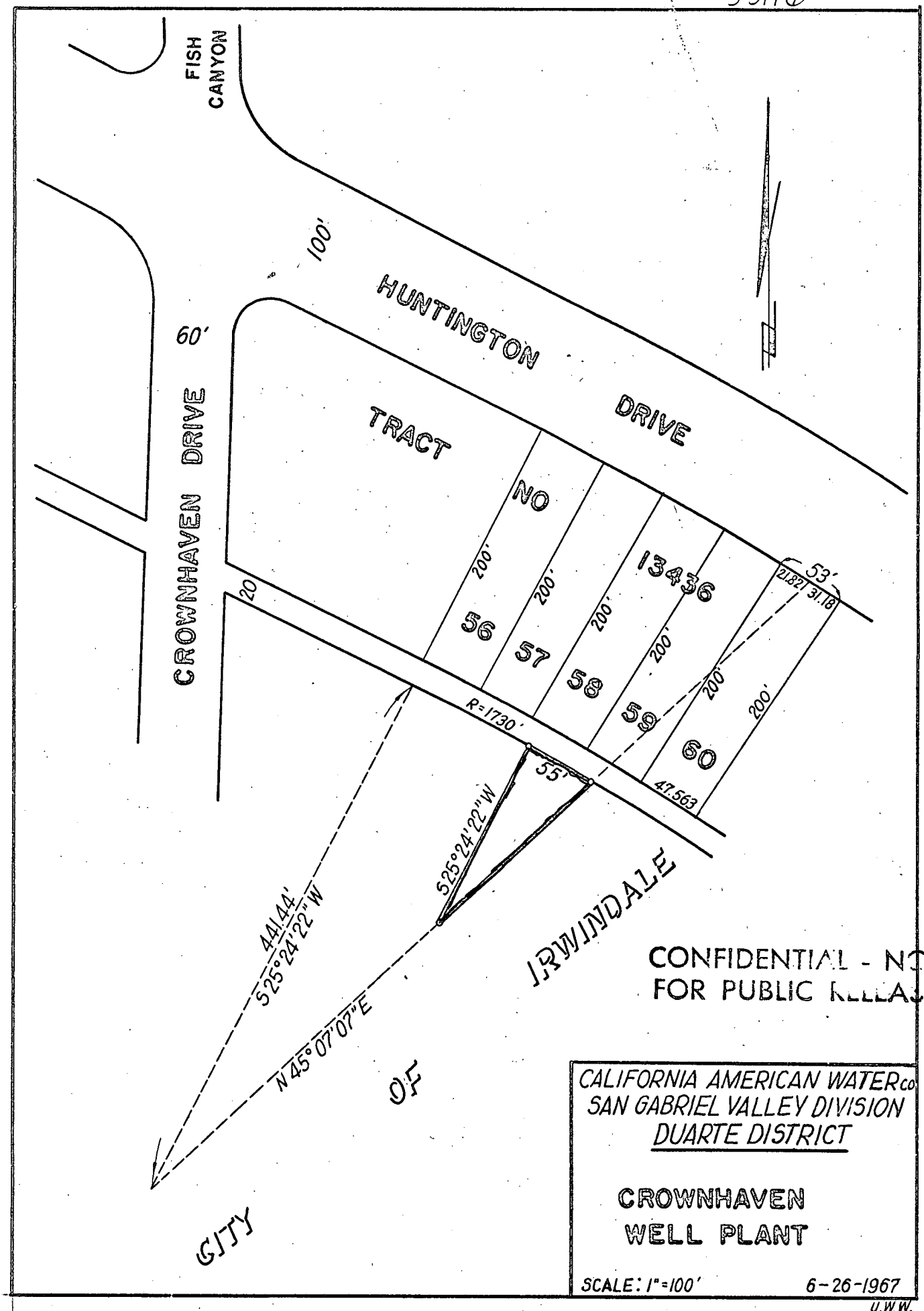
Water level before perf. 265' after perf. 268'

Remarks Above log obtained from owner.
Confidential Well log & other data in Confidential Well Log Files

(over)

4256

35116



CONFIDENTIAL - NOT FOR PUBLIC RELEASE

CALIFORNIA AMERICAN WATER CO
SAN GABRIEL VALLEY DIVISION
DUARTE DISTRICT

CROWNHAVEN WELL PLANT

SCALE: 1"=100' 6-26-1967

U.W.W.

File Original with DWR

MVR 7/21/2011

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO. 01N10W31M002S

LATITUDE ____ LONGITUDE ____

APN/TRS/OTHER ____

Page 1 of 2

Owner's Well No. Buena Vista Well #2 No. e0131337

Date Work Began November 2010 Ended April 12 2011

Local Permit Agency Los Angeles County Dept Env Health

Permit No. 890962 Permit Date 10/26/10

GEOLOGIC LOG

ORIENTATION (X) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Reverse Rotary FLUID ____

DEPTH FROM SURFACE FL	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
40	360	Sand & Rock
360	370	Sand, some rock
370	440	Sand & Rock
440	450	Little Sand & Rock
450	480	Sand & Rock
480	490	Clay, sand, & rock
490	500	Sand & Rock
500	510	Sand & Little Rock
510	680	Sand & Rock
680	700	Sand & Gravel
700	734	Sand, gravel, some cobbles

06/09/11

TOTAL DEPTH OF BORING 734 (Feet)

TOTAL DEPTH OF COMPLETED WELL 720 (Feet)

WELL OWNER

WELL LOCATION

Address 2006 Buena Vista St

City Duarte Ca (STATE) (ZIP)

County Los Angeles

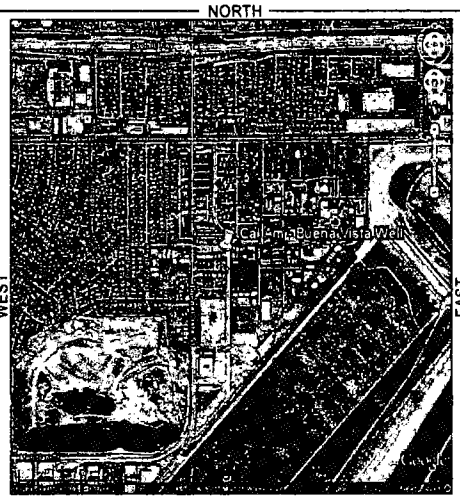
APN Book 8533 Page 008 Parcel 026

Township 1N Range 10W Section 31 M

Latitude 34 (DEG.) 7 (MIN.) 41.7 (SEC.) NORTH

Longitude 117 (DEG.) 58 (MIN.) 34 (SEC.) WEST

LOCATION SKETCH



Illustrate or Describe Distance Of Well from Roads Buildings, Fences, Rivers etc and attach map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (X)

X NEW WELL

___ MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (X)

WATER SUPPLY X

___ Domestic X Public

___ Irrigation ___ Industrial

MONITORING ___

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER Unknown (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 196.05 (Ft.) & DATE MEASURED 4/7/2011-4/13/2011

ESTIMATED YIELD 2,240 (GPM) & TEST TYPE Step, develop, constant

TEST LENGTH 53.5 (Hrs.) TOTAL DRAWDOWN 8.35 (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (inches)	TYPE (-) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	OUTSIDE DIAMETER (inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	40	44			X		LCS	36	.375	
0	300	32	X				LCS	18	.312	
300	340	32		X			LCS-Ful-Flo	18	.312	.070 slotted
340	360	32	X				LCS	18	.312	
360	472	32		X			LCS-Ful-Flo	18	.312	.070 slotted
472	490	32	X				LCS	18	.312	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (X)	BENTONITE (X)	FILL (X)	FILTER PACK (TYPE/SIZE)
0	264	X			10.3 sack sand slurry
264	269				Transition Seal
269	734			X	1/4x16 Tacna

ATTACHMENTS (X)

X Geologic Log

X Well Construction Diagram

X Geophysical Log(s)

___ Soil/Water Chemical Analyses

X Other Test Pump Data;Well Survey

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Layne Christensen Company (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 11001 Etiwanda Ave CITY Fontana STATE Ca ZIP 92337

Signed ____ (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 6/1/2011

C-57 LICENSE NUMBER 510011

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

File Original with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. Buena Vista Well #2 No. e0131337
Date Work Began November 2010 Ended April 12 2011
Local Permit Agency Los Angeles County Dept Env Health
Permit No. 890962 Permit Date 10/26/10

GEOLOGIC LOG

ORIENTATION (X) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Reverse Rotary FLUID ___

DEPTH FROM SURFACE FL	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
40	360	Sand & Rock
360	370	Sand, some rock
370	440	Sand & Rock
440	450	Little Sand & Rock
450	480	Sand & Rock
480	490	Clay, sand, & rock
490	500	Sand & Rock
500	510	Sand & Little Rock
510	680	Sand & Rock
680	700	Sand & Gravel
700	734	Sand, gravel, some cobbles

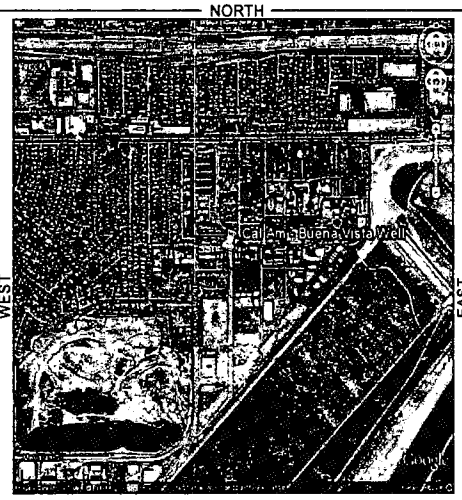
TOTAL DEPTH OF BORING 734 (Feet)
TOTAL DEPTH OF COMPLETED WELL 720 (Feet)

WELL OWNER

WELL LOCATION

Address 2006 Buena Vista St
City Duarte Ca ___ (STATE) (ZIP)
County Los Angeles
APN Book 8533 Page 008 Parcel 026
Township 1N Range 10W Section 31
Latitude 34 (DEG.) 7 (MIN.) 41.7 (SEC.) NORTH Longitude 117 (DEG.) 58 (MIN.) 34 (SEC.) WEST

LOCATION SKETCH



Illustrate or Describe Distance Of Well from Roads Buildings, Fences, Rivers etc and attach map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (X)

X NEW WELL
___ MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (X)
WATER SUPPLY X
___ Domestic X Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER Unknown (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 196.05 *(Ft.)* & DATE MEASURED 4/7/2011-4/13/2011
ESTIMATED YIELD 2,240 (GPM) & TEST TYPE Step, develop, constant
TEST LENGTH 53.5 (Hrs.) TOTAL DRAWDOWN 8.35 *(Ft.)*
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (inches)	TYPE (-) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	OUTSIDE DIAMETER (inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
490	700	32		X			LCS-Ful-Flo	18	.312	.070 slotted
700	720	32	X				LCS-S.E. Head	18	.312	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CE-MENT (X)	BEN-TONITE (X)	FILL (X)	FILTER PACK (TYPE/SIZE)
0	264	X			10.3 sack cement
264	269				Transition Seal
269	734			X	1/4x16 Tacna

ATTACHMENTS (X)

X Geologic Log
X Well Construction Diagram
X Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other Test Pump Data;Well Survey

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

1, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Layne Christensen Company (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 11001 Etiwanda Ave CITY Fontana STATE Ca ZIP 92337

Signed ___ WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED 6/1/2011

C-57 LICENSE NUMBER 510011

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

~~[illegible]~~ 0131337

WELL PERMIT APPLICATION - PRODUCTION WELLS

DRINKING WATER PROGRAM - ENVIRONMENTAL HEALTH DIV.
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 TELE (626) 430-5420 FAX (626) 813-3016

DATE 10/26/10

☒ NEW WELL CONSTRUCTION ☐ RECONSTRUCTION OR RENOVATION ☐ DECOMMISSIONING ☐ OTHER: _____
☐ PRIVATE DOMESTIC ☐ PRIVATE IRRIGATION ☐ OTHER: _____

WELL LOCATION

Site Address: 2002 BUENA VISTA ST. City: DUARTE Zip Code: 91010
Town ship: 1 N Range: 10 W Section: 21 Map Book Page/Grid: P. 566, GRID A6/A7
GPS location: (To be completed after the final seal)

WELL STRUCTURE

Type and Size of Production Casing: 18" x .375 W STEEL, LOW CARBON STEEL Sanitary / Annular Sealing Material: PORTLAND CEMENT.
Depth of Sanitary / Annular Seal: 260' Conductor Casing Seal: 50' CEMENT SEAL

WATER INFORMATION

DRILLER INFORMATION

Driller's Name: LAYNE CHRISTENSEN CO. Telephone Number: 909-390-2833 C-57 License Number: 710011
Address: 11001 ETIWANDA AVE. City: FONTANA CA Zip Code: 92337

WELL DECOMMISSIONING INFORMATION

Well Depth ☐ log/records | Method of Well Assessment | Depth and Number of Perforations
Type and Amount of Sealant | Type of Perforator | Size of Perforations | Method of Upper Seal Pressure Application

FAX 909-390-6097

CONSULTANT INFORMATION

Company: GEI CONSULTANTS
Address: 10610 GOLD CENTER DR. City: RANCHO CORDOVA State: CA Zip Code: 95670
Project Manager: RICHARD SHATZ Telephone Number: 916-631-4566

ATTENTION: WORK PLAN MODIFICATIONS MAY BE REQUIRED IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED AT THE SITE INSPECTION ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS DEPARTMENT.

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction, and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well, giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by the County Environmental Health Division.

Signature of C-57 Licensee: _____ Printed Name: ROBERT ERONY

THIS PERMIT IS NOT COMPLETE UNTIL ALL OF THE FOLLOWING REQUIREMENTS ARE SIGNED OFF BY THE DEPUTY HEALTH OFFICER. WELL CONSTRUCTION OR DECOMMISSIONING CANNOT BE INITIATED WITHOUT A WORK PLAN APPROVAL FROM THIS DEPARTMENT.

**********(DEPARTMENT USE ONLY)**********

WORK PLAN APPROVAL

REHS: Luan Rodriguez DATE: 10/26/10

Conditions:
On 10/26/10 $327 was paid for Permit # 390962 to install a production well. Maintain all set backs. Notify this office at 626 430-5420 or lrodriguez@ph.lacounty.gov 48 hrs prior to the work being done!

FINAL INSPECTION

The placement of the sanitary seal must be witnessed by a Department of Public Health representative. Call the Department to arrange for an inspection.

REHS: _____ DATE: _____

Vincent Gallegos, B.S., R.E.H.S.
Environmental Health Specialist III

Environmental Health
Bureau of Environmental Protection
Drinking Water Program

ADMINISTRATIVE HEADQUARTERS
5050 Commerce Drive
Baldwin Park, CA 91706

(626) 430-5420 Tel (626) 813-3016 Fax

vgallegos@ph.lacounty.gov
www.lapublichealth.org/eh

COUNTY OF LOS ANGELES Public Health

Cal Am - Ord...

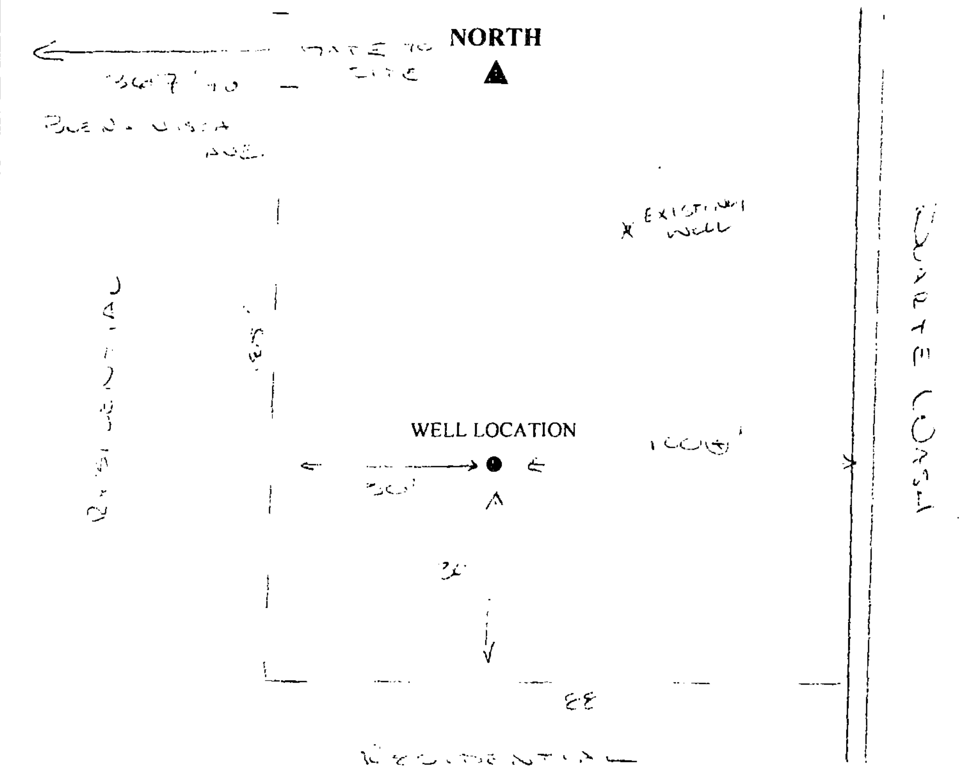
e0131337

WELL PERMIT APPLICATION - PRODUCTION WELLS

Well Location (Include distances from road and major cross streets)	
Plot ? Farm (East) Buena Vista Ave.	
Projected Start Date 11/1/10	Projected End Date 1/1/11

WELL LOCATION DIAGRAM

At site inspection, the well location must be staked and clearly marked with the owner's name



Provide a scaled drawing (1 inch = 50 feet) with labels and dimensions, indicating property lines, private sewage disposal systems and other possible sources of contamination within 200 feet of the well site. Attach all supporting documents.

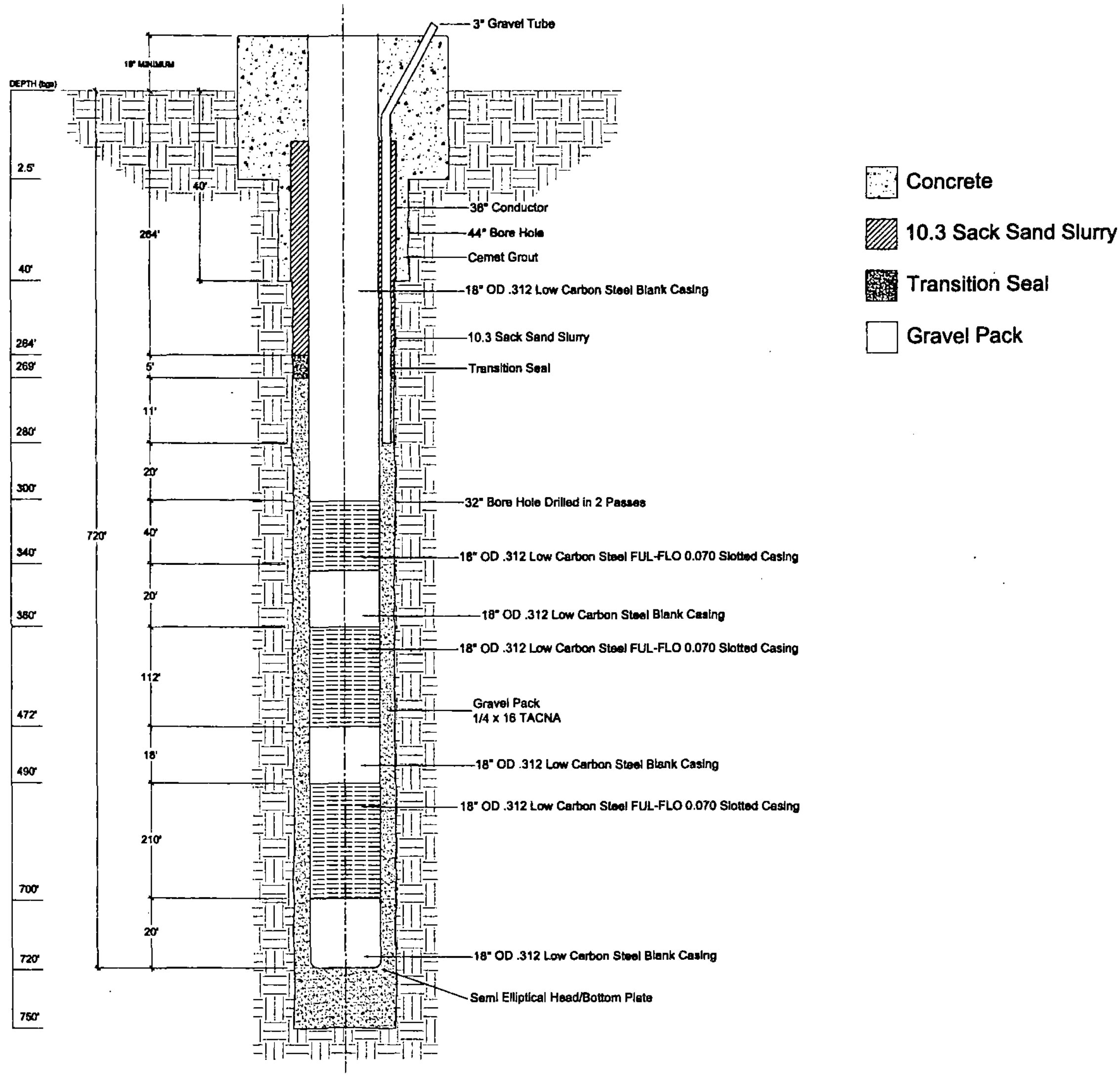
WELL DECOMMISSIONING DIAGRAM

WORK PLAN DETAILS
(Construction or Decommissioning)

Drill and set conductor. Drill pilot hole to 800' perform geo logging. Ream hole and set casing / screen gravel pack and grout annulus. Develop well. Install perm pump & motor.

NOTES/COMMENTS (Department Use Only)

Revised 10/07



G:\Common\Eric Christensen\Projects\1000-1974 - Cal Am Water Buena Vista\Design and Engineering\Final Design Drawings\Final submitted plans\WP-1

DIGALERT

(811) UNDERGROUND SERVICE ALERT
CALL AT LEAST 2 WORKING DAYS PRIOR TO EXCAVATING

Drawing Revisions

Date of Revision	Sheet	Revisions Made	Date of Revision	Sheet	Revision Made
12/30/10	M-1	Well & Casing Depth and Distances			
1/12/11	M-1	[illegible]			

Reviewed By:

Approved By:

MARTIN JAMES O'MALLEY
No. 27217
Exp. 3/31/11
CIVIL
STATE OF CALIFORNIA

ENGINEERS STAMP

NOTES/COMMENTS (Department Use Only)

Revised 10/07

CAL Am

e0131337

May 2011 omni form

LAYNE CHRISTENSEN COMPANY
FORMATION REPORT

Date: Dec. 6, 2010

Start Date:

Customer:

Completion Date:

Job Number: 1020-1974

Diameter of Hole: 17 1/2

Well Number:

Depth of Well: 200 ft

FOOTAGE	DESCRIPTION OF FORMATION	FOOTAGE	DESCRIPTION OF FORMATION
40-50	Sand & Rock	230-240	Sand & Rock
50-60	Sand & Rock	240-250	Sand & Rock
60-70	Sand & Rock	250-260	Sand & Rock
70-80	Sand & Rock	260-270	Sand & Rock
80-90	Sand & Rock	270-280	Sand & Rock
90-100	Sand & Rock	280-290	Sand & Rock
100-110	Sand & Rock	290-300	Sand & Rock
110-120	Sand & Rock	300-310	Sand & Rock
120-130	Sand & Rock	310-320	Sand & Rock
130-140	Sand & Rock	320-330	Sand & Rock
140-150	Sand & Rock	350-340	Sand & Rock
150-160	Sand & Rock	340-350	Sand & Rock
160-170	Sand & Rock	350-360	Sand & Rock
170-180	Sand & Rock	360-370	Sand Some Rock
180-190	Sand & Rock	370-380	Sand & Rock
190-200	Sand & Rock	380-390	Sand & Rock
200-210	Sand & Rock	390-400	Sand & Rock
210-220	Sand & Rock	400-410	Sand & Rock
220-230	Sand & Rock	410-420	Sand & Rock

CAL AM
DUARTE CA

C0131337
1000-1974

LAYNE CHRISTENSEN COMPANY
FORMATION REPORT

Date: _____ Start Date: _____

Customer: _____ Completion Date: _____

Job Number: 812-360-5497 Diameter of Hole: _____

Well Number: _____ Depth of Well: _____

FOOTAGE	DESCRIPTION OF FORMATION	FOOTAGE	DESCRIPTION OF FORMATION
420-430	Sand & Rock	610-620	Sand & Rock
430-440	Sand & Rock	620-630	Sand & Rock
440-450	Lite Sand-Rock	630-640	Sand & Rock
450-460	Sand & Rock	640-650	Sand & Rock
460-470	Sand & Rock	650-660	Sand & Rock
470-480	Sand & Rock	660-670	Sand & Rock
480-490	Clay Sand & Rock	670-680	Sand & Rock
490-500	Sand & Rock	680-690	Sand & Gravel
500-510	Sand Little Rock	690-700	Sand & Gravel
510-520	Sand & Rock	700-710	Sand Gravel Some Cobbles
520-530	Sand & Rock	710-720	Sand Gravel Some Cobbles
530-540	Sand & Rock	720-734	Sand Gravel Some Cobbles
540-550	Sand & Rock		
550-560	Sand & Rock		
560-570	Sand & Rock		
570-580	Sand & Rock		
580-590	Sand & Rock		
590-600	Sand & Rock		
600-610	Sand & Rock		

Layne Christensen Company

e0131337

Date: 4-7-11 Page 1

Customer: ? NEW WELL #1 Job No. 27- 1000 1974

Meter 10" X 1000 Static level 200.00 Feet Hours/Page 5.0
Airline depth _____ Feet Total hours 5.0
G.P.D.

Operator: J. ALBA.

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments	FAU	TSS
8:30			200.0				METER READING 023794.0		
START 9:33									
10:00	33.37	529.62	202.0	2.0	1201	264.81	LT. COLOR Q↑ 809.3		
10:15	2.82	813.33	202.95	2.95	1253	275.70	CLR Q↑ 821.5		
10:30	3.53	1053.33	204.1	4.1	1304	256.91	CLR VALVE OVER TO WASH 837.3		
10:45	2.12	1280.0	204.85	4.85	1353	263.91	CLR Q↑ 856.5		
11:00	4.59	1580.0	206.16	6.16	1404	256.49	CLR Q↑ 880.2		
11:15	2.82	1760.0	207.0	7.0	1437	251.42	CLR 906.6		
11:30	0.35	1766.66	207.0	7.0	1457	252.38	CLR Q↑ 933.1		
11:48	2.94	1933.33	207.78	7.78	1514	248.50	CLR Q↑ 967.9		
12:00	1.76	2083.33	208.45	8.45	1563	246.54	CLR 992.9		
			SURGE X 3						
12:06			RESUME	PUMPING			023993.7		
12:21	3.53	686.66	202.51	2.51	1213	273.57	CLR 024004.0		
			SURGE X 3						
12:26			RESUME	PUMPING			4.5		
12:41	2.82	746.66	202.5	2.5	1212	298.66	CLR 15.2		
			SURGE X 3						
12:46			RESUME	PUMPING			16.0		
1:01	1.76	686.66	202.45	2.45	1212	280.27	CLR Q↑ 26.3		
			SURGE X 3						
1:06			RESUME	PUMPING			27.4		
1:21	2.47	840.0	203.1	3.1	1252	270.96	CLR 40.0		
			SURGE X 3						
1:26			RESUME	PUMPING			41.5		
1:41	1.76	833.33	203.1	3.1	1251	268.81	CLR 54.0		
			SURGE X 3						
1:46			RESUME	PUMPING			55.0		
2:01	2.12	833	203.1	3.1	1251	268.81	CLR Q↑ 67.5		
2:06			SURGE X 3	RESUME	PUMPING		68.5		
2:21	0.35	1073.33	203.87	3.87	1305	277.34	CLR 84.6		

Layne Christensen Company

e0131337

Date: 4-7-11 Page 2

Customer: _____ NEW WELL #1 Job No. 27- 1000-1974

Meter 10" X 1000 Static level 200.00 Feet Hours/Page 1.5
Airline depth _____ Feet Total hours 6.5
G.P.D. 381,000.0

Operator: J. ARBA

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments	FAU	TSS
			SURGE X3						
2:26			RESUME	PUMPING			85.7		
2:41	1.76	1080.0	203.81	3.81	1305	283.46	CLR 101.9		
			SURGE X3						
2:46			RESUME	PUMPING			102.5		
3:01	0.35	1073.33	203.81	3.81	1305	281.71	CLR 118.6		
			SURGE X3						
3:06			RESUME	PUMPING			119.2		
3:21	0.35	1073.33	203.81	3.81	1305	281.71	CLR Q↑ 135.3		
			SURGE X3						
3:26			RESUME	PUMPING			136.4		
3:41	0.35	1273.33	204.65	4.65	1358	273.83	CLR 155.5		
3:56	0.35	1273.33	204.65	4.65	1358	278.13	CLR 174.9		

Layne Christensen Company

E0131337

Date: 4-8-11 Page 3

Customer: NEW WELL #1 Job No. 27-1000-1974

Meter 10" X 1000 Static level 198.00 Feet Hours/Page 5 1/2
Airline depth _____ Feet Total hours 12
G.P.D. 461,900

Operator: R. WEBER

develop

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments		FAU	TSS
10:40	START -		All measurements		2175' A.G.S		METER-24176.5			
:55	0.28	1067	201.75'	3.75'	1305	285	CLEAR - SX3	192.5		
11:02	resume							194.1		
:17	0.18	1527	203.63'	5.63'	1405	271	CLR - SX3	217		
:22	resume							218.5	0	0
:37	0.18	1533	203.67'	5.67'	1400	270	CLR - SX3	241.5		
:41	resume							242.5		
:56	0.18	1700	204.32'	6.32'	1450	269	CLR - SX3	268		
12:00	resume							269.3		
:15	0.18	1693	204.35'	6.35'	1453	267	CLR - SX3	294.7		
:20	resume							296.9		
:35	0.18	1713	204.35'	6.35'	1457	270	CLR - SX3	322.6		
:40	resume							324.9		
:55	0.18	1707	204.38'	6.38'	1455	268	CLR - SX3	350.5		
1:00	resume							353		
:15	0.11	1873	204.91'	6.91'	1505	271	CLR - SX3	381.1		
:20	resume							382.2		
:35	0.076	1873	204.94'	6.94'	1507	270	CLR - SX3	410.3		
:40	resume							412.4	0	0
:55	0.076	1873	204.95'	6.95'	1507	270	CLR - SX3	440.5		
2:00	resume							443.6		
:15	0.076	1860	204.80'	6.80'	1503	274	CLR - SX3	471.5		
:20	resume							473.9		
:35	0.18	1973	205.40'	7.40'	1550	266	CLR - SX3	503.5		
:51	resume							505.4		
3:06	0.19	1980	205.35'	7.35'	1550	269	CLR - SX3	535.1		
:11	resume							537.8		
:26	0.18	2133	206.00'	8.00'	1600	267	CLR - SX3	569.8		
:31	resume							572.5		
:46	0.076	2133	205.95'	7.95'	1600	268	CLR - SX3	604.5		
:53	resume							606.5		
4:08	0.076	2127	205.93'	7.93'	1600	268	CLR - SHUT DOWN	24638.4		

Layne Christensen Company

e0131337

Date: 4-9-11 Page 4

Customer: NEW WELL #1 Job No. 1000-1974

Meter 10 X 1000 Static level 197.45 Feet
Airline depth _____ Feet

Hours/Page 5 1/2
Total hours 17 1/2
G.P.D. _____

Operator: R. WEBER

develop

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments		FAU	TSS
7:05	START	All measurements		2.75'	AGS			meter 24641.9		
:20	0.11	2140	205.25'	7.80'	1605	274	CLEAR -SX3	674		
:25	resume	*	AIR IN WATER					677		
:40	0.11	2273	205.92'	8.47'	1656	268	CLR-SX3	711.1		
:45	resume							713.5		
8:05	0.11	2275	205.98'	8.53'	1653	267	CLR-SX3	759		
:13	resume							764.6		
:28	0.11	2260	205.95'	8.50'	1654	266	CLR-SX3	798.5	0	0
:33	resume			TDS 170			pH 8	801.1		
:48	0.38	2387	206.45'	9.00'	1702	265	CLR-SX3	836.9		
:53	resume							840.4		
9:08	1.1	2640	207.65'	10.20'	1805	259	CLR-SX3	880		
:13	resume							883.5		
:28	0.19	2380	206.38'	8.93'	1700	267	CLR-SX3	919.2		
:38	resume							924.5		
:53	0.19	2400	206.42'	8.97'	1710	268	CLR-SX3	960.5		
:58	resume							963.5		
10:13	0.11	2513	206.95	9.50'	1753	265	CLR-SX3	25001.2		
:18	resume							004.6		
:33	[redacted]	2493	206.87'	9.42'	1747	265	CLR-SX3	042		
:39	resume		[redacted]					045.5		
:54	0.19	2533	207.10'	9.65'	1753	263	CLR-SX3	083.5		
:59	resume							087.1		
11:14	0.11	2700	207.88'	10.43'	1830	259	CLR-SX3	127.6		
:19	resume							131.3		
:34	0.11	2720	207.95'	10.50'	1840	259	CLR	1721		
:49	0.07	2713	208.00'	10.55'	1840	257	CLR-SX3	212.8 [redacted]		
:55	resume							218		
12:10	0.11	2700	208.00'	10.55'	1832	256	CLR-SX3	258.5		
:15	resume							262.5		
:30	0.11	2700	208.00'	10.55'	1825	256	CLR-SX3	303		
:36	resume							306		

Layne Christensen Company

e0131387

Date: 4-9-11 Page 5

Customer: NEW WELL Job No. W-1000-1974

Meter 10 X 1000 Static level 197.45 Feet
Airline depth _____ Feet

Hours/Page 4
Total hours 21 1/2
G.P.D. 1,119,300

Operator: R. WEBER

develop

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments		FAU	TSS
12:51	0.11	2733	208.03	10.58'	1838	258	CLR-SX3	25347		
:57	resume							351.7		
1:12	0.11	2687	207.86	10.41'	1821	258	CLR-SX3	372		
:17	resume				+0			394.8		
:32	0.11	2707	207.95	10.50'	1833	258	CLR-SX3	435.5		
:38	resume							438.2		
:53	0.07	1120	201.35'	3.90'	1310	287	CLR	455		
2:13	TRACE	1810	201.34'	3.89'	1310	285	CLR-SX3	477.2		
:18	resume							478.2		
:33	0.07	1626	203.20'	5.75'	1422	283	CLR	502.6		
:48	TRACE	1620	203.20'	5.75	1422	282	CLR-SX3	526.9		
:54	resume							530		
3:09	0.11	2180	205.40'	7.95'	1621	274	CLR	562.7		
:24	TRACE	2187	205.47	8.02'	1621	273	CLR-SX3	585.5		
:30	resume							597.5		
:45	0.11	2700	207.71'	10.26'	1826	263	CLR	640		
4:00	TRACE	2700	207.70'	10.25'	1826	263	CLR	680.5		
:15	~~0~~	2683	207.78'	10.33'	1826	261	CLR	720.9		
:30	~~0~~	2686	207.85	10.40'	1826	258	CLR	25761.2		
							Shutdown			

Layne Christensen Company e0131337

Date: 4-10-11 Page 6

Customer: Buena Vista new well Job No. ~~27~~- 1000-1974

Meter 10 X 1000 Static level 196.55' Feet Hours/Page 4

Airline depth ______ Feet Total hours 25½

G.P.D. ______

Operator: R. WEBER

Stop test

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments	FAU	TSS
7:30	START						25762		
:32	1.1	1000	200.15'	3.60'	1308		764 - CLEAR - AIR		
:34	TRACE	1150	200.36'	3.81'	1320	302	766.3 Clr - Sl. AIR		
:36	0	1150	200.43'	3.88'	1320	296	768.6 Clr		
:38	0	1250	200.43'	3.88'	1320	322	771.1 Adj Q ↓		
:40	0	1200	200.38'	3.83'	1312	313	773.4 Clr - Sl. AIR		
:45	0	1040	200.33'	3.78'	1312	275	778.6 Clr		
:50	0	1200	200.36'	3.81'	1312	315	784.6 Clr		
:55	0	1100	200.37'	3.82'	1312	288	790.1 Clr		
8:00	0	1100	200.35'	3.80'	1312	289	795.6 Clr		
:10	0	1130	200.45'	3.90'	1312	290	806.9 Clr (pH 8.0)	0	0
:20	0	1130	200.43'	3.88'	1312	291	818.2 Clr		
:30	0	1120	200.46'	3.91'	1312	286	829.4 Clr		
:45	0	1113	200.39'	3.84'	1312	290	846.1 Clr		
9:00	0	1140	200.40'	3.85'	1312	296	863.2 Clr		
:15	0	1093	200.45'	3.90'	1312	280	879.6 Clr		
:30	0	1133	200.45	3.90	1312	291	25896.6 Adj Q ↑		
:32	TRACE	1700	202.22	5.67'	1426	300	900 Clr - AIR		
:34	0	1650	202.21'	5.66'	1415	292	903.3		
:36	0	1400	202.17'	5.62'	1415	249	906.1		
:38	0	1700	202.17'	5.62'	1415	302	909.5		
:40	0	1600	202.20'	5.65'	1415	283	912.7		
:45	0	1620	202.21'	5.66'	1415	286	920.8		
:50	0	1540	202.25'	5.70'	1415	270	928.5		
:55	0	1620	202.25'	5.70'	1415	284	936.6		
10:00	0	1640	202.25'	5.70'	1415	288	944.8		
:10	0	1610	202.25	5.70	1415	282	960.9		
:20	0	1580	202.26'	5.71'	1415	277	976.7		
:30	0	1600	202.30'	5.75'	1415	278	992.7		
:45	0	1587	202.33'	5.78'	1415	275	26016.5		
11:00	0	1607	202.37'	5.82'	1415	276	040.6		
:30	0	1597	202.45'	5.90	1415		26088.5 Q ↑		

1122 gpm Avg

1597 GPM Avg

Layne Christensen Company

C0131337

Date: 4-10-11 Page 7

Customer: Buena Vista well Job No. 27-1000-1974

Meter 10 X 1000 Static level 196.55 Feet
Airline depth _____ Feet

Hours/Page 4
Total hours 29 1/2
G.P.D. 916,100

Operator: R. Webber

Step test (cont.)

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments	FAU	TSS
11:32	0	2250	204.70'	8.15'	1626	276	26093		
:34	0	2150	204.71'	8.16'	1626	250	097.3 - CLR - AIR		
:36	0	2300	204.71'	8.16'	1626	282	101.9		
:38	0	2100	204.71'	8.16'	1626	257	106.1		
:40	0	2050	204.71'	8.16'	1626	251	110.2 Adj Q↑		
:45	0	2320	204.82'	8.27'	1633	281	121.8		
:50	0	2200	204.85'	8.30'	1633	265	132.8		
:55	0	2400	204.85'	8.30'	1633	289	144.8		
12:00	0	2040	204.87'	8.32'	1633	245	155		
:10	0	2210	204.81'	8.26'	1633	268	177.1		
:20	0	2220	204.93'	8.38'	1633	265	199.3		
:30	0	2240	204.90'	8.35'	1633	268	221.7		
:45	0	2220	204.85'	8.30'	1633	267	255		
1:00	0	2207	204.93'	8.38'	1633	263	288.1		
:15	0	2227	204.85'	8.30'	1633	268	321.5		
:30	0	2213	204.88'	8.33'	1633	266	26354.7 Q↑		
:32	0.07	2650	206.77'	10.22'	1824	259	26360		
:34	0	2750	206.83'	10.28'	1824	268	365.5		
:36	0	2700	206.87'	10.32'	1824	262	370.9		
:38	0	2600	206.88'	10.33'	1824	252	376.1		
:40	0	2750	206.88'	10.33'	1824	266	381.6		
:45	0	2680	206.91'	10.36'	1824	259	395		
:50	0	2680	206.95'	10.40'	1824	258	408.4 Adj Q↑		
:55	0	2720	207.02'	10.47'	1825	260	422		
2:00	0	2680	207.01'	10.46'	1825	256	435.4		
:10	0	2700	207.08'	10.53'	1825	256	462.4		
:20	0	2710	206.97'	10.42'	1825	261	489.5		
:30	0	2680	206.98'	10.43'	1825	258	516.3		
:45	0	2700	207.00'	10.45'	1825	258	556.8		
3:00	0	2693	207.20'	10.65'	1825	253	597.2		
:15	0	2700	207.19'	10.64'	1825	254	637.7		
:30	0	2693	207.10'	10.55'	1825	255	26678.1 Shutdown		

2216 gpm Avg.

2655 gpm Avg.

Layne Christensen Company

e0131337

Date: 4-12-11 Page 8

Customer: NEW WELL Job No. 27- 1000- 1974

Meter 10" X 1000 GPM S Static level 196.05 Feet
Airline depth ____ Feet

Hours/Page 13.0
Total hours 42.5
G.P.D. ____

Operator: J. Avila

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	(24 HRS CONSTANT RATE) Comments	FAU	TSS
8:30			196.05				METER READING 026678.4		
START 9:00					1628				
9:05	5.3	2240.0	205.75	9.7	1628	240.86	CLR 690.5		
9:10	1.06	2260.0	204.21	8.16	1628	276.96	CLR 701.5		
9:15	TRACE	2200.0	204.3	8.25	1630	266.66	CLR 712.8		
9:20	〃	2220.0	204.34	8.29	1630	267.79	CLR 723.9		
9:25	〃	2200.0	204.32	8.28	1630	265.70	CLR 734.9		
9:30	〃	2210.0	204.33	8.28	1630	266.90	CLR 746.0		
9:40	〃	2220.0	204.35	8.30	1630	265.06	CLR 768.2		
9:50	〃	2240.0	204.35	8.30	1630	269.87	CLR 790.6		
10:00	〃	2240.0	204.36	8.31	1630	269.55	CLR 812.0		
10:15	〃	2213.33	204.38	8.33	1630	265.70	CLR 846.2		
10:30	〃	2220.0	204.40	8.35	1630	265.86	CLR 879.5		
10:45	〃	2233.33	204.40	8.35	1630	267.46	CLR 913.0		
11:00	〃	2220.0	204.40	8.35	1630	265.86	CLR 946.3		
11:15	〃	2220.0	204.40	8.35	1630	265.86	CLR 26979.6		
11:30	〃	2233.33	204.40	8.35	1628	267.46	CLR 27013.1		
11:45	〃	2213.33	204.40	8.35	1628	265.06	CLR 46.3		
12:00	〃	2240.0	204.40	8.35	1628	268.26	CLR 79.9		
12:30	〃	2220.0	204.40	8.35	1628	265.86	CLR 146.5		
1:00	〃	2220.0	204.40	8.35	1628	265.86	CLR 213.1		
1:30	〃	2216.66	204.40	8.35	1628	265.46	CLR 279.6		
2:00	〃	2216.66	204.40	8.35	1628	265.46	CLR 346.1		
2:30	〃	2223.33	204.40	8.35	1628	266.26	CLR 412.8		
3:00	〃	2220.0	204.40	8.35	1628	265.86	CLR 479.4		
4:00	〃	2226.66	204.40	8.35	1628	266.66	CLR 613.0		
5:00	〃	2216.66	204.40	8.35	1628	265.46	CLR 746.0		
6:00	〃	2221.66	204.40	8.35	1628	266.06	CLR 27 879.3		
7:00	〃	2225.0	204.42	8.37	1628	265.83	CLR 028012.8		
8:00	〃	2228.33	204.45	8.4	1628	265.27	CLR 028146.5		
9:00	〃	2216.66	204.27	8.22	1628	269.66	CLR 028279.5		
10:00	〃	2208	204.39	8.34	1628	264.74	CLR 028412		

Layne Christensen Company

e0181337

Date: 4-12-11/4-13-11 Page 9

Customer: New Well

Job No. 27-1000-1974

Meter 10" X 1000

Static level 196.05 Feet
Airline depth _____ Feet

Hours/Page 11.0
Total hours 53.5
G.P.D. 3,200,500.0

Operator: J. Hernandez

Time	P.P.M.	G.P.M.	Pumping Level	Draw-down	Engine R.P.M.	Specific Capacity	Comments CONSTANT RATE & RECOVERY	FAU	TSS
10:00pm	~~0~~	2208	204.39	8.34	1628	264.74	clr	028412		
11:00pm	~~0~~	2216	204.34	8.29	1628	267.31	clr	028545		
12:AM	~~0~~	2218	204.33	8.28	1628	267.87	clr	028678.1		
1:Am	~~0~~	2215	204.28	8.23	1628	269.13	clr	028811		
2:Am	~~0~~	2230	204.2	8.15	1628	273.61	clr	028944.8		
3:Am	~~0~~	2220	204.21	8.16	1628	272.05	clr	029078		
4:Am	~~0~~	2225	204.17	8.12	1628	274.01	clr	029211.5		
5:Am	~~0~~	2225	204.1	8.05	1628	276.39	clr	029345		
6:AM	~~0~~	2225	204.1	8.05	1628	276.39	clr	029478.5		
7:00	~~0~~	2223.33	204.05	8.00	1628	277.91	CLR	611.9		
8:00	~~0~~	2223.33	204.1	8.05	1628	276.19	CLR	745.3		
9:00	~~0~~	2223.33	204.05	8.00	1628	277.91	CLR	878.7		
							FINAL TOTALIZER	029878.9		
	RECOVERY									
9:01			196.45							
9:02			196.17							
9:03			196.05							
9:04			196.0							
9:05			195.98							
9:06			195.93							
9:07			195.93							
9:08			195.93							
9:09			195.93							
9:10			195.93							

Pacific Surveys

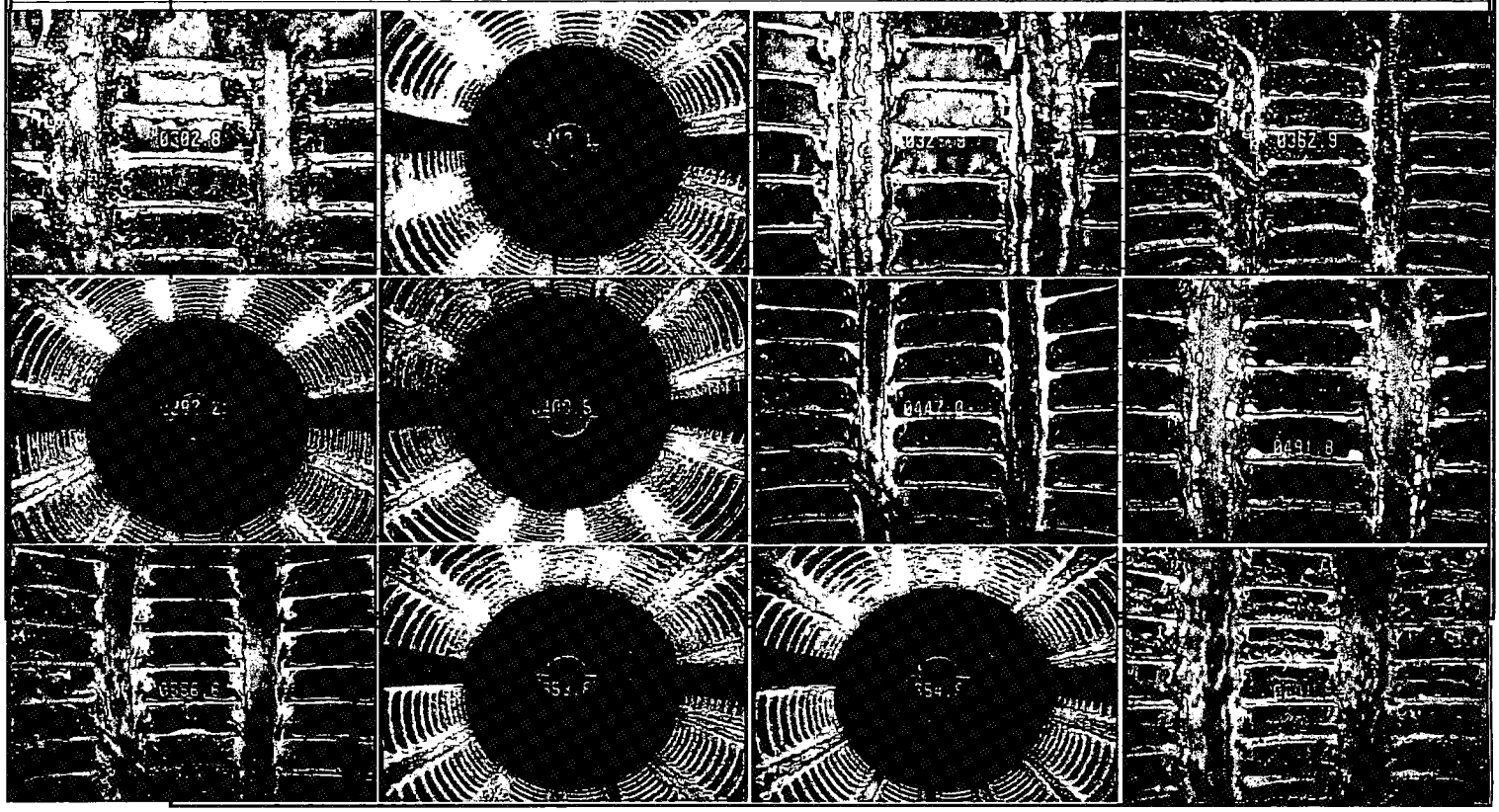
a full service geophysical well logging company

Video Survey Report C0121B37

Company:	Layne Christensen	**Date:**	29-Apr-11		
Well:	Buena Vista Well	**Run No.**	One	**Truck**	PS-5
Field:	Duarte	**Job Ticket:**	15929		
State:	California	**Total Depth:**	718 ft		
		Water Level:	203 ft	SWL	
Location:	2002 Buena Vista St.	**Oil on Water:**	No	**Amount:**	N/A
	GPS: N34o 07.710' W117o 58.560'	**Operator:**	Ridder		
Zero Datum:	Ground Level **Tool Zero:**	Side-Scan		**Dead Space**	21"
Reason for Survey:	New Well Construction				

Depth	Remarks
0.0 ft	Start survey at ground level
202.7 ft	SWL: water is clear to cloudy. Visibility adequate
297.0 ft	Water clears distinctly
302.6 ft	Perfs: all appear open and in good shape. Joint is at 301.2 ft
340.9 ft	Perfs end: entire interval is open
362.8 ft	Perfs: all appear open and in good shape.
473.5 ft	Perfs end: entire interval is open
491.5 ft	Perfs: all appear open and in good shape
550.0 ft	Slight bio-growth between column of louvers
701.6 ft	Perfs end: entire interval is open
718.0 ft	Bottom of light bar stops: in very soft fill. End survey

Perforation:	
Ful-Flo Louvers	300.00 ft to 340.00ft
	360.00 ft to 475.00ft
	495.00 ft to 700.00ft
Casing Size	
18"	0.00 ft to 720.00ft
Casing Material	N/A
Screen Material	N/A



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PACIFIC SURVEYS

GYROSCOPIC SURVEY

Job No. 15929

Company LAYNE CHRISTENSEN
Well BUENA VISTA WELL
Field DUARTE
County LOS ANGELES State CA

Location:

2002 BUENA VISTA STREET
GPS: N34o 07.710' W117o 58.560'

Sec. Twp. Rge.

Other Services:

VIDEO SURVEY

Permanent Datum	G.L		Elevation 418'	Elevation
Log Measured From	G.L	0'	above perm. datum	K.B.
Drilling Measured From	G.L			D.F.
				G.L.

Date	04-29-2011		
Run Number	ONE		
Depth Driller	720		
Depth Logger	718'		
Bottom Logged Interval	718'		
Top Log Interval	0'		
Pump Set @	N/A		
Time Pumping Prior to Survey	N/A		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
Pump Rate (GPM)	N/A		
Time Well Ready	08:00		
Time Logger on Bottom	10:30		
Equipment Number	PS-5		
Location	LA		
Recorded By	RIDDER		
Witnessed By	N/A		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

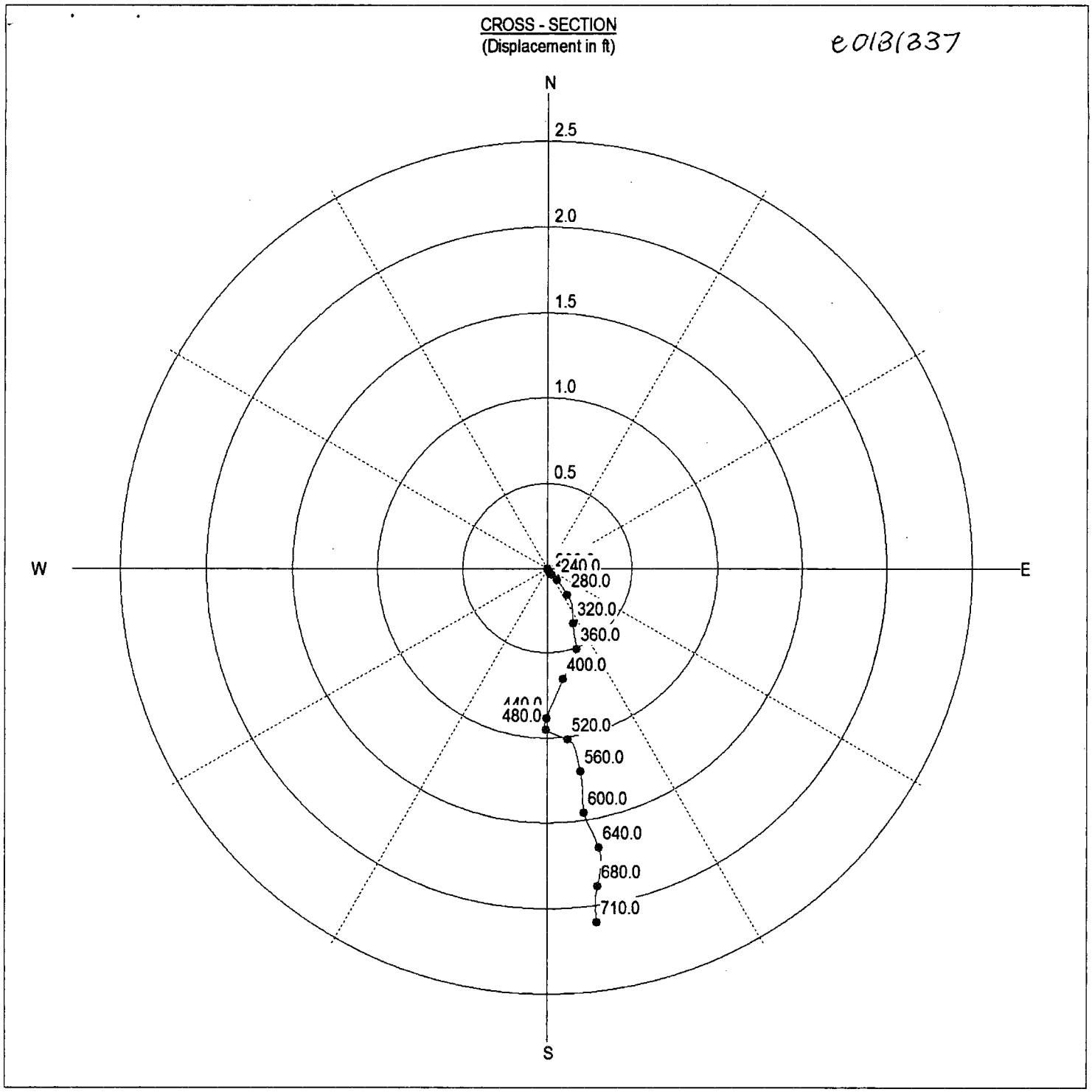
Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String				
Prot. String				
Production String	18"	N/A	0'	720'
Liner				

<<< Fold Here >>>

Comments

ELEVATION DERIVED FROM GPS

e0181837

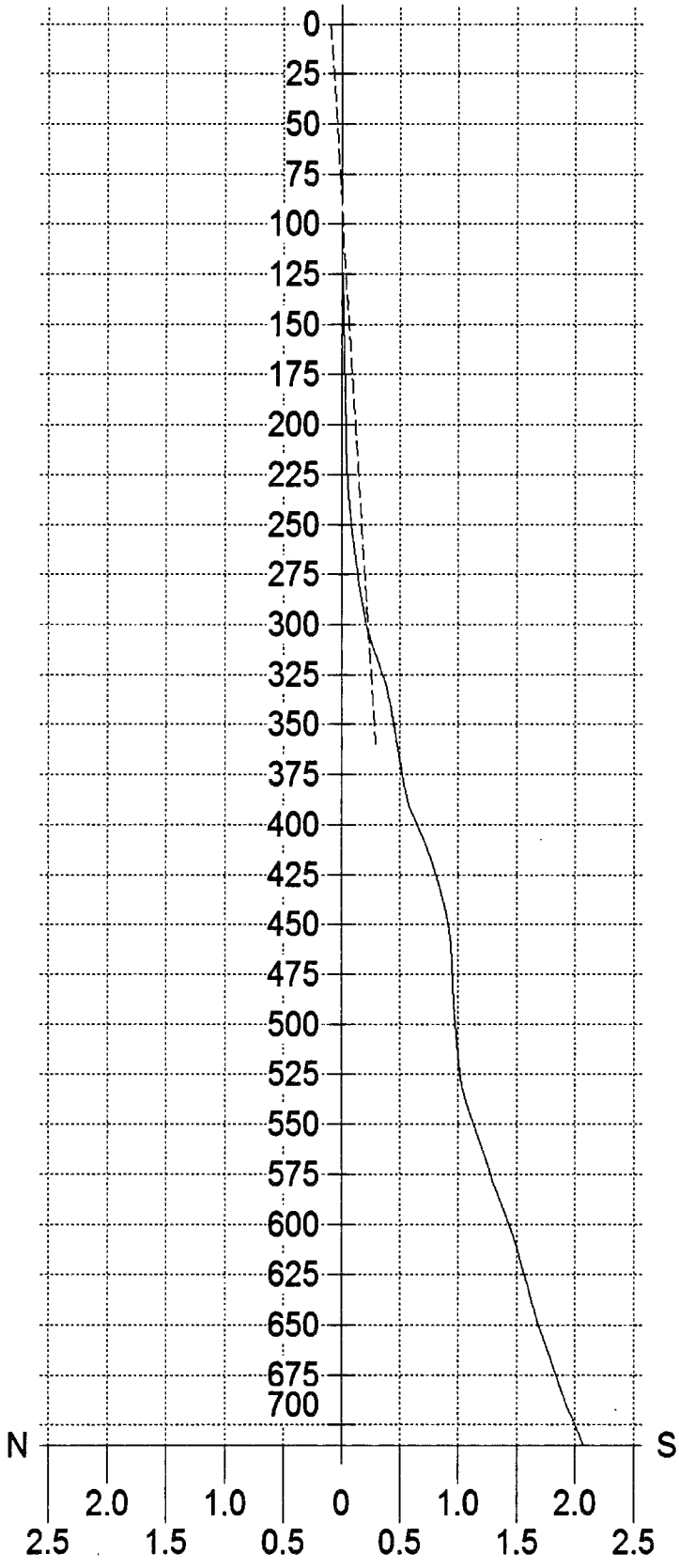

CROSS - SECTION
(Displacement in ft)
N
2.5
2.0
1.5
1.0
0.5
W
E
S
240.0
280.0
320.0
360.0
400.0
480.0
520.0
560.0
600.0
640.0
680.0
710.0

e0131337

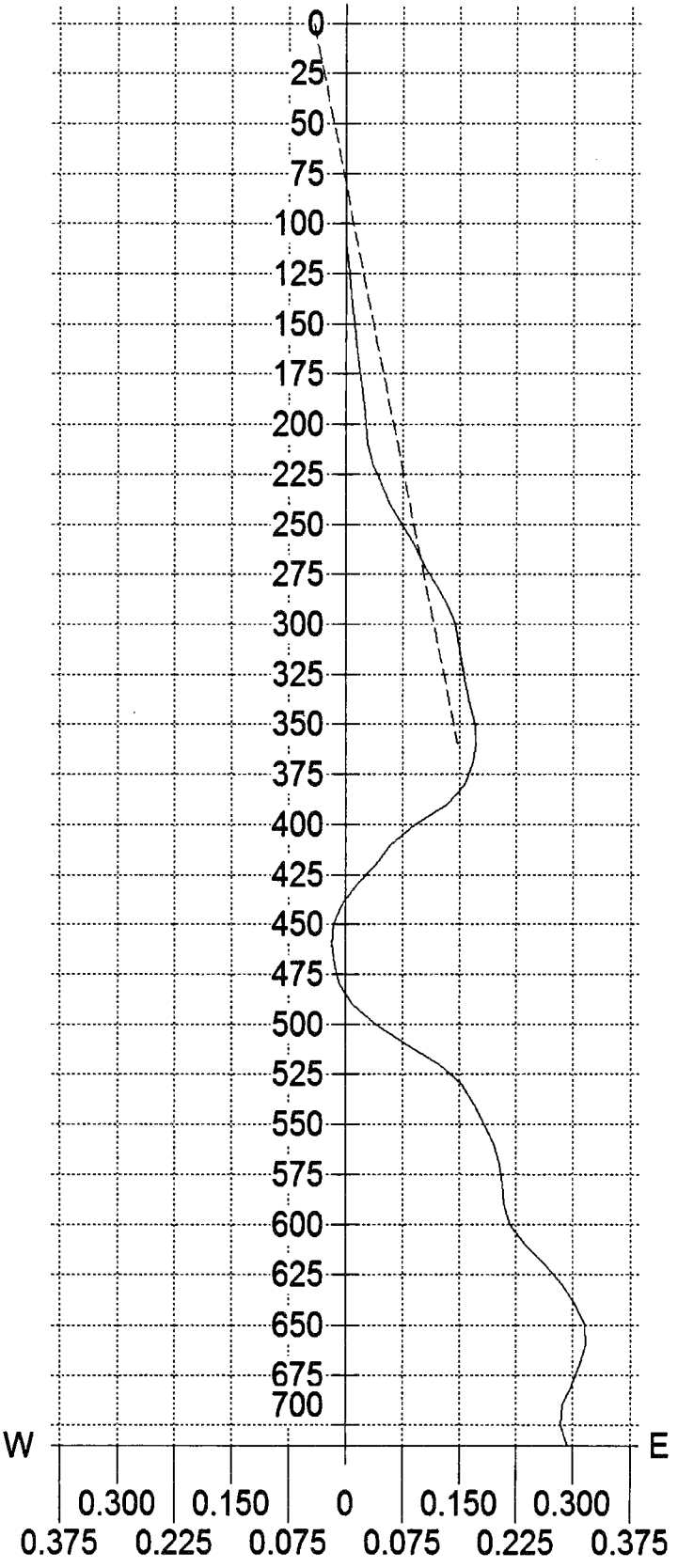
CLOSURE SECTIONS

(True Depth vs. Displacement (ft))

N - S SECTION



W - E SECTION

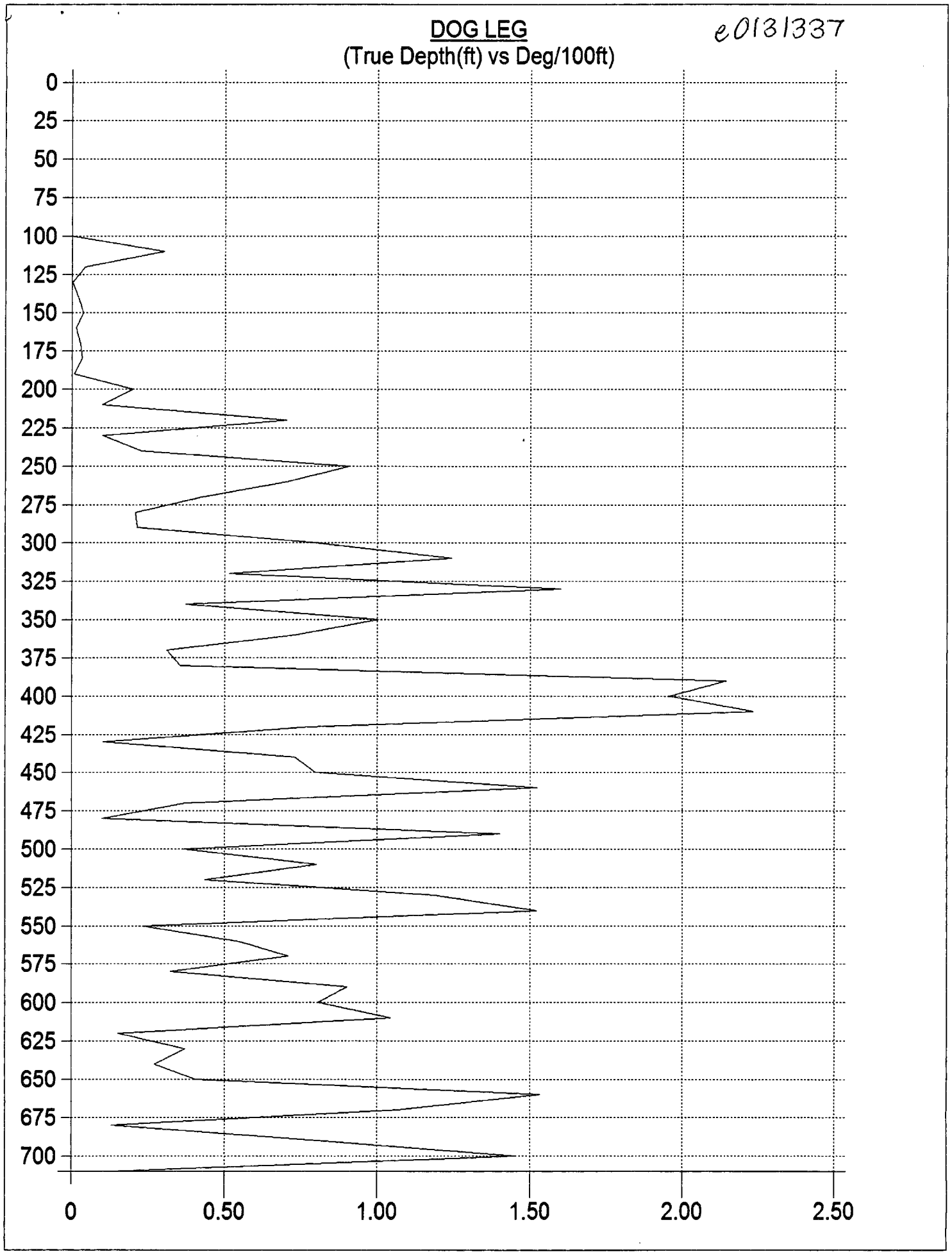


Misalignment Diameter = 4.40 (in)

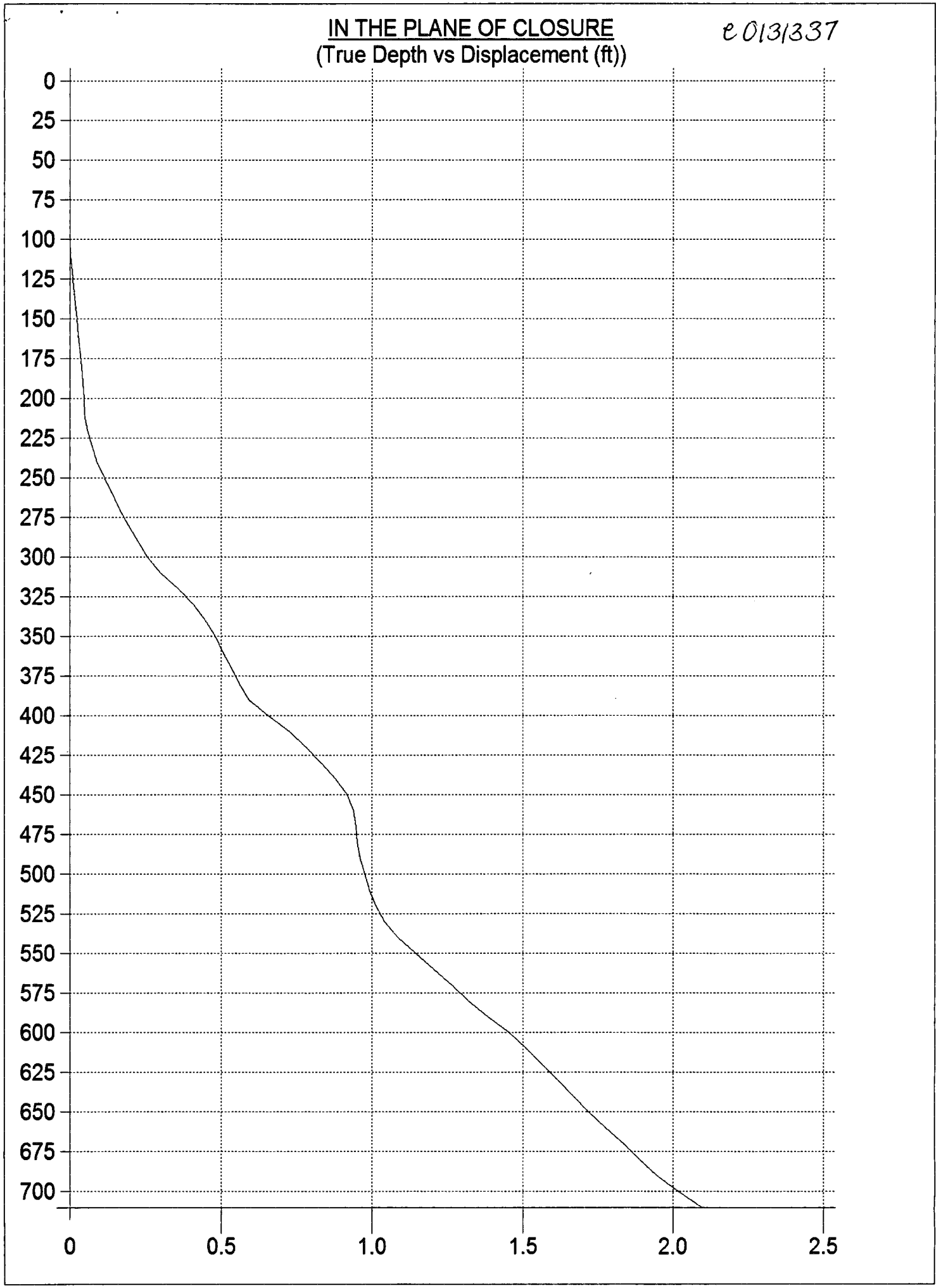
Pump Depth = 360.0 (ft)

Max Pump Diameter for ID of 18.00 = 13.60 (in)

e0131337


DOG LEG
(True Depth(ft) vs Deg/100ft)
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
525
550
575
600
625
650
675
700
0
0.50
1.00
1.50
2.00
2.50

e 013/337


IN THE PLANE OF CLOSURE
(True Depth vs Displacement (ft))
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
525
550
575
600
625
650
675
700
0
0.5
1.0
1.5
2.0
2.5

TVD Report (Minimum Curvature Method) e 0131337

Database File: 15929.db
Dataset Pathname: ./../../_tvd_/1
Dataset Creation: Fri Apr 29 11:55:39 2011

Meas. Depth (ft)	Incline	Azimuth	TVD (ft)	North (ft)	East (ft)	Dogleg	Closure Dis (ft)	Closure Dir	Vert. Sec. (ft)
		Vertical Section Direction 0.00							
0.0	0.00	149.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.0	0.00	147.91	10.00	0.00	0.00	0.00	0.00	0.00	0.00
20.0	0.00	152.96	20.00	0.00	0.00	0.00	0.00	0.00	0.00
30.0	0.00	162.66	30.00	0.00	0.00	0.00	0.00	0.00	0.00
40.0	0.00	153.17	40.00	0.00	0.00	0.00	0.00	0.00	0.00
50.0	0.00	155.01	50.00	0.00	0.00	0.00	0.00	0.00	0.00
60.0	0.00	154.98	60.00	0.00	0.00	0.00	0.00	0.00	0.00
70.0	0.00	153.12	70.00	0.00	0.00	0.00	0.00	0.00	0.00
80.0	0.00	152.34	80.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	150.18	90.00	0.00	0.00	0.00	0.00	0.00	0.00
100.0	0.00	145.83	100.00	0.00	0.00	0.00	0.00	0.00	0.00
110.0	0.03	155.89	110.00	-0.00	0.00	0.30	0.00	-24.11	-0.00
120.0	0.03	147.48	120.00	-0.01	0.00	0.04	0.01	-26.91	-0.01
130.0	0.03	148.18	130.00	-0.01	0.01	0.00	0.01	-29.02	-0.01
140.0	0.03	152.46	140.00	-0.02	0.01	0.02	0.02	-29.21	-0.02
150.0	0.03	145.39	150.00	-0.02	0.01	0.04	0.02	-29.62	-0.02
160.0	0.03	148.01	160.00	-0.02	0.01	0.01	0.03	-30.29	-0.02
170.0	0.03	142.49	170.00	-0.03	0.02	0.03	0.03	-30.98	-0.03
180.0	0.03	135.93	180.00	-0.03	0.02	0.03	0.04	-32.28	-0.03
190.0	0.03	134.34	190.00	-0.04	0.02	0.01	0.04	-33.76	-0.04
200.0	0.01	137.05	200.00	-0.04	0.03	0.20	0.05	-34.58	-0.04
210.0	0.02	137.76	210.00	-0.04	0.03	0.10	0.05	-34.99	-0.04
220.0	0.09	130.76	220.00	-0.05	0.04	0.70	0.06	-37.06	-0.05
230.0	0.08	131.91	230.00	-0.06	0.05	0.10	0.07	-39.37	-0.06
240.0	0.10	138.77	240.00	-0.07	0.06	0.23	0.09	-40.22	-0.07
250.0	0.19	143.39	250.00	-0.09	0.07	0.91	0.12	-39.78	-0.09
260.0	0.12	145.00	260.00	-0.11	0.09	0.70	0.14	-39.06	-0.11
270.0	0.16	150.71	270.00	-0.13	0.10	0.42	0.17	-37.99	-0.13
280.0	0.17	144.37	280.00	-0.16	0.12	0.21	0.20	-37.19	-0.16
290.0	0.17	151.60	290.00	-0.18	0.13	0.21	0.22	-36.51	-0.18
300.0	0.22	170.07	300.00	-0.21	0.14	0.80	0.26	-34.12	-0.21
310.0	0.34	176.92	310.00	-0.26	0.15	1.24	0.30	-29.70	-0.26
320.0	0.39	174.98	320.00	-0.32	0.15	0.51	0.36	-25.30	-0.32
330.0	0.23	176.36	330.00	-0.38	0.16	1.60	0.41	-22.62	-0.38
340.0	0.23	167.09	340.00	-0.42	0.16	0.37	0.45	-21.35	-0.42
350.0	0.13	168.48	350.00	-0.45	0.17	1.00	0.48	-20.77	-0.45
360.0	0.19	183.62	360.00	-0.48	0.17	0.73	0.51	-19.79	-0.48
370.0	0.18	192.75	370.00	-0.51	0.17	0.31	0.53	-18.18	-0.51
380.0	0.17	203.90	380.00	-0.54	0.16	0.35	0.56	-16.33	-0.54
390.0	0.38	213.51	390.00	-0.58	0.13	2.14	0.59	-12.96	-0.58
400.0	0.57	207.71	400.00	-0.65	0.09	1.96	0.66	-8.03	-0.65
410.0	0.37	195.26	410.00	-0.73	0.06	2.23	0.73	-4.73	-0.73
420.0	0.32	205.14	420.00	-0.78	0.04	0.78	0.78	-2.90	-0.78
430.0	0.33	205.59	430.00	-0.83	0.02	0.10	0.83	-1.06	-0.83
440.0	0.26	201.63	440.00	-0.88	-0.01	0.73	0.88	0.35	-0.88
450.0	0.20	188.42	450.00	-0.92	-0.02	0.80	0.92	1.02	-0.92
460.0	0.05	172.99	460.00	-0.94	-0.02	1.52	0.94	1.12	-0.94
470.0	0.04	125.99	470.00	-0.95	-0.02	0.37	0.95	0.91	-0.95
480.0	0.05	124.16	480.00	-0.95	-0.01	0.10	0.95	0.52	-0.95
490.0	0.19	119.34	490.00	-0.96	0.01	1.40	0.96	-0.56	-0.96

Meas. Depth (ft)	Incline	Azimuth	TVD (ft)	North (ft)	East (ft)	Dogleg	Closure Dis (ft)	Closure Dir	Vert. Sec. (ft)
		Vertical Section Direction 0.00							
500.0	0.20	108.89	500.00	-0.98	0.04	0.37	0.98	-2.37	-0.98
510.0	0.28	109.19	510.00	-0.99	0.08	0.80	0.99	-4.63	-0.99
520.0	0.25	116.04	520.00	-1.01	0.12	0.44	1.01	-6.95	-1.01
530.0	0.21	144.31	530.00	-1.03	0.15	1.19	1.04	-8.44	-1.03
540.0	0.32	167.71	540.00	-1.07	0.17	1.52	1.09	-8.98	-1.07
550.0	0.34	165.50	550.00	-1.13	0.18	0.24	1.14	-9.21	-1.13

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560.0	0.38	171.49	560.00	-1.19	0.20	0.55	1.21	-9.32	-1.19
570.0	0.31	173.17	570.00	-1.25	0.20	0.71	1.27	-9.24	-1.25
580.0	0.32	178.80	580.00	-1.31	0.21	0.33	1.32	-9.02	-1.31
590.0	0.41	178.13	590.00	-1.37	0.21	0.90	1.38	-8.68	-1.37
600.0	0.38	167.25	600.00	-1.44	0.22	0.81	1.45	-8.61	-1.44
610.0	0.32	153.17	610.00	-1.49	0.24	1.04	1.51	-9.03	-1.49
620.0	0.31	151.05	620.00	-1.54	0.26	0.15	1.56	-9.68	-1.54
630.0	0.30	157.76	630.00	-1.59	0.29	0.37	1.62	-10.20	-1.59
640.0	0.29	162.67	640.00	-1.64	0.30	0.27	1.67	-10.49	-1.64
650.0	0.28	170.59	650.00	-1.69	0.32	0.41	1.72	-10.58	-1.69
660.0	0.41	184.37	660.00	-1.75	0.32	1.53	1.78	-10.26	-1.75
670.0	0.31	190.43	669.99	-1.81	0.31	1.07	1.84	-9.68	-1.81
680.0	0.32	191.95	679.99	-1.86	0.30	0.13	1.89	-9.09	-1.86
690.0	0.40	191.15	689.99	-1.92	0.29	0.80	1.95	-8.44	-1.92
700.0	0.45	172.66	699.99	-2.00	0.28	1.45	2.02	-8.08	-2.00
710.0	0.46	173.66	709.99	-2.08	0.29	0.13	2.10	-8.04	-2.08

State of California

Well Completion Report

Form DWR 188 Complete 9/14/2016

WCR2016-006450

Owner's Well Number: Lemon Well | Date Work Began: 01/04/2016 | Date Work Ended: 08/24/2016

Local Permit Agency: LA County Department of Public Health, Department of Health Services, Drinking Water Program

Secondary Permit Agency: | Permit Number: SR0046576 | Permit Date: 10/01/2015

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: XXXXXXXXXXXXXXXXXXX

Mailing Address: XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City: XXXXXXXXXXXXXXXXXXX | State: XX | Zip: XXXXX

Planned Use and Activity

Activity: New Well

Planned Use: Water Supply Public

Well Location

Address: 1271 E Lemon DR

City: Bradbury | Zip: 91008 | County: Los Angeles

Latitude: 34 Deg. 08 Min. 49.4 Sec. N | Longitude: -117 Deg. 58 Min. 35.5 Sec. W

Dec. Lat.: 34.1470556 | Dec. Long.: -117.9765278

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: >50 Ft | Location Determination Method:

APN: 8527-025-020

Township: 01 N

Range: 10 W

Section: 30

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Reverse Circulation | Drilling Fluid: Bentonite

Total Depth of Boring: 900 Feet

Total Depth of Completed Well: 900 Feet

Water Level and Yield of Completed Well

Depth to first water: 374 (Feet below surface)

Depth to Static Water Level: 374 (Feet) | Date Measured: 08/09/2016

Estimated Yield*: 380 (GPM) | Test Type: Pump

Test Length: 180 (Hours) | Total Drawdown: 290 (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	100	Sand, Gravel
100	160	Sand, Gravel, Trace Clay
160	180	Sand, Gravel
180	220	Sand, Clay, Gravel
220	260	Sand, Gravel
260	280	Sand
280	360	Clay, Sand
360	380	Sand, Clay
380	400	Sand
400	430	Rock
430	440	Rock, Sand, Gravel, Clay
440	460	Clay, Sand, Gravel
460	500	Sand, Gravel, Clay
500	520	Gravel, Clay
520	560	Sand, Gravel, Clay

560	590	Rock, Trace Clay, Hard Sand
590	610	Rock, Hard Sand
610	620	Hard Rock
620	630	Clay Rock
630	690	Sand, Rock
690	710	Rock, Sand
710	720	Clay
720	740	Clay, Rock, Sand
740	750	Clay Gravel
750	780	Rock, Sand, Gravel
780	790	Rock, Gravel, Sand, Trace Clay
790	810	Rock, Sand, Gravel
810	820	Rock, Sand, Gravel, Trace Clay
820	830	Rock, Sand, Gravel
830	840	Rock, Sand, Gravel, Trace Clay
840	850	Rock, Sand, Gravel
850	870	Sand, Gravel, Trace Clay
870	880	Sand, Clay, Trace Gravel
880	900	Sand, Gravel, Rock

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	548	Blank	Mild Steel	Nominal Size: 20 in. | Thickness: 5/16 in. | OD: 20 in.	0.3125	20			
1	548	550	Other: Dielectric Coupling	Other	N/A	2	20			
1	550	840	Screen	Spiral Weld Stainless Steel	Nominal Size: 20 in. | Thickness: 5/16 in. | OD: 20-5/8 in.	0.3125	20.625	Louver	0.09	
1	840	842	Other: Dielectric Coupling	Other	N/A	2	20			
1	842	860	Blank	Low Carbon Steel	Nominal Size: 20 in. | Thickness: 5/16 in. | OD: 20-5/8 in.	0.3125	20.625			
1	860	900	No Casing Installed	Other	N/A					

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	520	Cement	10.3 Sack Mix		
520	530	Other Fill	See description.		Transition Sand
530	900	Filter Pack	Other Gravel Pack		

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	50	40
50	900	30

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: SOUTHWEST PUMP & DRILLING INC (Person, Firm or Corporation)

53-381 HIGHWAY 111 (Address) | COACHELLA (City) | CA (State) | 92236 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 09/12/2016 (Date Signed) | 723919 (C-57 License Number)

Attachments

21008 ELOG RUN 2.pdf - Geologic Log

20973_ElogcRUN 1.pdf - Geologic Log

21021 ELOG RUN 3.pdf - Geologic Log

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — **Latitude Deg/Min/Sec**

W — **Longitude Deg/Min/Sec**

TRS:

APN: