

THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS  
BOARD ACTION SUMMARY

DEPT: Public Works

BOARD AGENDA #: \*C-5

AGENDA DATE: September 19, 2017

**SUBJECT:**

Approval of Amendment No. 1 to the E-Pur Professional Services Agreement for an Updated Assessment of Water Supply Options and Engineering Alternatives at the Crows Landing Industrial Business Park

**BOARD ACTION AS FOLLOWS:**

No. 2017-505

On motion of Supervisor Withrow, Seconded by Supervisor Monteith  
and approved by the following vote,

Ayes: Supervisors: Olsen, Withrow, Monteith, DeMartini, and Chairman Chiesa

Noes: Supervisors: None

Excused or Absent: Supervisors: None

Abstaining: Supervisor: None


1)  Approved as recommended

2)  Denied

3)  Approved as amended

4)  Other:

MOTION:

  
PAM VILLARREAL, Assistant Clerk

ATTEST:

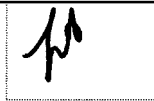
PAM VILLARREAL, Assistant Clerk

File No.

**THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS  
AGENDA ITEM**

DEPT: Public Works  
Urgent       Routine

BOARD AGENDA #: \*C-5



AGENDA DATE: September 19, 2017

CEO CONCURRENCE:

4/5 Vote Required: Yes       No

**SUBJECT:**

Approval of Amendment No. 1 to the E-Pur Professional Services Agreement for an Updated Assessment of Water Supply Options and Engineering Alternatives at the Crows Landing Industrial Business Park

**STAFF RECOMMENDATIONS:**

1. Approve amendment no. 1 to the E-Pur, LLC professional services agreement for the preparation and assessment of water supply options and engineering alternatives at the Crows Landing Industrial Business Park, in the amount of \$173,750.
2. Authorize the Director of Public Works to execute the amendment with E-Pur, LLC in the amount of \$173,750, and to sign necessary documents.

**DISCUSSION:**

The former Crows Landing Naval Air Facility is located in the unincorporated portion of western Stanislaus County, approximately 1 mile east of Interstate 5. The 1,531 acre airfield is bound by Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west. A segment of the Delta Mendota Canal and Little Salado Creek cross the site. The site includes two decommissioned runways, associated pavement, and an air traffic control tower. Most of the structures that supported former military operations on the premises have been demolished.

In 2004, the Board of Supervisors accepted conveyance of the former Crows Landing Air Facility, and the National Aeronautics and Space Administration transferred ownership of 1,355 acres to the County. Of the remaining 176 acres associated with the former military facility, 6 parcels totaling 94.7 acres have undergone soil and groundwater remediation and were determined to be clean per industrial standards. Remediation of one 81.3-acre parcel is ongoing.

The primary goal associated with the County's acquisition of the Crows Landing project area has been to create an opportunity to produce a locally based job center that will allow County residents and those living nearby to earn sustainable wages without commuting to the Bay Area or other distant job centers. Specifically, the former Crows Landing Air Facility is envisioned to be an industrial business park that combines the assets of a public use, general aviation airport, and proximity to Interstate 5.

## Approval of Amendment No. 1 to the E-Pur Professional Services Agreement for an Updated Assessment of Water Supply Options and Engineering Alternatives at the Crows Landing Industrial Business Park

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The combination of available land, nearby transportation infrastructure, and regional connections to the San Francisco Bay Area presents an opportunity for investment and creativity that has the potential to provide a new and important regional employment center in central California.

On October 15, 2013, the Board of Supervisors approved an agreement for professional services with AECOM Technical Services, Inc. for land use, engineering, and environmental consultant services for the Crows Landing Development Project. The services included a review and analysis of needed infrastructure to ensure the viability of this business park and to meet the California Environmental Quality Act guidelines for required detailed analysis of potential water supply sources, as well as sewer and stormwater.

On September 20, 2016, the Board of Supervisors approved the contract for professional services for the development of two water exploratory boreholes (test wells) to E-Pur, LLC for the Crows Landing Industrial Business Park (CLIBP) development. The purpose of the test well (TW) program, performed in early 2017, was to gain knowledge of the underlying groundwater system primarily below the Corcoran Clay. Test wells were drilled and water samples were taken from below the Corcoran Clay to determine quality and quantity of groundwater supplies in this area. The work completed included construction of two test wells that would allow evaluation of the suitability of the proposed site for the installation of future drinking water supply wells based on the results of the geophysical exploration and water quality sampling of the test hole.

To complete this work, four change orders were executed. Three change orders were completed under the 10% contingency of the original contract. The fourth change order exceeded the 10% contingency and was approved by the Board of Supervisors on May 2, 2017.

The geology found in the test wells concluded that there is a large water production zone immediately above the Corcoran Clay and below at the northern exploration location (TW-2). Depth to water was roughly 82 feet below ground surface (bgs) in the north and the Corcoran Clay begins at 260 feet bgs. At the southern location (TW-1) there was little water above the Corcoran Clay and below.

Water quality sample results demonstrated that groundwater quality in the southern location (TW-1) is generally poor. Groundwater quality in well TW-2 exceeds the short term limit for sulfate and would require either blending with another source lower in sulfate or treatment in order to meet all current codes and regulations.

Water production was very good at each of the three depth zones tested in location TW-2 and is estimated to be capable of producing 2,000 gallons per minute (gpm)/well with acceptable drawdown. The desirable operating range for each well completed in that zone is then likely to be 50% of that rate or 1,000 gpm/well as potential production. Two wells are capable of producing the stated potable supply need of 1,000 to 1,500 gpm for all 3 phases of CLIBP development.

## Approval of Amendment No. 1 to the E-Pur Professional Services Agreement for an Updated Assessment of Water Supply Options and Engineering Alternatives at the Crows Landing Industrial Business Park

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Based on the findings of the groundwater testing at the CLIBP a re-evaluation of water supply concepts is recommended for the site. Water supplies for the CLIBP are dependent upon suitable groundwater availability and water of suitable quality with or without treatment. It is recommended to prepare a focused engineering feasibility study of groundwater supply alternatives for the CLIBP with blending and treatment options. In 2016, new State Legislation, California Senate Bill 1263, requires that any new proposed potable water supply system within a 3-mile radius of any portion of an existing water supply system's service area look rigorously at water system consolidation. For the CLIBP, this includes both the City of Patterson's system and the Crows Landing Community Services District (CSD). The authority under the law is provided to the State Water Resources Control Board's Division of Drinking Water. A new public water system will not be approved until this study is completed. The scope of the proposed engineering feasibility study will be limited to evaluation of three water supply alternatives.

- Alternative 1. On-site wells only with blending (and treatment)
- Alternative 2. Combined on-site system with Crows Landing CSD
- Alternative 3. Combined on-site system with City of Patterson

The number of alternatives will be fixed at three, but the conceptual aspects of the three alternatives is likely to be influenced by the pre-feasibility study findings on blending options and combination vs. consolidation options with the neighboring systems.

Should onsite blending of waters and onsite supply of groundwater prove to be viable then the next step would be to construct additional test borehole drilling and zonal monitoring well installation to support assessment of on-site water supply alternative(s). At this time the proposed contract amendment does not include a request to conduct the test well work. This will be considered after the Feasibility Study is complete.

### **POLICY ISSUE:**

The Board of Supervisors must approve any amendments to existing professional services agreements that exceed \$100,000.

### **FISCAL IMPACT:**

The proposed amendment consists of three steps. Step 1 is the Pre-Feasibility Study to provide adequate technical data to update the CLIBP Environmental Impact Report and will cost \$54,800. Step 2 is the Feasibility Study to complete the technical analysis to determine the best Alternative and will cost \$74,750. Step 3 is to prepare a conceptual design of the Preferred Alternative and will cost \$44,200. It is recommended that all three steps be implemented for a total cost of \$173,750.

Funding for this project is available in the Fiscal Year 2017-2018 Crows Landing Air Facility Adopted Proposed Budget. An existing agricultural lease provides a revenue source to fund studies necessary for the Crows Landing Air Facility development project.

Approval of Amendment No. 1 to the E-Pur Professional Services Agreement for an Updated Assessment of Water Supply Options and Engineering Alternatives at the Crows Landing Industrial Business Park

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<b>Cost of recommended action:</b>		\$ 173,750
<b>Source(s) of Funding:</b>		
Agricultural Lease Revenue	<u>\$ 173,750</u>	
<b>Funding Total:</b>		<u>173,750</u>
<b>Net Cost to County General Fund</b>		<u><u>\$ -</u></u>

<b>Fiscal Year:</b>	2017/2018
<b>Budget Adjustment/Appropriations needed:</b>	No

**Fund Balance as of**

**BOARD OF SUPERVISORS' PRIORITY:**

The recommended actions are consistent with the Board's priorities of providing A Safe Community, A Healthy Community, and A Well Planned Infrastructure System by developing a reliable and sustainable water supply for the Crows Landing Industrial Business Park.

**STAFFING IMPACT:**

Existing Public Works staff will oversee this project.

**CONTACT PERSON:**

Matt Machado, Public Works Director	Telephone: (209) 525-4153
Keith D. Boggs, Assistant Executive Officer	Telephone: (209) 652-1514

**ATTACHMENT(S):**

1. Technical Memorandum, dated May 17, 2017
2. Amendment No. 1 to E-Pur, LLC Contract 2016-479

ATTACHMENT 1  
Technical Memorandum, dated May 17, 2017



## PROJECT TECHNICAL MEMORANDUM 2

**TO:** Matt Machado, PE, Stanislaus County Public Works **DATE:** May 17, 2017

**CC:** David Leamon, PE, Stanislaus County Public Works  
Keith Boggs, Stanislaus County

**PREPARED** **PROJ. NO.** 0624-001-01

**BY:** John M. Lambie, PG, PE, E-PUR  
Dena Traina, PE, Provost & Pritchard

**SUBJECT: FIELD SUMMARY FOR TEST WELL TO PRODUCTION-WELL-DESIGN PROJECT FOR THE CROWS LANDING INDUSTRIAL BUSINESS PARK, STANISLAUS COUNTY, CALIFORNIA**

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### INTRODUCTION

E-PUR was engaged by Stanislaus County Public Works to develop production well designs for potable water supply wells after evaluating groundwater quality and quantity beneath the planned Crows Landing Industrial Business Park (CLIBP). This technical memorandum (TM2) presents a brief summary of our findings at the conclusion of field work and a discussion of the findings and recommendations for further assessing both potable and non-potable water supply needs to the CLIBP.

### PROJECT BACKGROUND

Stanislaus County Public Works desires to confirm that a safe and reliable water supply from groundwater can be provided for the CLIBP. Prior work by others developed engineering designs for a separated system of potable and non-potable water supplies from groundwater.<sup>1,2</sup> The supply well locations along with the system layout for well pumps, piping, line pumps, storage tanks and other components of a water distribution system were developed by VVH 2016. The stated target rate of potable water production for the CLIBP is in the range of 1,000 to 1,500 gallons per minute based on our conversations and existing project documents. In addition to potable water needs, the estimated supply capacity needed for non-potable water demands from VVH 2016 is in the range of 800 to 1,000 gpm on average with peak demand needs met by storage tanks for fire flow and other short term demands. Evaluating water supply available from groundwater and developing well designs to provide a safe and reliable potable water supply were the focus of our project scope at the locations and rates of potable water demand described by AECOM and its subcontractor VVH.

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<sup>1</sup> VVH Consulting Engineers, 2015 and 2016, "Crows Landing Industrial Business Park, Water Supply (Potable and Non-Potable) Infrastructure and Facilities Study, February 27, 2015 and Updated September 27, 2016.

<sup>2</sup> Jacobson James & Associates (JJ&A), 2016, "Groundwater Resources Impact Assessment, Crows Landing Industrial Park, Stanislaus County, California", Draft August 19.

There were two prospective potable water-supply-well locations for Phase 1 and 2 development of the CLIBP derived from the earlier work by VVH 2016. These two prospective locations were depicted based on the infrastructure needs for water production of potable water. A potential third potable water-supply well is described in both VVH 2016 and JJ&A 2016 that would supply the northern portion of the CLIBP in Phase 3 of the development plan. However this northernmost location was not added to the E-PUR scope for field characterization of potable water supply zones.

Non-potable water supply was projected in JJ&A 2016 to come from the aquifer zones above the Corcoran Clay based on an evaluation of historic usage as an assessment tool for current water budgets. The VVH study shows non-potable water supply coming from two well locations at the south end and north end of the north-south airstrip with fire flow coming from a new tank system at the south end of the airstrip.

E-PUR’s current project scope has been to evaluate whether the deeper aquifer units beneath the CLIBP can produce potable water and if so to develop supply well designs to meet rated demands. Our evaluation includes assessing what depth intervals have groundwater quality suitable for drinking water with or without treatment, and if so at what pumping rates. Our work was grouped into three stages: (1) pre-field, (2) field, and (3) post-field. The distinctive works steps or tasks are:

Pre-Field Stage	Task 1 - Assess Existing Geologic Information
	Task 2 - Water Quality Review and Proposed Well Location Submittal to State Board Division of Drinking Water with Technical Memorandum (TM)
Field Stage	Task 3 - Test Borehole Drilling and Zonal Monitoring Well Installation
	Task 4 - Monitoring Well Development, Aquifer Testing, and Water Quality Sampling
Post-Field Stage	Task 5 – Develop Production Well Designs
	Task 6 - Test Well Report with Production-Well-Design Technical Specifications
	Task 7 - Preparation of Water-Supply-Well-Construction Bid Specifications and Contract Documents

This TM2 documents the findings of the field stage Tasks 3 and 4. The results of Tasks 1 and 2 were captured to an E-PUR TM dated January 30, 2017, referred to herein as TM1.

### SUMMARY OF FIELD WORK AND FINDINGS

Our early site reconnaissance in October 2016 identified that ground surface at CLIBP slopes steadily to the north-northeast across the site. The grade on site is approximately 0.8%. The grade of Little Salado Creek on site is approximately, 0.55%. Little Salado Creek is 15 or more feet below ground surface in the south but is within 4 feet of site grade as it passes around the north end of the north-south airstrip. As such it is prone to flooding the north-northeastern portion of the CLIBP area. A small flood control facility was noted to the east of the channel for Little Salado Creek channel at the northeast corner of the site near Bell Road. Evidence of ponded water was noted at the northern drilling location during site



reconnaissance; this prompted relocating the test borehole westward roughly 500 feet. Flooding conditions were observed around the north end of the airstrip during heavy rains on February 20, 2017.

### **EXPLORATION DRILLING FOR SUPPLY WELL LOCATIONS AND AQUIFER ZONES**

E-PUR advanced two exploratory boreholes in February 2017 to depths of 600 and 700 feet, lithologically and geophysically logging each borehole. We then utilized that information to install three monitoring wells at each location in depth-specific-zones to test their water quality and water production properties. The two drill site locations and the array of zonal monitoring wells constructed are depicted in Figure 1.

Sediment samples were collected at a minimum of every 10 feet in each of the two boreholes, and at abrupt changes in material type. Those samples were lithologically logged and then later six samples were selected from among the overall borehole profile for grain size testing of potential water supply zones. These were sent to Environmental Testing Services in Petaluma, California and the results of grain size analyses are provided in Attachment A.

The geology and geophysics associated with each zonal well are best described by the well construction, lithology, and geophysical logs depicted in Figures 2 and 3 for the southerly and northerly drill sites, TW-1 and TW-2 respectively.

Overall the field lithologic findings confirm the regional hydrogeologic conceptual model. The depth to the Corcoran Clay layer is much greater in the north despite the decrease in land surface elevation. The Corcoran Clay is sloped more steeply near to I-5 and the adjoining mountains than is the land surface, resulting in the depth to the Corcoran Clay layer increasing to the north-northeast away from the Diablo Mountain Range.

As a result of the geologic framework of a steeply dipping Corcoran Clay layer compared to land surface, there is a large water production zone immediately above the Corcoran Clay at the northern exploration location, TW-2. Depth to water was roughly 82 feet below ground surface (bgs) in the north and the Corcoran Clay begins at 260 feet bgs. While not tested directly the water producing intervals above the Corcoran Clay are very permeable as evidenced by the loss of drilling circulation fluid into the formation at 230 feet bgs (see Figure 3).<sup>3</sup> Conversely in the south at location TW-1, there is very little water above the Corcoran Clay. The depth to water was found to be roughly 170 feet bgs and the Corcoran Clay layer begins at 220 feet bgs at TW-1.

A series of three depth specific test wells were constructed in the south at TW-1 and in the north at TW-2. Table 1 provides some of their construction information with additional details provided in Figures 2 and 3, respectively.

**Table 1**  
**Design Test Well/Monitoring Well Construction at CLIBP**

<sup>3</sup> The viscosity of the drilling mud had to be increased to stabilize the hole against that sand and gravel zone at 230 feet bgs before exploration drilling could advance further.

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Well Names	Initial Static Depth to Water (feet)	Well Depth (ft)	Diameter of Well (in)	Diameter of Borehole (in)	Depth Top of Screen (feet)	Depth Top of Gravel Pack (feet)	Depth Bottom of Screen (feet)	Depth Bottom of Gravel Pack (feet)
TW-1A	173.82	541	4	12.75	506	503	536	545
TW-1B	174.8	445	4	12.75	410	400	440	460
TW-1C	168.4	305	4	12.75	270	256	300	300
TW-2A	92.55	720	4	12.75	668	660	703	720
TW-2B	91.55	640	4	12.75	605	590	625	640
TW-2C	81.51	400	4	12.75	364	350	384	400

Notes: TW-1 is located on Fink Road at the southwest property corner  
TW-2 is located at the north end of the main runway

These zonal wells were developed in the field by air lifting, surging and swabbing, air lifting, and then lastly pumped clear using a 75 gpm submersible pump. A short duration aquifer test was then conducted of each zonal well the day after development. Subsequent to the aquifer test, each well was then sampled for water quality analyses at a certified laboratory, California Lab Services in Rancho Cordova, California.

**GROUNDWATER QUALITY SUMMARY**

A summary of the regional issues and concerns for groundwater quality were developed and presented in TM1. Groundwater quality samples were collected sequentially after aquifer testing at each well from February 6 to March 6, 2017. Laboratory test results are provided in Attachment B and a summary overview of results in each well as compared to drinking water standards is provided in Table 2.

Potable-Water-Supply-Assessment Wells				TW-1C	TW-1B	TW-1A	TW-2C	TW-2B	TW-2A
Well Depth Data				250-311	400-441	503-520; 525-538	360-400	595-640	660-720
Analyte	Units	Primary MCL <sup>1</sup>	Secondary MCL <sup>2</sup>	General Chemistry Constituent Results					
Fluoride	mg/L	2	2	0.94	0.93	0.4	0.24	ND	ND
Nitrate as N	mg/L	10	--	<b>10</b>	<b>9.7</b>	ND	2.3	3.3	1.6
Nitrite as N	mg/L	1	--	ND	ND	ND	ND	ND	ND
Perchlorate	µg/L	6	--	ND	ND	ND	ND	ND	NA
Chloride	mg/L	--	250	<b>140</b>	78	53	38	<b>260</b>	<b>240</b>
MBAS as LAS	mg/L	--	0.5	ND	ND	ND	ND	ND	ND
pH	pH Units	--	6.5-8.5	7.39	7.57	7.34	7.63	7.97	8.01

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Table 2 Summary of Water Quality Test Results									
Potable-Water-Supply-Assessment Wells				TW-1C	TW-1B	TW-1A	TW-2C	TW-2B	TW-2A
Well Depth Data				250-311	400-441	503-520; 525-538	360-400	595-640	660-720
Analyte	Units	Primary MCL <sup>1</sup>	Secondary MCL <sup>2</sup>						
Specific Conductance	µmhos/cm	--	900	1900	1600	2100	1400	2100	2200
Sulfate as SO <sub>4</sub>	mg/L	--	250	700	580	920	610	640	690
Total Dissolved Solids (TDS)	mg/L	--	500	1200	1000	1400	1000	1300	1300
Total Alkalinity	mg/L	--	--	190	180	210	140	120	34
Bicarbonate as CaCO <sub>3</sub>	mg/L	--	--	190	180	210	140	120	34
Carbonate as CaCO <sub>3</sub>	mg/L	--	--	ND	ND	ND	ND	ND	ND
Hydroxide as CaCO <sub>3</sub>	mg/L	--	--	ND	ND	ND	ND	ND	ND
Hardness as CaCO <sub>3</sub>	mg/L	--	--	520	430	590	490	440	340
Ammonia as N	mg/L	--	--	0.14	0.14	0.12	ND	ND	NA
Calcium	mg/L	--	--	97	76	110	110	94	71
Magnesium	mg/L	--	--	67	58	78	53	49	39
Potassium	mg/L	--	--	2.1	2.1	4.4	2.8	4.9	4.6
Sodium	mg/L	--	--	200	180	230	100	240	280
Sulfide	mg/L	--	--	ND	ND	ND	ND	ND	NA
<b>Metal Constituents</b>									
Antimony	µg/L	6	--	7.7	ND	ND	ND	ND	ND
Arsenic	µg/L	10	--	ND	ND	ND	2.2	ND	4.1
Hexavalent Chromium	µg/L	10	--	7.9	ND	ND	4.3	ND	ND
Mercury	µg/L	2	--	ND	ND	ND	ND	ND	ND
Selenium	µg/L	50	--	24	18	ND	10	7.8	ND
Uranium	µg/L	30 <sup>A</sup>	--	ND	ND	ND	ND	ND	ND
Manganese	µg/L	--	50	ND	ND	ND	ND	ND	220

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Table 2 Summary of Water Quality Test Results									
Potable-Water-Supply-Assessment Wells				TW-1C	TW-1B	TW-1A	TW-2C	TW-2B	TW-2A
Well Depth Data				250-311	400-441	503-520; 525-538	360-400	595-640	660-720
Analyte	Units	Primary MCL <sup>1</sup>	Secondary MCL <sup>2</sup>						
Iron	µg/L	--	300	ND	ND	<b>110</b>	ND	<b>120</b>	ND
Zinc	µg/L	--	5000	ND	ND	52	ND	ND	ND
Boron	µg/L	--	1000 <sup>B</sup>	<b>840</b>	<b>850</b>	<b>1400</b>	290	590	<b>930</b>
Vanadium	µg/L	--	--	ND	3.3	ND	6.1	11	3.6
Volatile Organic Compounds									
Benzene	µg/L	1	--	ND	ND	ND	ND	ND	NA
Toluene	µg/L	150	--	<b>2.5</b>	ND	ND	ND	ND	NA
Xylenes (total)	µg/L	1750	--	<b>1.5</b>	ND	ND	ND	ND	NA
Carbon tetrachloride	µg/L	0.5	--	ND	ND	ND	ND	ND	NA
1,2-Dichloroethane	µg/L	0.5	--	ND	ND	ND	ND	ND	NA
1,2,3-Trichloropropane	µg/L	--	--	ND	ND	ND	ND	ND	NA
ND: None detected    NA: Not analyzed 1-Unless noted, level is California Code of Regulations (CCR) Title 22 maximum contaminant level (MCL) 2-CCR Title 22 Secondary MCL A-U.S. EPA National Primary Drinking Water Regulation B-California Division of Drinking Water Notification Level, advisory to water suppliers  <b>Red Font Indicates Concentration is greater than 80% of a Primary MCL</b> <b>Orange Font Indicates Concentration is greater than 80% of a Secondary MCL</b> <b>Bold Font Denotes Unusual Water-Chemistry-Constituent Detection</b>									

Water quality sample results demonstrate that groundwater quality in the southern location TW-1 is generally poor. Nitrate, antimony, and arsenic concentrations in different zones at TW-1 trigger concern around primary MCLs. The presence of petroleum hydrocarbons and nitrate in zones deep beneath the Corcoran Clay indicates nearby connection to shallow groundwater contamination, most likely from agricultural activities. Total dissolved solids (TDS), sulfate, and boron concentrations trigger concerns for secondary MCLs. Groundwater in the south would require extensive treatment to make potable water.

Groundwater quality in the north at well TW-2C, the shallowest zone tested 350-400 feet bgs may be usable in a blended water supply or in a treated water supply. There are three constituents above their secondary MCL, sulfate, TDS, and specific conductance. Secondary MCLs differ from primary MCLs in that

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they are related to consumer acceptance and not public health. However, water quality above a secondary MCL concentration will trigger increased monitoring requirements. Certain constituents with secondary MCLs also have an Upper Limit and a Short Term Limit in addition to the standard MCL. Water can be provided to a water system up to the Upper Limit if it is neither reasonable nor feasible to provide more suitable water. Groundwater quality in well TW-2C exceeds the Short Term Limit for sulfate and would require either blending with another source lower in sulfate or treatment in order to meet all current codes and regulations. TDS is at its Upper Limit and thus cannot be increased thru any treatment process and preferably would be reduced by treatment or blending. Groundwater quality in deeper intervals at TW-2 goes from poor to very poor between 600 and 700 feet bgs in wells TW-2B and TW-2A.

**WATER PRODUCTION AND HYDRAULIC PROPERTY TESTING**

Short term aquifer tests were conducted in each zonal test well following well development. Tests consisted of a 3-hour to 6-hour extraction period followed by observation of hydraulic head recovery in each zone. The tests were conducted using a high-pressure 4-inch submersible pump capable of producing 75 gallons per minute (gpm). Aquifer test information and preliminary analyses are summarized below. Plots of recovery data analyses are provided in Attachment C using late time data.

Table 3 Aquifer Test Information and Preliminary Estimates of Aquifer Zone Hydraulic Properties									
Potable-Water-Supply Design Assessment Well		TW-1C	TW-1B	TW-1A	TW-2C	TW-2C	TW-2C	TW-2B	TW-2A
Well Depth Data	Screen Interval	265-285	405-435	508-518; 528-533	364-384	364-384	364-384	605-625	668-698
	Filter pack intervals	250-311	400-441	503-520; 525-538	360-400	360-400	360-400	595-640	660-720
Static Depth to Water (feet below TOC)		168.0	174.6	173.8	81.5	81.5	81.5	91.6	92.6
Test Flow Rate (Average gpm)		45.2	14.4	45.4	73.4	73.4	73.4	73.0	69.9
Aquifer Test Duration (mins)		184	189	155	355	355	355	322	350
Peak Drawdown (ft below TOC)		67.5	87.3	97.4	25.0	25.0	25.0	16.7	43.3
Estimated Value of Hydraulic Property from Preliminary Data Analysis									
Hydraulic Parameter		Recovery	Recovery	Recovery	Recovery	Drawdown	Drawdown	Recovery	Recovery
Transmissivity (ft <sup>2</sup> /day)		310	50	150	1,910	2,050	1,890	1,850	1,170
Storage Coefficient (dimensionless)		-	-	-	6.46E-03	7.60E-03	7.70E-14	-	-
Preliminary Estimate of Hydraulic Conductivity (ft/day)		5.5	1.2	5.0	47.8	51.3	47.3	41.1	39.0

Water production was very good at location TW-2 in each of the three depth zones tested. It was the best between 350 and 410 feet bgs in well TW-2C. This depth zone was preliminarily modeled using an analytical element model (AqWin32 AEM) and is estimated to be capable of producing 2,000 gpm/well with a drawdown of ~100 feet. The desirable operating range for each well completed in that zone is then

likely to be 50% of that rate or 1,000 gpm/well as potential production. Two wells are capable of producing the stated potable supply need of 1,000 to 1,500 gpm for all 3 phases of CLIBP development.

In addition we note here that while the aquifer zones above the Corcoran Clay were not tested at the northern end of the airstrip, it is likely that a substantial quantity and rate of water production can be developed from above the Corcoran Clay there and further to the north and northeast. This statement is made based on the field evidence of 160 feet of available hydraulic head and saturation above the base of a sand and gravel unit at 250 feet bgs, and this unit demonstrated high hydraulic conductivity by the loss of drilling circulation fluid from the borehole across those sands and gravels. Conversely, in the south it is most likely that a meaningful production rate of water cannot be developed due to a lack of both hydraulic head and evidence of high hydraulic conductivity.

### **DISCUSSION OF FINDINGS**

One depth-specific aquifer zone encountered from 350 to 410 feet in depth at the north end of the airstrip in test well TW-2C is worth mentioning. That zone in the north appears to be capable of producing 1,000 gallons per minute or more at each location. It may be suitable for potable water supply but has elevated sulfate that will require blending or treatment.

A project meeting was held on March 29<sup>th</sup> to go over the field findings. After reviewing the findings and data described above the group consensus was that of the six (6) zones explored only the TW-2C zone in the north was potentially suitable for water production. The discussions began to focus on this aquifer zone for design and construction of one or more water supply wells at northerly locations for Phase 1 buildout in the south. Aside from the lack of proximity to Phase 1 development areas (AECOM Figure 1-1 of phased buildout) we discussed the potential for service disruption if that aquifer-zone's water quality were to degrade. From that discussion a proposal was requested by Public Works for the prospective exploratory drilling along Bell Road to see if suitable water quality and productive zones exist in an area closer to Phase 1 development. E-PUR developed and provided a scope and cost for this exploration drilling on April 18, 2017.

The issue of whether the water supply at CLIBP could be considered to be a non-Transient and Non-Community water supply under California Division of Drinking Water (DDW) rules was raised by Provost & Pritchard during the March 29 meeting. This definition, it was noted, could reduce the concerns for sulfate. Subsequent to that meeting Provost & Pritchard undertook a dialogue with first the Stanislaus County Environmental Health and then the DDW regarding the suitability of the water quality found in well TW-2C for treatment. County Environmental Health agreed that this definition could be suitable and that they would not prohibit formation of a new water system although it would require an Engineer's Report and at least six (6) months lead time. Moreover County Environmental Health noted their primacy agreement with DDW under SB-1263 does not allow the County to issue a permit without DDW's concurrence. The overseeing regional office of DDW for the CLIBP area was contacted on April 19, 2017 to discuss the prospective system. They indicated that while the system definition was applicable that they would likely not issue a permit for a system treating this water as a primary source and recommended evaluation of other sources of supply.

Water above the Corcoran Clay may have lower TDS while having greater uncertainty of providing and adequate quantity of water throughout the year. Crows Landing Community Services District may be able to supply water for blending with local groundwater or as a source of independent supply with treatment

---

for water quality issues with Cr(VI). For reference purposes a summary of water quality concerns at Crows Landing is provided in Attachment D.

### **RECOMMENDATIONS**

Based on the findings of high sulfate and TDS in groundwater below the Corcoran Clay at the CLIBP we recommend a re-evaluation of water supply concepts for the site. We recommend that both potable and non-potable water supply needs be re-evaluated together as the prospective depths and areas of supply for each is impacted by the field findings.

Based on the data and discussions to date our project team recommends undertaking a focused feasibility study of groundwater supply options for the both potable and non-potable water supply to the CLIBP. We recommend that water supply alternatives be developed that could supply these two needs jointly as well as maintaining the earlier existing premise of two sets of water infrastructure and sources. This suite of alternatives could include evaluation of alternatives for blending waters from the deep aquifer zones at CLIBP with either shallow zone groundwater or imported groundwater from Crows Landing Community Services District, treatment of groundwater from deep aquifer zones at CLIBP, and complete supply of CLIBP by expansion of Crows Landing Community Services District.

### **CLOSING**

E-PUR appreciates the opportunity to provide you these professional evaluations which have been performed following customary practice in our fields of hydrogeology and engineering.

Attachments:

Figures 1 to 3

Attachment A – Grain Size Analysis

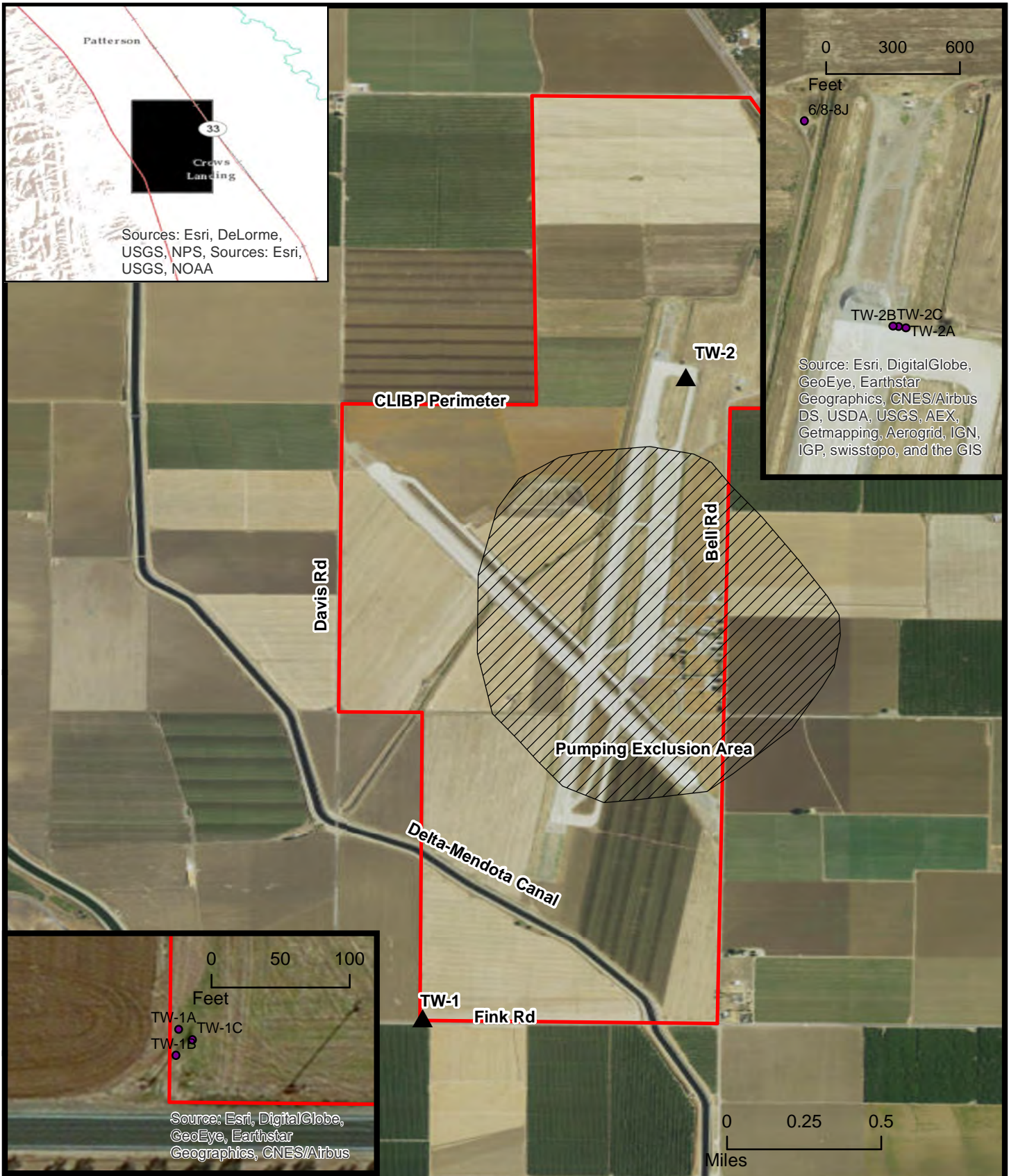
Attachment B – Lab Data Sheets

Attachment C – Summary Figures of Aquifer Test Data and Analyses

Attachment D – Summary of Key Water Quality Constituents in Crows Landing Community Services District Wells

## FIGURES





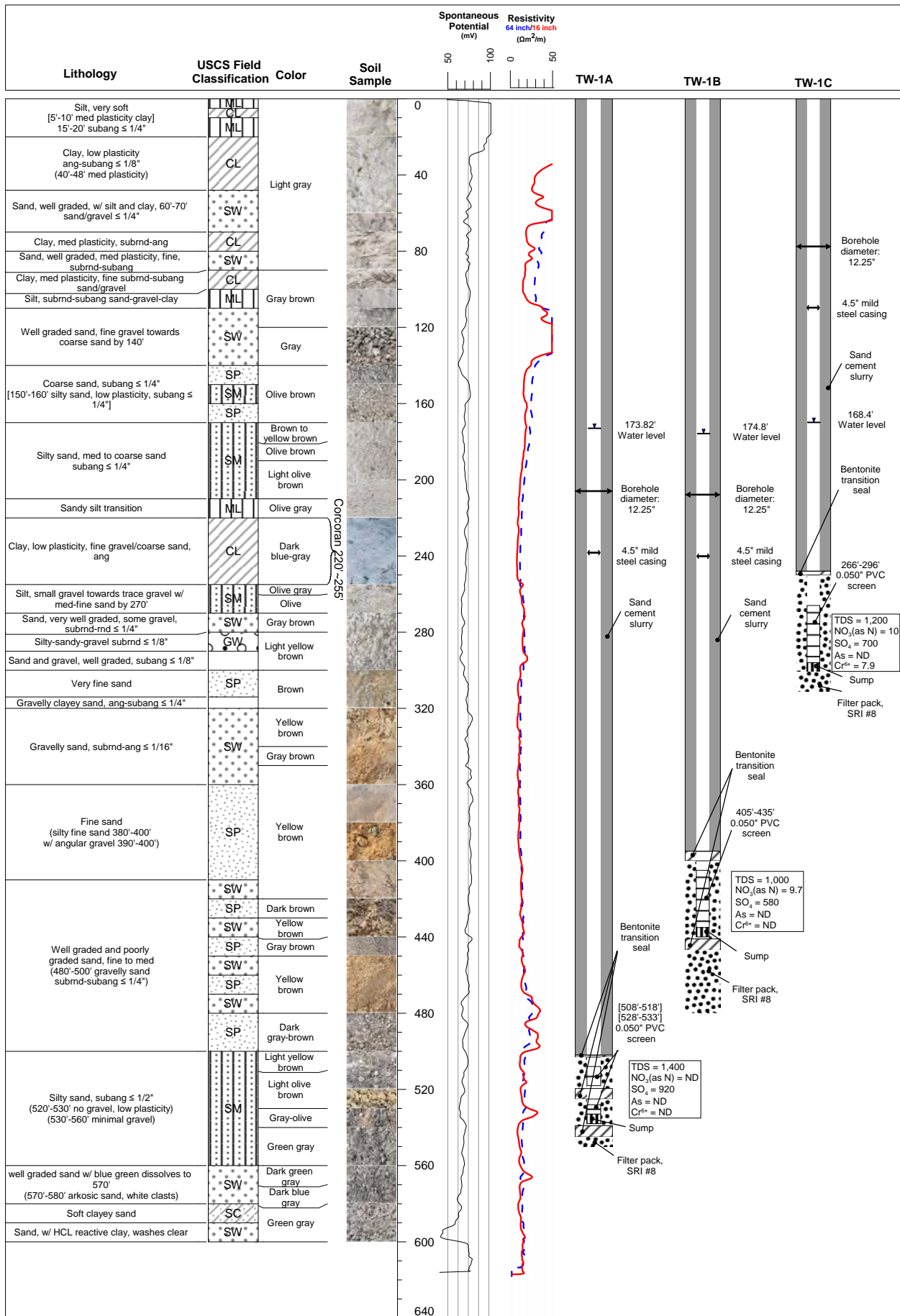
Date: 03/28/2016  
 Drawn by: IRL  
 Checked By: JML

**LEGEND**

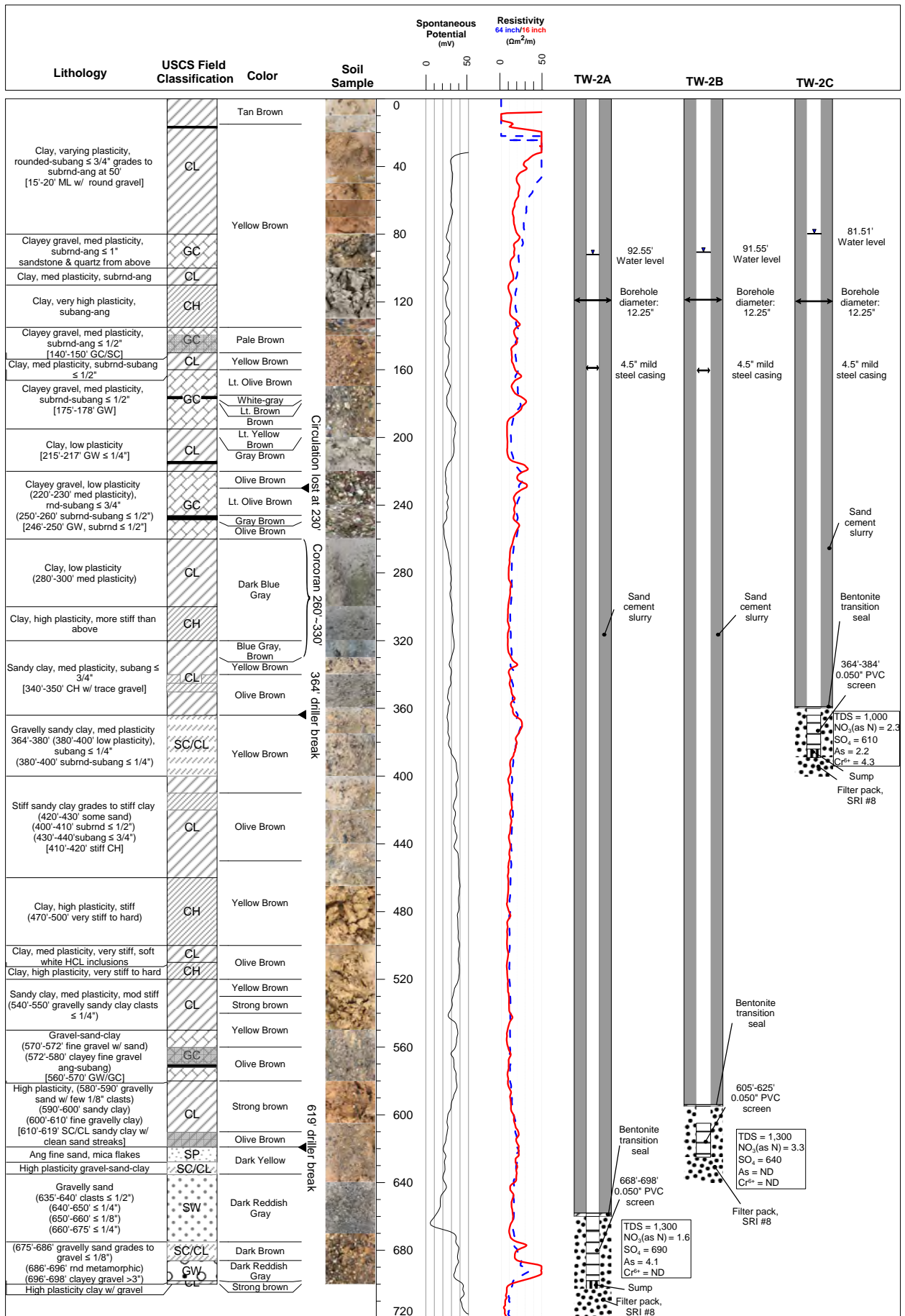
- CLIBP Perimeter
- a  
 b  
 c  
 Proposed Test Well Location  
 e.g. TW-1A



**Figure 1: CLIBP Test Wells Locations w/ insets**



**Figure 2: Well Construction, Geologic Information, and Water Quality Noted at TW-1 Location**  
 Project No. 0624-001-01  
 3/17/2017



**Figure 3: Well Construction, Geologic Information, and Water Quality Notes at TW-2 Location**  
 Project No. 0624-001-01  
 3/17/2017

**ATTACHMENT A**  
**GRAIN SIZE ANALYSIS RESULTS**



# ETS

## Environmental Technical Services

-Soil, Water & Air Testing & Monitoring  
-Analytical Labs  
-Technical Support

975 Transport Way, Suite 2  
Petaluma, CA 94954  
(707) 778-9605/FAX 778-9612  
e-mail: entech@pacbell.net

**Serving people and the environment  
so that both benefit.**

Company: E-Pur, 26 E. Wyandotte Street, Stockton, CA 95204		Date Collected: 3/7/17								
Attn: John Lambie		Date Received: 3/8/17								
Project: Stanislaus County		Date of Report: 3/16/17								
CLIBP, Crow's Landing, California		<b>Sieve Analysis Report</b>								
Lab Number / Sample ID		7270-1 / TW-1A (@ 510-540')		7270-2 / TW-1B (@ 400-440')		7270-3 / TW-1C (@ 270-300')				
Sieve Size	USGS System	Percent Fines	Percent Passing	Percent Retained	Percent Fines	Percent Passing	Percent Retained	Percent Fines	Percent Passing	Percent Retained
2.5" Sieve	Cobble		---			---			---	
1.25" Sieve			---			---			---	
5/8" Sieve	Pebble		---	0.00		---	0.00		---	0.00
5/16" Sieve			---	0.00		---	0.00		---	0.00
Sieve #4			98.48	1.52		99.83	0.17		98.22	1.78
Sieve #10	Granule		83.95	14.53		98.20	1.63		95.83	2.38
Sieve #18	Very Coarse Sand		68.53	15.42		96.07	2.13		92.65	3.19
Sieve #35	Coarse Sand		53.92	14.62		93.14	2.93		90.12	2.52
Sieve #60	Medium Sand		25.49	28.42		77.12	16.02		63.96	26.16
Sieve #120	Fine Sand		15.07	10.43		47.34	29.78		44.37	19.59
Sieve #230	Very Fine Sand		10.23	4.83		30.75	16.60		39.25	5.12
RESIDUAL FRACTION	Mud (Silt+Clay)	10.23	Gravel-> 16.05 Sand-> 73.72 Fines-> 10.23 Total-> 100.00		30.75	Gravel-> 1.80 Sand-> 67.45 Fines-> 30.75 Total-> 100.00		39.25	Gravel-> 4.17 Sand-> 56.58 Fines-> 39.25 Total-> 100.00	
<b>SAMPLE #:</b>		<b>1</b>			<b>2</b>			<b>3</b>		

### Comments

The amounts of gravel, sand and mud (=silt + clay) vary somewhat in these samples with gravel in the 2%-16% range; sand in the 57%-74% range; and mud in the 10-39% range. This, technically, changes the USGS/EPA classification somewhat as follows: TW-1A - Gravelly Muddy Sand; TW-1B - Muddy Sand; and TW-1C - Muddy Sand.

The ASTM classification would be as follows: TW-1A - sand w/ silt (SP-SM)[NOTE: gravel is only 1.52% in the ASTM system, thus it is not used as a modifier, i.e., it is <15%]; TW-1B - silty or clayey sand (SM or SC); and TW-1C - silty or clayey sand (SM or SC). In ASTM, whether these latter two are silty sand or clayey sand depends on which one is dominant mechanically, i.e., which one controls the plastic index and liquid limit.

\\ Notes: Samples are dried, disaggregated, and screened through a nested set of sieves. Consolidated samples are wet sieved while unconsolidated samples (e.g., beach sand) can be dry sieved. Different organizations, e.g. USGS, USDA, CSSC, ISSS, ASTM, AASHTO, etc., have different divisions for the various fractions. The divisions listed above usually reflect either ASTM or client specifications. Depending on specs, anywhere from 2-12 hydrometer points are taken over a 2 to 24 hour period. The hydrometer (i.e., settling) tubes are 17" x 2.375" polycarbonate cylinders; dispersion device is stainless steel.



# ETS

## Environmental Technical Services

-Soil, Water & Air Testing & Monitoring  
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-Technical Support

975 Transport Way, Suite 2  
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e-mail: [entech@pacbell.net](mailto:entech@pacbell.net)

**Serving people and the environment  
so that both benefit.**

Company: E-Pur, 26 E. Wyandotte Street, Stockton, CA 95204		Date Collected: 3/7/17							
Attn: John Lambie		Date Received: 3/8/17							
Project: Stanislaus County		Date of Report: 3/16/17							
CLIBP, Crow's Landing, California		<b>Sieve Analysis Report</b>							
Lab Number / Sample ID		7270-4 / TW-1D (@ 330-400')		7270-5 / TW-2B (@ 600-630')		7270-6 / TW-2C (@ 333-400')			
Sieve Size	USGS	Percent	Percent	Percent	Percent	Percent	Percent		
Screen #	System	Fines	Passing	Retained	Fines	Passing	Retained		
2.5" Sieve	Cobble		---		---		---		
1.25" Sieve	Pebble		---		---		---		
5/8" Sieve			0.00		0.00		0.00		
5/16" Sieve			0.00		0.00		0.00		
Sieve #4			99.31	0.69		93.65	6.35	100.00	
Sieve #10	Granule		90.43	8.88		83.27	10.38		
Sieve #18	Very Coarse Sand		84.03	6.41		68.35	14.92		
Sieve #35	Coarse Sand		74.60	9.43		48.61	19.74		
Sieve #60	Medium Sand		35.32	39.28		42.58	6.03		
Sieve #120	Fine Sand		13.45	21.87		38.28	4.30		
Sieve #230	Very Fine Sand		9.20	4.25		33.94	4.34		
RESIDUAL FRACTION	Mud (Silt+Clay)	9.20	Gravel-> 9.57 Sand-> 81.23 Fines-> 9.20 Total-> 100.00		33.94	Gravel-> 16.73 Sand-> 49.33 Fines-> 33.94 Total-> 100.00		20.24	Gravel-> 0.00 Sand-> 79.76 Fines-> 20.24 Total-> 100.00
<b>SAMPLE #:</b>		<b>4</b>		<b>5</b>		<b>6</b>			

Comments

The amounts of gravel, sand and mud (=silt + clay) vary a good deal in these samples with gravel in the 0%-17% range; sand in the 49%-81% range; and mud in the 9-34% range. This, technically, changes the USGS/EPA classification somewhat as follows: TW-1A - Gravelly Muddy Sand [NOTE: just barely muddy, almost gravelly sand]; TW-1B - Gravelly Muddy Sand; and TW-1C - Muddy Sand.

The ASTM classification would be as follows: TW-1A - sand w/ silt (SP-SM)[NOTE: gravel is only ≈0.7% in the ASTM system, thus it is not used as a modifier, i.e., it is <15%]; TW-1B - silty or clayey sand (SM or SC)[NOTE: gravel is at ≈6.4%, so again, it is >15%]; and TW-1C - silty or clayey sand (SM or SC). In ASTM, whether these latter two are silty sand or clayey sand depends on which one is dominant mechanically, i.e., which one controls the plastic index and liquid limit.

\\ Notes: Samples are dried, disaggregated, and screened through a nested set of sieves. Consolidated samples are wet sieved while unconsolidated samples (e.g., beach sand) can be dry sieved. Different organizations, e.g. USGS, USDA, CSSC, ISSS, ASTM, AASHTO, etc., have different divisions for the various fractions. The divisions listed above usually reflect either ASTM or client specifications. Depending on specs, anywhere from 2-12 hydrometer points are taken over a 2 to 24 hour period. The hydrometer (i.e., settling) tubes are 17" x 2.375" polycarbonate cylinders; dispersion device is stainless steel.

**ATTACHMENT B**  
**WATER QUALITY ANALYSIS RESULTS**

# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

March 13, 2017

CLS Work Order #: 17C0054  
COC #:

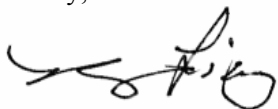
John Lambie  
E-PUR, LLC  
26 E. Wyandotte  
Stockton, CA 95204

**Project Name: Stanislaus County CLIBP Test  
Wells**

Enclosed are the results of analyses for samples received by the laboratory on 03/01/17 17:10. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.  
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233



# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
---	--	-------------------------------------

**CALIFORNIA LABORATORY SERVICES CHAIN OF CUSTODY** CLS ID. NO. 17C0054 ( of )

<b>Report To:</b>				Client Job Number 0624-001-01			<b>ANALYSIS REQUESTED</b>				GEOTRACKER											
Name and Address E-PUR, LLC				Destination Laboratory CLS			PRESERVATIVES	General Mineral + NO <sub>2</sub> & **DW metals	Sulfide & ammonia	Hex Chrome	VOC's & 1,2,3-TCP	Perchlorate	Methane	H O L D	EDF REPORT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO							
26 E. Wyandotte, Stockton, CA 95204				CLS Sample Receiving 3249 Fitzgerald Road Rancho Cordova, CA 95742											GLOBAL ID.							
Project Manager John Lambie															FIELD CONDITIONS: New 4" Monitoring Wells, PVC Screens and Steel Casing							
Email Phone jlambie@e-purwater.com (209) 451-5933															QUOTE#: EPURWater INVOICE TO: E-PUR, LLC 4061 SW Chesapeake Avenue Portland, OR 97239							
Project Name Stanislaus County CLIBP Test Wells															TURNAROUND TIME IN DAYS				SPECIAL INSTRUCTIONS			
Sampled By <i>John Lambie</i>															1 2 5 10				**Lab to filter for metals**			
Job Description Potable Water Quality Testing																			Extra Ammonia / Ls • DW Metals to include Uranium			
Site Location																						
DATE	TIME	SAMPLE IDENTIFICATION	FIELD ID.	CONTAINER																		
				MATRIX	NO.	TYPE																
3/1/17	13:30-15:38	San. Co. CLIBP	TW-1A	GW	15	Various	X	X	X	X	X	X										
SUSPECTED CONSTITUENTS: None							SAMPLE RETENTION TIME				PRESERVATIVES (1) HCL (3) = COLD (2) HNO <sub>3</sub> (4) = H <sub>2</sub> SO <sub>4</sub>											
RELINQUISHED BY (Signature)			PRINT NAME/COMPANY			DATE/TIME		RECEIVED BY (Signature)				PRINT NAME/COMPANY										
<i>John Lambie</i>			John Lambie / EPUR			3/1/17 17:10																
RECEIVED AT LAB BY:			<i>Julie Miller</i>			DATE/TIME: 3-1-17-1710		CONDITIONS/COMMENTS:				3-3										
SHIPPED BY:			<input checked="" type="checkbox"/> FED EX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER			AIR BILL #																

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
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## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
<b>Ammonia as N</b>	<b>0.12</b>	0.10	mg/L	1	1701569	03/02/17	03/02/17	SM4500-NH3C	
<b>Bicarbonate as CaCO3</b>	<b>210</b>	5.0	"	"	1701572	03/02/17	03/02/17	SM2320B	
<b>Calcium</b>	<b>110</b>	1.0	"	"	1701599	03/03/17	03/03/17	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1701572	03/02/17	03/02/17	SM2320B	
<b>Chloride</b>	<b>53</b>	10	"	20	1701548	03/02/17	03/02/17	EPA 300.0	
<b>Fluoride</b>	<b>0.40</b>	0.10	"	1	"	"	"	"	
<b>Hardness as CaCO3</b>	<b>590</b>	1.0	"	"	1701599	03/03/17	03/03/17	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1701602	03/03/17	03/03/17	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1701572	03/02/17	03/02/17	SM2320B	
<b>Magnesium</b>	<b>78</b>	1.0	"	"	1701599	03/03/17	03/03/17	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1701551	03/02/17	03/02/17	SM5540 C	
Nitrate as N	ND	0.40	"	"	1701548	03/02/17	03/02/17	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	
Perchlorate	ND	4.0	µg/L	"	1701650	03/06/17	03/07/17	EPA 314.0	
<b>pH</b>	<b>7.34</b>	0.01	pH Units	"	1701550	03/02/17	03/02/17	SM4500-H B	HT-F
<b>Potassium</b>	<b>4.4</b>	1.0	mg/L	"	1701599	03/03/17	03/03/17	200.7/2340B	
<b>Sodium</b>	<b>230</b>	1.0	"	"	"	"	"	"	
<b>Specific Conductance (EC)</b>	<b>2100</b>	1.0	µmhos/cm	"	1701577	03/02/17	03/02/17	EPA 120.1	
<b>Sulfate as SO4</b>	<b>920</b>	25	mg/L	50	1701548	03/02/17	03/02/17	EPA 300.0	
Sulfide	ND	1.0	"	1	1701618	03/03/17	03/03/17	EPA 9030B	
<b>Total Alkalinity</b>	<b>210</b>	5.0	"	"	1701572	03/02/17	03/02/17	SM2320B	
<b>Total Dissolved Solids</b>	<b>1400</b>	10	"	"	1701564	03/02/17	03/03/17	SM2540C	

# CALIFORNIA LABORATORY SERVICES

Page 3 of 27

03/13/17 16:48

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17C0054
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Low-Level 1,2,3-Trichloropropane by Purge & Trap Isotopic Dilution GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
1,2,3-Trichloropropane	ND	0.0050	µg/L	1	1701630	03/06/17	03/07/17	SRL 524M-TCP	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
---	--	-------------------------------------

## Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
Uranium	ND	20	µg/L	1	1701574	03/02/17	03/02/17	EPA 200.8	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
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## Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
Aluminum	ND	50	µg/L	1	1701599	03/03/17	03/03/17	EPA 200.7	
Antimony	ND	4.0	"	"	1701574	03/02/17	03/02/17	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1701599	03/03/17	03/03/17	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
<b>Boron</b>	<b>1400</b>	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1701574	03/02/17	03/02/17	EPA 200.8	
Chromium	ND	10	"	"	1701599	03/03/17	03/03/17	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
<b>Iron</b>	<b>110</b>	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1701574	03/02/17	03/02/17	EPA 200.8	
Manganese	ND	20	"	"	1701599	03/03/17	03/03/17	EPA 200.7	
Mercury	ND	0.20	"	"	1701557	03/02/17	03/02/17	EPA 245.1	
Nickel	ND	10	"	"	1701574	03/02/17	03/02/17	EPA 200.8	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	1701599	03/03/17	03/03/17	EPA 200.7	
Thallium	ND	1.0	"	"	1701574	03/02/17	03/02/17	EPA 200.8	
Vanadium	ND	3.0	"	"	"	"	"	"	
<b>Zinc</b>	<b>52</b>	50	"	"	1701599	03/03/17	03/03/17	EPA 200.7	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
---	--	-------------------------------------

## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1701575	03/02/17	03/02/17	EPA 524.2	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	5.0	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
Chloroform	ND	0.50	µg/L	1	1701575	"	03/02/17	EPA 524.2	
Chloromethane	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
m,p-Xylene	ND	0.50	"	"	"	"	"	"	
Methyl ethyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl isobutyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
o-Xylene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	3.0	"	"	"	"	"	"	
tert-Butyl alcohol	ND	2.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0054 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Stan. Co. CLIBP (17C0054-01) GW    Sampled: 03/01/17 13:30    Received: 03/01/17 17:10</b>									
Total Trihalomethanes (THM)	ND	0.50	µg/L	1	1701575	"	03/02/17	EPA 524.2	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>118 %</i>		<i>66-135</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>123 %</i>		<i>70-130</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: Toluene-d8</i>		<i>84 %</i>		<i>70-130</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>



# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

March 17, 2017

**CLS Work Order #: 17C0153**

**COC #:**

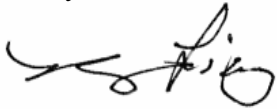
John Lambie  
E-PUR, LLC  
26 E. Wyandotte  
Stockton, CA 95204

**Project Name: Stanislaus County CLIBP Test  
Wells**

Enclosed are the results of analyses for samples received by the laboratory on 03/03/17 14:40. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.  
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0153 COC #:
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**CALIFORNIA LABORATORY SERVICES CHAIN OF CUSTODY**      CLS ID. NO. 17C0153 ( of )

<b>Report To:</b>				Client Job Number 0624-001-01			<b>ANALYSIS REQUESTED</b>					GEOTRACKER								
Name and Address E-PUR, LLC 26 E. Wyandotte, Stockton, CA 95204				Destination Laboratory CLS								H O L D Methane Perchlorate VOC's & 1,2,3-TCP Hex Chrome Sulfide & ammonia General Mineral + NO2 & **DW metals PRESERVATIVES				EDF REPORT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
Project Manager John Lambie				CLS Sample Receiving 3249 Fitzgerald Road Rancho Cordova, CA 95742			FIELD CONDITIONS: New 4" Monitoring Wells, PVC Screens and Steel Casing				GLOBAL ID.									
Email                                  Phone jlambie@e-purwater.com          (209) 451-5933											QUOTE: EPURWater INVOICE TO: E-PUR, LLC 4061 SW Chesapeake Avenue Portland, OR 97239				TURNAROUND      SPECIAL					
Project Name Stanislaus County CLIBP Test Wells							TIME IN DAYS      INSTRUCTIONS								1   2   5   10					
Sampled By <i>J. Lambie</i>											**Lab to filter for metals**									
Job Description Potable Water Quality Testing							• DW Metals to include Uranium													
Site Location											SUSPECTED CONSTITUENTS: None									
DATE	TIME	SAMPLE IDENTIFICATION	FIELD ID.	MATRIX	NO.	TYPE														
3/3	12:30	TW-1B	TW-1B	GW	#215	Various	X	X	X	X	X									
							SAMPLE RETENTION TIME					PRESERVATIVES (1) HCL (3) - COLD (2) HNO3 (4) - H2SO4								
RELINQUISHED BY (Signature)				PRINT NAME/COMPANY			DATE/TIME		RECEIVED BY (Signature)				PRINT NAME/COMPANY							
<i>[Signature]</i>				John Lambie / E Pur			3/3 12:45		<i>[Signature]</i>				M. Smith							
RECEIVED AT LAB BY:				DATE/TIME:			CONDITIONS/COMMENTS:													
				3-3-17 1440																
SHIPPED BY:				<input type="checkbox"/> FED EX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER			AIR BILL #													

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0153 COC #:
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## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW    Sampled: 03/03/17 12:30    Received: 03/03/17 14:40</b>									
Ammonia as N	0.14	0.10	mg/L	1	1701639	03/06/17	03/06/17	SM4500-NH3C	
Bicarbonate as CaCO3	180	5.0	"	"	1701649	03/06/17	03/06/17	SM2320B	
Calcium	76	1.0	"	"	1701633	03/06/17	03/06/17	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1701649	03/06/17	03/06/17	SM2320B	
Chloride	78	10	"	20	1701597	03/03/17	03/03/17	EPA 300.0	
Fluoride	0.93	0.10	"	1	"	"	"	"	
Hardness as CaCO3	430	1.0	"	"	1701633	03/06/17	03/06/17	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1701675	03/07/17	03/08/17	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1701649	03/06/17	03/06/17	SM2320B	
Magnesium	58	1.0	"	"	1701633	03/06/17	03/06/17	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1701598	03/03/17	03/03/17	SM5540 C	
Nitrate as N	9.7	0.40	"	"	1701597	03/03/17	03/03/17	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	03/03/17	"	
Perchlorate	ND	4.0	µg/L	"	1701650	03/06/17	03/07/17	EPA 314.0	
pH	7.57	0.01	pH Units	"	1701595	03/03/17	03/03/17	SM4500-H B	HT-F
Potassium	2.1	1.0	mg/L	"	1701633	03/06/17	03/08/17	200.7/2340B	
Sodium	180	1.0	"	"	"	"	03/06/17	"	
Specific Conductance (EC)	1600	1.0	µmhos/cm	"	1701634	03/06/17	03/06/17	EPA 120.1	
Sulfate as SO4	580	10	mg/L	20	1701597	03/03/17	03/03/17	EPA 300.0	
Sulfide	ND	1.0	"	1	1701685	03/07/17	03/07/17	EPA 9030B	
Total Alkalinity	180	5.0	"	"	1701649	03/06/17	03/06/17	SM2320B	
Total Dissolved Solids	1000	10	"	"	1701640	03/06/17	03/07/17	SM2540C	

# CALIFORNIA LABORATORY SERVICES

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03/17/17 08:11

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17C0153
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Low-Level 1,2,3-Trichloropropane by Purge & Trap Isotopic Dilution GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW Sampled: 03/03/17 12:30 Received: 03/03/17 14:40</b>									
1,2,3-Trichloropropane	ND	0.0050	µg/L	1	1701630	03/06/17	03/07/17	SRL 524M-TCP	

# CALIFORNIA LABORATORY SERVICES

Page 5 of 28

03/17/17 08:11

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17C0153
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW Sampled: 03/03/17 12:30 Received: 03/03/17 14:40</b>									
Uranium	ND	20	µg/L	1	1701687	03/07/17	03/07/17	EPA 200.8	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0153 COC #:
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## Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW Sampled: 03/03/17 12:30 Received: 03/03/17 14:40</b>									
Aluminum	ND	50	µg/L	1	1701633	03/06/17	03/06/17	EPA 200.7	
Antimony	ND	4.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1701633	03/06/17	03/06/17	EPA 200.7	QC-2H
Beryllium	ND	1.0	"	"	"	"	"	"	
<b>Boron</b>	<b>850</b>	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
Chromium	ND	10	"	"	1701633	03/06/17	03/06/17	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	ND	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
Manganese	ND	20	"	"	1701633	03/06/17	03/06/17	EPA 200.7	
Mercury	ND	0.20	"	"	1701646	03/06/17	03/06/17	EPA 245.1	
Nickel	ND	10	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
<b>Selenium</b>	<b>18</b>	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	1701633	03/06/17	03/06/17	EPA 200.7	
Thallium	ND	1.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
<b>Vanadium</b>	<b>3.3</b>	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1701633	03/06/17	03/06/17	EPA 200.7	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0153 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW Sampled: 03/03/17 12:30 Received: 03/03/17 14:40</b>									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1701629	03/06/17	03/06/17	EPA 524.2	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	5.0	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0153 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW Sampled: 03/03/17 12:30 Received: 03/03/17 14:40</b>									
Chloroform	ND	0.50	µg/L	1	1701629	"	03/06/17	EPA 524.2	
Chloromethane	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
m,p-Xylene	ND	0.50	"	"	"	"	"	"	
Methyl ethyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl isobutyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
o-Xylene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	3.0	"	"	"	"	"	"	
tert-Butyl alcohol	ND	2.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	



# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells
26 E. Wyandotte	Project Number: 0624-001-01 <b>CLS Work Order #: 17C0153</b>
Stockton, CA 95204	Project Manager: John Lambie COC #:

## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1B (17C0153-01) GW Sampled: 03/03/17 12:30 Received: 03/03/17 14:40</b>									
Total Trihalomethanes (THM)	ND	0.50	µg/L	1	1701629	"	03/06/17	EPA 524.2	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>112 %</i>		<i>66-135</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>111 %</i>		<i>70-130</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: Toluene-d8</i>		<i>87 %</i>		<i>70-130</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>

# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

March 15, 2017

**CLS Work Order #: 17C0215**

**COC #:**

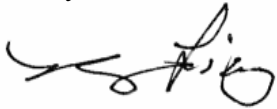
John Lambie  
E-PUR, LLC  
26 E. Wyandotte  
Stockton, CA 95204

**Project Name: Stanislaus County CLIBP Test  
Wells**

Enclosed are the results of analyses for samples received by the laboratory on 03/06/17 16:10. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.  
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0215 COC #:
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**CALIFORNIA LABORATORY SERVICES CHAIN OF CUSTODY** CLS ID. NO. 17C0215 ( of )

<b>Report To:</b>				Client Job Number 0624-001-01			<b>ANALYSIS REQUESTED</b>				GEOTRACKER					
Name and Address E-PUR, LLC				Destination Laboratory CLS			H O L D  Methane Perchlorate VOC's & 1,2,3-TCP Hex Chrome Sulfide & ammonia General Mineral + NO2 & **DW metals PRESERVATIVES				EDF REPORT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
26 E. Wyandotte, Stockton, CA 95204				CLS Sample Receiving 3249 Fitzgerald Road Rancho Cordova, CA 95742							GLOBAL ID.					
Project Manager John Lambie											FIELD CONDITIONS: New 4" Monitoring Wells, PVC Screens and Steel Casing					
Email jlambie@e-purwater.com		Phone (209) 451-5933									QUOTE#: EPURWater INVOICE TO: E-PUR, LLC 4061 SW Chesapeake Avenue Portland, OR 97239					
Project Name Stanislaus County CLIBP Test Wells											TURNAROUND TIME IN DAYS		SPECIAL INSTRUCTIONS			
Sampled By <i>John Lambie</i>				Job Description Potable Water Quality Testing		1		2		5		10		**Lab to filter for metals**		
Site Location <i>CLIBP Stan Co.</i>															DW Metals to include Uranium	
DATE	TIME	SAMPLE IDENTIFICATION	FIELD ID.	CONTAINER			PRESERVATIVES	1	2	5	10	SPECIAL INSTRUCTIONS				
				MATRIX	NO.	TYPE						**Lab to filter for metals**				
3/16/17	12:55	TW-1C	TW-1C	GW	1542	Various	X	X	X	X	X					
SUSPECTED CONSTITUENTS: None							SAMPLE RETENTION TIME				PRESERVATIVES (1) HCL (3) = COLD (2) HNO3 (4) = H2SO4					
RELINQUISHED BY (Signature)			PRINT NAME/COMPANY			DATE/TIME		RECEIVED BY (Signature)			PRINT NAME/COMPANY					
<i>[Signature]</i>			John Lambie / EPUR			3/16/17 16:33		<i>[Signature]</i>			CONRAD JR / CLS					
RECEIVED AT LAB BY						DATE/TIME: 3/16/17 16:00		CONDITIONS/COMMENTS:								
SHIPPED BY:						DATE/TIME: 3/16/17 16:00		OTHER		(1.6)		AIR BILL #				

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0215 COC #:
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## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW    Sampled: 03/06/17 12:55    Received: 03/06/17 16:10</b>									
<b>Ammonia as N</b>	<b>0.14</b>	0.10	mg/L	1	1701688	03/07/17	03/07/17	SM4500-NH3C	
<b>Bicarbonate as CaCO3</b>	<b>190</b>	5.0	"	"	1701738	03/08/17	03/08/17	SM2320B	
<b>Calcium</b>	<b>97</b>	1.0	"	"	1701686	03/07/17	03/07/17	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1701738	03/08/17	03/08/17	SM2320B	
<b>Chloride</b>	<b>140</b>	10	"	20	1701677	03/07/17	03/07/17	EPA 300.0	
<b>Fluoride</b>	<b>0.94</b>	0.10	"	1	"	"	"	"	
<b>Hardness as CaCO3</b>	<b>520</b>	1.0	"	"	1701686	03/07/17	03/07/17	200.7/2340B	
<b>Hexavalent Chromium</b>	<b>7.9</b>	1.0	µg/L	"	1701675	03/07/17	03/08/17	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1701738	03/08/17	03/08/17	SM2320B	
<b>Magnesium</b>	<b>67</b>	1.0	"	"	1701686	03/07/17	03/07/17	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1701684	03/07/17	"	SM5540 C	
<b>Nitrate as N</b>	<b>10</b>	0.40	"	"	1701677	03/07/17	03/07/17	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	
Perchlorate	ND	4.0	µg/L	"	1701650	03/06/17	03/07/17	EPA 314.0	
<b>pH</b>	<b>7.39</b>	0.01	pH Units	"	1701663	03/06/17	03/06/17	SM4500-H B	HT-F
<b>Potassium</b>	<b>2.1</b>	1.0	mg/L	"	1701686	03/07/17	03/07/17	200.7/2340B	
<b>Sodium</b>	<b>200</b>	1.0	"	"	"	"	"	"	
<b>Specific Conductance (EC)</b>	<b>1900</b>	1.0	µmhos/cm	"	1701712	03/07/17	03/07/17	EPA 120.1	
<b>Sulfate as SO4</b>	<b>700</b>	10	mg/L	20	1701677	03/07/17	03/07/17	EPA 300.0	
Sulfide	ND	1.0	"	1	1701685	03/07/17	03/07/17	EPA 9030B	
<b>Total Alkalinity</b>	<b>190</b>	5.0	"	"	1701738	03/08/17	03/08/17	SM2320B	
<b>Total Dissolved Solids</b>	<b>1200</b>	10	"	"	1701731	03/08/17	03/09/17	SM2540C	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17C0215
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Low-Level 1,2,3-Trichloropropane by Purge & Trap Isotopic Dilution GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW Sampled: 03/06/17 12:55 Received: 03/06/17 16:10</b>									
1,2,3-Trichloropropane	ND	0.0050	µg/L	1	1701837	03/12/17	03/13/17	SRL 524M-TCP	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17C0215
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW Sampled: 03/06/17 12:55 Received: 03/06/17 16:10</b>									
Uranium	ND	20	µg/L	1	1701687	03/07/17	03/07/17	EPA 200.8	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0215 COC #:
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## Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW Sampled: 03/06/17 12:55 Received: 03/06/17 16:10</b>									
Aluminum	ND	50	µg/L	1	1701686	03/07/17	03/07/17	EPA 200.7	
<b>Antimony</b>	<b>7.7</b>	4.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1701686	03/07/17	03/07/17	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
<b>Boron</b>	<b>840</b>	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
Chromium	ND	10	"	"	1701686	03/07/17	03/07/17	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	ND	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
Manganese	ND	20	"	"	1701686	03/07/17	03/07/17	EPA 200.7	
Mercury	ND	0.20	"	"	1701787	03/09/17	03/10/17	EPA 245.1	
Nickel	ND	10	"	"	1701687	03/07/17	03/07/17	EPA 200.8	
<b>Selenium</b>	<b>24</b>	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1701686	03/07/17	03/07/17	EPA 200.7	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0215 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW Sampled: 03/06/17 12:55 Received: 03/06/17 16:10</b>									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1701756	03/09/17	03/09/17	EPA 524.2	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	5.0	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	



# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells
26 E. Wyandotte	Project Number: 0624-001-01
Stockton, CA 95204	Project Manager: John Lambie
	CLS Work Order #: 17C0215
	COC #:

## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW Sampled: 03/06/17 12:55 Received: 03/06/17 16:10</b>									
Chloroform	ND	0.50	µg/L	1	1701756	"	03/09/17	EPA 524.2	
Chloromethane	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
<b>m,p-Xylene</b>	<b>1.5</b>	0.50	"	"	"	"	"	"	
Methyl ethyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl isobutyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
o-Xylene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	3.0	"	"	"	"	"	"	
tert-Butyl alcohol	ND	2.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
<b>Toluene</b>	<b>2.5</b>	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17C0215 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-1C (17C0215-01) GW Sampled: 03/06/17 12:55 Received: 03/06/17 16:10</b>									
Total Trihalomethanes (THM)	ND	0.50	µg/L	1	1701756	"	03/09/17	EPA 524.2	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>1.5</b>	<b>0.50</b>	"	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>	<i>66-135</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>114 %</i>	<i>70-130</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: Toluene-d8</i>	<i>84 %</i>	<i>70-130</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>

# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

February 21, 2017

**CLS Work Order #: 17B0648**

**COC #:**

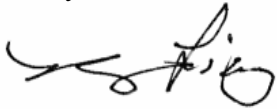
John Lambie  
E-PUR, LLC  
26 E. Wyandotte  
Stockton, CA 95204

**Project Name: Stanislaus County CLIBP Test  
Wells**

Enclosed are the results of analyses for samples received by the laboratory on 02/14/17 17:00. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.  
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0648 COC #:
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CALIFORNIA LABORATORY SERVICES CHAIN OF CUSTODY CLS ID. NO. 17B0648 ( of )

<b>Report To:</b>			Client Job Number 0624-001-01			<b>ANALYSIS REQUESTED</b>			GEOTRACKER		
Name and Address E-PUR, LLC			Destination Laboratory CLS			H O L D  Methane Perchlorate VOC's & 1,2,3-TCP Hex Chrome Sulfide & ammonia General Mineral + NO2 & **DW metals PRESERVATIVES			EDF REPORT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
26 E. Wyandotte, Stockton, CA 95204			CLS Sample Receiving 3249 Fitzgerald Road Rancho Cordova, CA 95742						GLOBAL ID:		
Project Manager John Lambie									FIELD CONDITIONS: New 4" Monitoring Wells, PVC Screens and Steel Casing		
Email jlambie@e-purwater.com			Phone (209) 451-5933						QUOTE: EPURWater INVOICE TO: E-PUR, LLC 4061 SW Chesapeake Avenue Portland, OR 97239		
Project Name Stanislaus County CLIBP Test Wells									TURNAROUND TIME IN DAYS		
Sampled By Danyln Tachella						SPECIAL INSTRUCTIONS					
Job Description Potable Water Quality Testing						1 2 5 10					
Site Location CLIBP TW-2A						**Lab to filter for metals** then preserve + hold					
DATE	TIME	SAMPLE IDENTIFICATION	FIELD ID.	CONTAINER							
				MATRIX	NO.	TYPE					
2/13/17	17:30	TW-2A		GW	12	Various					
RELINQUISHED BY: 2/14/17 11:00H											
SUSPECTED CONSTITUENTS: None						SAMPLE RETENTION TIME			PRESERVATIVES (1) HCl (3) = COLD (2) HNO <sub>3</sub> (4) = H <sub>2</sub> SO <sub>4</sub>		
RELINQUISHED BY (Signature)			PRINT NAME/COMPANY			DATE/TIME			RECEIVED BY (Signature)		
Danyln Tachella			Danyln Tachella - P+P			2/13 18:00			John Lambie		
John Lambie			John Lambie - E-PUR			2/14/17			John Lambie E-PUR		
RECEIVED AT LAB BY:			DATE/TIME:			CONDITIONS/COMMENTS:					
SHIPPED BY:			<input checked="" type="checkbox"/> FED EX <input type="checkbox"/> UPS <input checked="" type="checkbox"/> OTHER			Carrier / CLS			AIR B.L.#		

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0648 COC #:
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## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2A (17B0648-01) GW</b> Sampled: 02/13/17 17:30 Received: 02/14/17 17:00									
<b>Bicarbonate as CaCO3</b>	<b>34</b>	5.0	mg/L	1	1701194	02/16/17	02/16/17	SM2320B	
<b>Calcium</b>	<b>71</b>	1.0	"	"	1701190	02/16/17	02/16/17	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1701194	02/16/17	02/16/17	SM2320B	
<b>Chloride</b>	<b>240</b>	25	"	50	1701141	02/15/17	02/15/17	EPA 300.0	
Fluoride	ND	0.10	"	1	"	"	"	"	
<b>Hardness as CaCO3</b>	<b>340</b>	1.0	"	"	1701190	02/16/17	02/16/17	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1701143	02/15/17	02/15/17	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1701194	02/16/17	02/16/17	SM2320B	
<b>Magnesium</b>	<b>39</b>	1.0	"	"	1701190	02/16/17	02/16/17	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1701158	02/15/17	02/15/17	SM5540 C	
<b>Nitrate as N</b>	<b>1.6</b>	0.40	"	"	1701141	02/15/17	02/15/17	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	
<b>pH</b>	<b>8.01</b>	0.01	pH Units	"	1701144	02/15/17	02/15/17	SM4500-H B	HT-F
<b>Potassium</b>	<b>4.6</b>	1.0	mg/L	"	1701190	02/16/17	02/16/17	200.7/2340B	
<b>Sodium</b>	<b>280</b>	1.0	"	"	"	"	"	"	
<b>Specific Conductance (EC)</b>	<b>2200</b>	1.0	µmhos/cm	"	1701195	02/16/17	02/16/17	EPA 120.1	
<b>Sulfate as SO4</b>	<b>690</b>	25	mg/L	50	1701141	02/15/17	02/15/17	EPA 300.0	
<b>Total Alkalinity</b>	<b>34</b>	5.0	"	1	1701194	02/16/17	02/16/17	SM2320B	
<b>Total Dissolved Solids</b>	<b>1300</b>	10	"	"	1701164	02/15/17	02/16/17	SM2540C	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17B0648
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2A (17B0648-01) GW    Sampled: 02/13/17 17:30    Received: 02/14/17 17:00</b>									
Uranium	ND	20	µg/L	1	1701191	02/16/17	02/16/17	EPA 200.8	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0648 COC #:
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## Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2A (17B0648-01) GW    Sampled: 02/13/17 17:30    Received: 02/14/17 17:00</b>									
Aluminum	ND	50	µg/L	1	1701190	02/16/17	02/16/17	EPA 200.7	
Antimony	ND	4.0	"	"	1701191	02/16/17	02/17/17	EPA 200.8	
<b>Arsenic</b>	<b>4.1</b>	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1701190	02/16/17	02/16/17	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
<b>Boron</b>	<b>930</b>	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1701191	02/16/17	02/17/17	EPA 200.8	
Chromium	ND	10	"	"	1701190	02/16/17	02/16/17	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	ND	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1701191	02/16/17	02/17/17	EPA 200.8	
<b>Manganese</b>	<b>220</b>	20	"	"	1701190	02/16/17	02/16/17	EPA 200.7	
Mercury	ND	0.20	"	"	1701192	02/16/17	02/16/17	EPA 245.1	
Nickel	ND	10	"	"	1701191	02/16/17	02/17/17	EPA 200.8	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	1701190	02/16/17	02/16/17	EPA 200.7	
Thallium	ND	1.0	"	"	1701191	02/16/17	02/17/17	EPA 200.8	
<b>Vanadium</b>	<b>3.6</b>	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1701190	02/16/17	02/16/17	EPA 200.7	

# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

March 03, 2017

**CLS Work Order #: 17B0830**  
**COC #:**

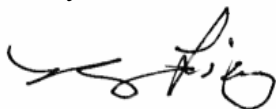
John Lambie  
E-PUR, LLC  
26 E. Wyandotte  
Stockton, CA 95204

**Project Name: Stanislaus County CLIBP Test  
Wells**

Enclosed are the results of analyses for samples received by the laboratory on 02/17/17 14:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.  
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233



# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0830 COC #:
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**CALIFORNIA LABORATORY SERVICES CHAIN OF CUSTODY**      CLS ID. NO. 17B0830 ( of )

<b>Report To:</b>		Client Job Number 0624-001-01		<b>ANALYSIS REQUESTED</b>			GEOTRACKER	
Name and Address E-PUR, LLC		Destination Laboratory CLS		Methane Perchlorate VOC's & 1,2,3-TCP Hex Chrome Sulfide & ammonia General Mineral + NO2 & **DW metals <b>PRESERVATIVES</b>			EDF REPORT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
26 E. Wyandotte, Stockton, CA 95204		CLS Sample Receiving 3249 Fitzgerald Road Rancho Cordova, CA 95742					GLOBAL ID.	
Project Manager John Lambie							FIELD CONDITIONS: New 4" Monitoring Wells, PVC Screens and Steel Casing	
Email                          Phone jlambie@e-purwater.com    (209) 451-5933							QUOTE: EPURWater INVOICE TO: E-PUR, LLC 4061 SW Chesapeake Avenue Portland, OR 97239	
Project Name Stanislaus County CLIBP Test Wells							TURNAROUND    SPECIAL TIME IN DAYS    INSTRUCTIONS	
Sampled By <i>Darylyn Tachella</i>				1    2    5    10    **Lab to filter for metals**				
Job Description Potable Water Quality Testing				• DW Metals to include Uranium				
Site Location <i>CLIBP</i>				<i>Extra Amber Sample Extra 125ml sample returned</i>				
DATE	TIME	SAMPLE IDENTIFICATION	FIELD ID.	MATRIX	NO.	TYPE		
<i>2/16/17</i>	<i>14:30</i>	<i>TW-2B</i>		<i>GW</i>	<i>15</i>	<i>Various</i>	<i>XX XX XX XX</i>	
<i>RELINQUISHED BY:</i> <i>[Signature]</i> <i>2/17/17-144511</i>								
SUSPECTED CONSTITUENTS: None				SAMPLE RETENTION TIME		PRESERVATIVES (1) HCL    (3) - COLD (2) HNO <sub>3</sub> (4) - H2SO4		
RELINQUISHED BY (Signature)		PRINT NAME/COMPANY		DATE/TIME		RECEIVED BY (Signature)		PRINT NAME/COMPANY
<i>[Signature]</i>		<i>Darylyn Tachella P&amp;P</i>		<i>2/16 14:55</i>		<i>[Signature]</i>		<i>John Lambie / E-PUR</i>
<i>[Signature]</i>		<i>John Lambie, E-PUR</i>		<i>2/17/17 13:30</i>		<i>[Signature]</i>		<i>CONRAD JACO</i>
RECEIVED AT LAB BY: <i>[Signature]</i>			DATE/TIME: <i>2-17-17 14:15</i>			CONDITIONS/COMMENTS:		
SHIPPED BY:		<input type="checkbox"/> FED EX <input type="checkbox"/> UPS <input checked="" type="checkbox"/> OTHER		<i>CLS (14)</i>		AIR BILL #		

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0830 COC #:
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## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW    Sampled: 02/16/17 14:30    Received: 02/17/17 14:45</b>									
Ammonia as N	ND	0.10	mg/L	1	1701281	02/20/17	02/20/17	SM4500-NH3C	
<b>Bicarbonate as CaCO3</b>	<b>120</b>	5.0	"	"	1701292	02/20/17	02/20/17	SM2320B	
<b>Calcium</b>	<b>94</b>	1.0	"	"	1701275	02/20/17	02/20/17	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1701292	02/20/17	02/20/17	SM2320B	
<b>Chloride</b>	<b>260</b>	10	"	20	1701230	02/17/17	02/17/17	EPA 300.0	
Fluoride	ND	0.10	"	1	"	"	"	"	
<b>Hardness as CaCO3</b>	<b>440</b>	1.0	"	"	1701275	02/20/17	02/20/17	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1701270	02/20/17	02/20/17	EPA 218.6	QC-2H
Hydroxide as CaCO3	ND	5.0	mg/L	"	1701292	02/20/17	02/20/17	SM2320B	
<b>Magnesium</b>	<b>49</b>	1.0	"	"	1701275	02/20/17	02/20/17	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1701256	02/17/17	02/17/17	SM5540 C	
<b>Nitrate as N</b>	<b>3.3</b>	0.40	"	"	1701230	"	02/17/17	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	02/17/17	02/17/17	"	
Perchlorate	ND	4.0	µg/L	"	1701302	02/20/17	02/20/17	EPA 314.0	
<b>pH</b>	<b>7.97</b>	0.01	pH Units	"	1701225	02/17/17	02/17/17	SM4500-H B	HT-F
<b>Potassium</b>	<b>4.9</b>	1.0	mg/L	"	1701275	02/20/17	02/20/17	200.7/2340B	
<b>Sodium</b>	<b>240</b>	1.0	"	"	"	"	"	"	
<b>Specific Conductance (EC)</b>	<b>2100</b>	1.0	µmhos/cm	"	1701298	02/20/17	02/20/17	EPA 120.1	
<b>Sulfate as SO4</b>	<b>640</b>	10	mg/L	20	1701230	02/17/17	02/17/17	EPA 300.0	
Sulfide	ND	1.0	"	1	1701258	02/17/17	02/17/17	EPA 9030B	
<b>Total Alkalinity</b>	<b>120</b>	5.0	"	"	1701292	02/20/17	02/20/17	SM2320B	
<b>Total Dissolved Solids</b>	<b>1300</b>	10	"	"	1701284	02/20/17	02/21/17	SM2540C	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17B0830
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Low-Level 1,2,3-Trichloropropane by Purge & Trap Isotopic Dilution GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW Sampled: 02/16/17 14:30 Received: 02/17/17 14:45</b>									
1,2,3-Trichloropropane	ND	0.0050	µg/L	1	1701405	02/21/17	02/24/17	SRL 524M-TCP	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17B0830
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW Sampled: 02/16/17 14:30 Received: 02/17/17 14:45</b>									
Uranium	ND	20	µg/L	1	1701274	02/20/17	02/20/17	EPA 200.8	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0830 COC #:
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## Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW Sampled: 02/16/17 14:30 Received: 02/17/17 14:45</b>									
Aluminum	ND	50	µg/L	1	1701275	02/20/17	02/20/17	EPA 200.7	
Antimony	ND	4.0	"	"	1701274	02/20/17	02/20/17	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1701275	02/20/17	02/20/17	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
<b>Boron</b>	<b>590</b>	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1701274	02/20/17	02/20/17	EPA 200.8	
Chromium	ND	10	"	"	1701275	02/20/17	02/20/17	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
<b>Iron</b>	<b>120</b>	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1701274	02/20/17	02/20/17	EPA 200.8	
Manganese	ND	20	"	"	1701275	02/20/17	02/20/17	EPA 200.7	
Mercury	ND	0.20	"	"	1701279	02/20/17	02/20/17	EPA 245.1	
Nickel	ND	10	"	"	1701274	02/20/17	02/20/17	EPA 200.8	
<b>Selenium</b>	<b>7.8</b>	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	1701275	02/20/17	02/20/17	EPA 200.7	
Thallium	ND	1.0	"	"	1701274	02/20/17	02/20/17	EPA 200.8	
<b>Vanadium</b>	<b>11</b>	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1701275	02/20/17	02/20/17	EPA 200.7	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0830 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW Sampled: 02/16/17 14:30 Received: 02/17/17 14:45</b>									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1701263	02/18/17	02/18/17	EPA 524.2	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	5.0	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells
26 E. Wyandotte	Project Number: 0624-001-01
Stockton, CA 95204	Project Manager: John Lambie
	CLS Work Order #: 17B0830
	COC #:

## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW Sampled: 02/16/17 14:30 Received: 02/17/17 14:45</b>									
Chloroform	ND	0.50	µg/L	1	1701263	"	02/18/17	EPA 524.2	
Chloromethane	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
m,p-Xylene	ND	0.50	"	"	"	"	"	"	
Methyl ethyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl isobutyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
o-Xylene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	3.0	"	"	"	"	"	"	
tert-Butyl alcohol	ND	2.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0830 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2B (17B0830-01) GW Sampled: 02/16/17 14:30 Received: 02/17/17 14:45</b>									
Total Trihalomethanes (THM)	ND	0.50	µg/L	1	1701263	"	02/18/17	EPA 524.2	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	129 %	66-135	"	"	"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %	70-130	"	"	"	"	"
<i>Surrogate: Toluene-d8</i>	93 %	70-130	"	"	"	"	"



# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

March 03, 2017

**CLS Work Order #: 17B0906**

**COC #:**

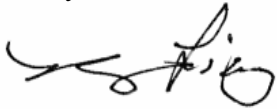
John Lambie  
E-PUR, LLC  
26 E. Wyandotte  
Stockton, CA 95204

**Project Name: Stanislaus County CLIBP Test  
Wells**

Enclosed are the results of analyses for samples received by the laboratory on 02/20/17 16:35. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.  
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0906 COC #:
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**CALIFORNIA LABORATORY SERVICES CHAIN OF CUSTODY** CLS ID. NO. 17B0906 (1 of 1)

<b>Report To:</b>				Client Job Number 0624-001-01			<b>ANALYSIS REQUESTED</b>				GEOTRACKER							
Name and Address E-PUR, LLC				Destination Laboratory CLS			PRESERVATIVES	General Mineral + NO2 & **DW metals	Sulfide & ammonia	Hex Chrome	VOC's & 1,2,3-TCF	Perchlorate	Methane	H O L D	EDF REPORT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
26 E. Wyandotte, Stockton, CA 95204				CLS Sample Receiving 3249 Fitzgerald Road Rancho Cordova, CA 95742											GLOBAL ID.			
Project Manager John Lambie															FIELD CONDITIONS: New 4" Monitoring Wells, PVC Screens and Steel Casing			
Email Phone jlambie@e-purwater.com (209) 451-5933															QUOTE#: EPURWater INVOICE TO: E-PUR, LLC 4061 SW Chesapeake Avenue Portland, OR 97239			
Project Name Stanislaus County CLIBP Test Wells															TURNAROUND SPECIAL TIME IN DAYS INSTRUCTIONS			
Sampled By															1 2 5 10			
Job Description Potable Water Quality Testing							**Lab to filter for metals**											
Site Location							Per CLS Contaminants • DW Metals to include Aluminum Uranium											
DATE	TIME	SAMPLE IDENTIFICATION	FIELD ID.	CONTAINER			X	X	X	X	X	X	X	X				
				MATRIX	NO.	TYPE												
2/20/17	12:51	TW-2C	TW-2C	GW	12	Various												
			<del>TW-2C</del>	<del>GW</del>														
SUSPECTED CONSTITUENTS: None							SAMPLE RETENTION TIME				PRESERVATIVES (1)=HCL (3)= COLD (2)= HNO3 (4)= H2SO4							
RELINQUISHED BY (Signature)				PRINT NAME/COMPANY			DATE/TIME				RECEIVED BY (Signature)							
<i>[Signature]</i>				John Lambie			2/20/17 13:05				<i>[Signature]</i>							
RECEIVED AT LAB BY:				DATE/TIME:			CONDITIONS/COMMENTS:											
<i>[Signature]</i>				2-20-17/1635			CLS											
SHIPPED BY:				<input checked="" type="checkbox"/> FED EX <input type="checkbox"/> UPS <input checked="" type="checkbox"/> OTHER			AIR BILL #											

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0906 COC #:
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## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
Ammonia as N	ND	0.10	mg/L	1	1701328	02/21/17	02/21/17	SM4500-NH3C	
<b>Bicarbonate as CaCO3</b>	<b>140</b>	5.0	"	"	1701354	02/22/17	02/22/17	SM2320B	
<b>Calcium</b>	<b>110</b>	5.0	"	5	1701345	02/22/17	02/22/17	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	1	1701354	02/22/17	02/22/17	SM2320B	
<b>Chloride</b>	<b>38</b>	10	"	20	1701322	02/21/17	02/21/17	EPA 300.0	
<b>Fluoride</b>	<b>0.24</b>	0.10	"	1	"	"	"	"	
<b>Hardness as CaCO3</b>	<b>490</b>	1.0	"	"	1701345	02/22/17	02/22/17	200.7/2340B	
<b>Hexavalent Chromium</b>	<b>4.3</b>	1.0	µg/L	"	1701320	02/21/17	02/23/17	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1701354	02/22/17	02/22/17	SM2320B	
<b>Magnesium</b>	<b>53</b>	1.0	"	"	1701345	02/22/17	02/22/17	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1701324	02/21/17	02/21/17	SM5540 C	
<b>Nitrate as N</b>	<b>2.3</b>	0.40	"	"	1701322	02/21/17	02/21/17	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	
Perchlorate	ND	4.0	µg/L	"	1701453	02/27/17	02/27/17	EPA 314.0	
<b>pH</b>	<b>7.63</b>	0.01	pH Units	"	1701311	02/21/17	02/21/17	SM4500-H B	HT-F
<b>Potassium</b>	<b>2.8</b>	1.0	mg/L	"	1701345	02/22/17	02/22/17	200.7/2340B	
<b>Sodium</b>	<b>100</b>	1.0	"	"	"	"	"	"	
<b>Specific Conductance (EC)</b>	<b>1400</b>	1.0	µmhos/cm	"	1701335	02/21/17	02/21/17	EPA 120.1	
<b>Sulfate as SO4</b>	<b>610</b>	10	mg/L	20	1701322	02/21/17	02/21/17	EPA 300.0	
Sulfide	ND	1.0	"	1	1701333	02/21/17	02/21/17	EPA 9030B	
<b>Total Alkalinity</b>	<b>140</b>	5.0	"	"	1701354	02/22/17	02/22/17	SM2320B	
<b>Total Dissolved Solids</b>	<b>1000</b>	10	"	"	1701348	02/22/17	02/23/17	SM2540C	

# CALIFORNIA LABORATORY SERVICES

Page 3 of 32

03/03/17 12:23

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17B0906
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Low-Level 1,2,3-Trichloropropane by Purge & Trap Isotopic Dilution GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
1,2,3-Trichloropropane	ND	0.0050	µg/L	1	1701405	02/21/17	02/24/17	SRL 524M-TCP	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC	Project: Stanislaus County CLIBP Test Wells	
26 E. Wyandotte	Project Number: 0624-001-01	CLS Work Order #: 17B0906
Stockton, CA 95204	Project Manager: John Lambie	COC #:

## Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
Uranium	ND	20	µg/L	1	1701364	02/23/17	02/23/17	EPA 200.8	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0906 COC #:
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## Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
Aluminum	ND	50	µg/L	1	1701345	02/22/17	02/22/17	EPA 200.7	
Antimony	ND	4.0	"	"	1701364	02/23/17	02/23/17	EPA 200.8	
<b>Arsenic</b>	<b>2.2</b>	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1701345	02/22/17	02/22/17	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
<b>Boron</b>	<b>290</b>	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1701364	02/23/17	02/23/17	EPA 200.8	
Chromium	ND	10	"	"	1701345	02/22/17	02/22/17	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	ND	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1701364	02/23/17	02/23/17	EPA 200.8	
Manganese	ND	20	"	"	1701345	02/22/17	02/22/17	EPA 200.7	
Mercury	ND	0.20	"	"	1701319	02/21/17	02/21/17	EPA 245.1	
Nickel	ND	10	"	"	1701364	02/23/17	02/23/17	EPA 200.8	
<b>Selenium</b>	<b>10</b>	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	1701345	02/22/17	02/22/17	EPA 200.7	
Thallium	ND	1.0	"	"	1701364	02/23/17	02/23/17	EPA 200.8	
<b>Vanadium</b>	<b>6.1</b>	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1701345	02/22/17	02/22/17	EPA 200.7	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0906 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1701327	02/21/17	02/21/17	EPA 524.2	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	5.0	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0906 COC #:
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## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
Chloroform	ND	0.50	µg/L	1	1701327	"	02/21/17	EPA 524.2	
Chloromethane	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
m,p-Xylene	ND	0.50	"	"	"	"	"	"	
Methyl ethyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl isobutyl ketone	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
o-Xylene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	3.0	"	"	"	"	"	"	
tert-Butyl alcohol	ND	2.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	



# CALIFORNIA LABORATORY SERVICES

E-PUR, LLC 26 E. Wyandotte Stockton, CA 95204	Project: Stanislaus County CLIBP Test Wells Project Number: 0624-001-01 Project Manager: John Lambie	CLS Work Order #: 17B0906 COC #:
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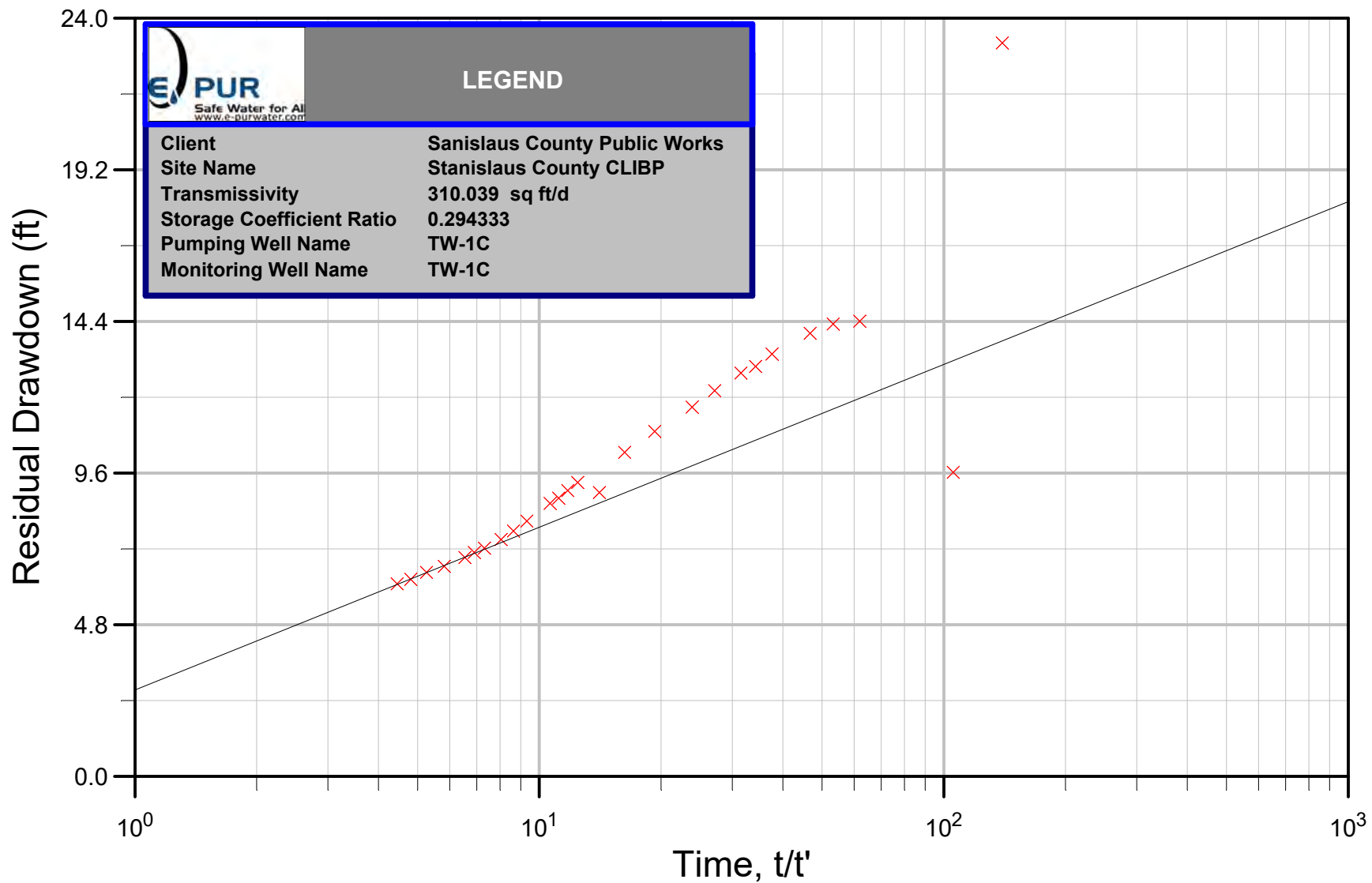
## Purgeable Organic Compounds by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TW-2C (17B0906-01) GW Sampled: 02/20/17 12:37 Received: 02/20/17 16:35</b>									
Total Trihalomethanes (THM)	ND	0.50	µg/L	1	1701327	"	02/21/17	EPA 524.2	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		137 %		66-135	"	"	"	"	QS-HI
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %		70-130	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		86 %		70-130	"	"	"	"	

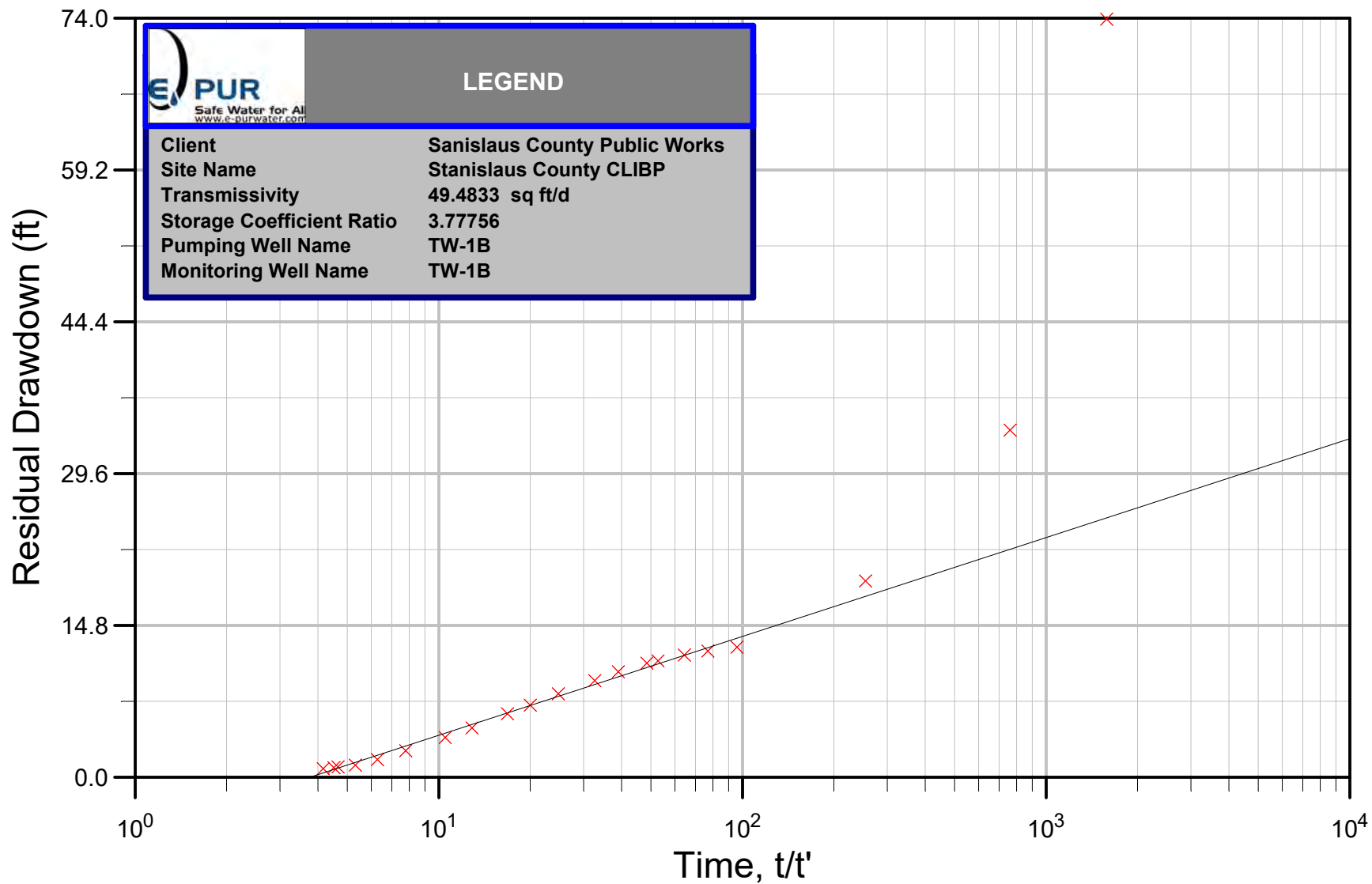
**ATTACHMENT C**

**SUMMARY FIGURES OF AQUIFER TEST DATA ANALYSES**

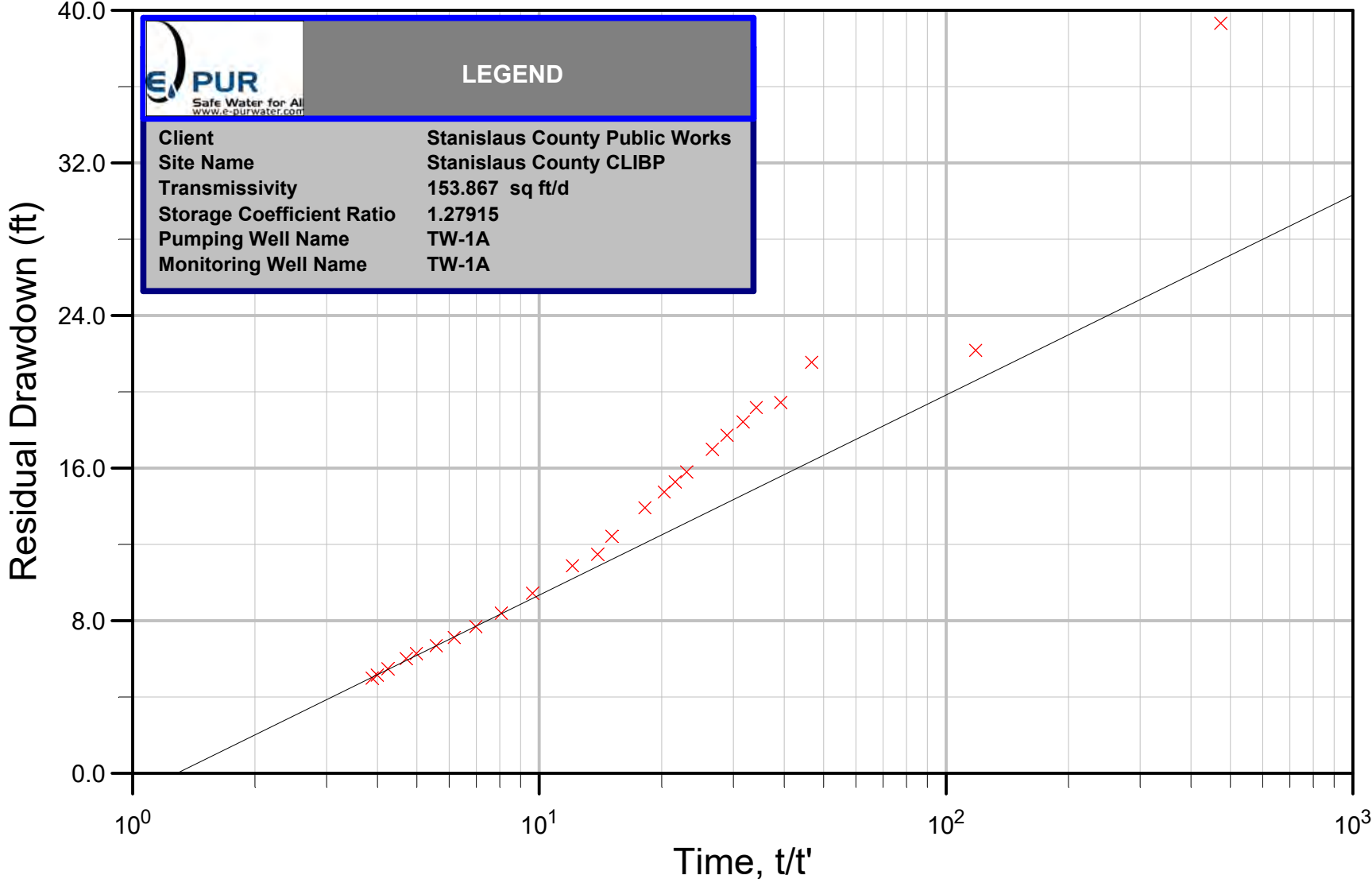
# Theis Recovery



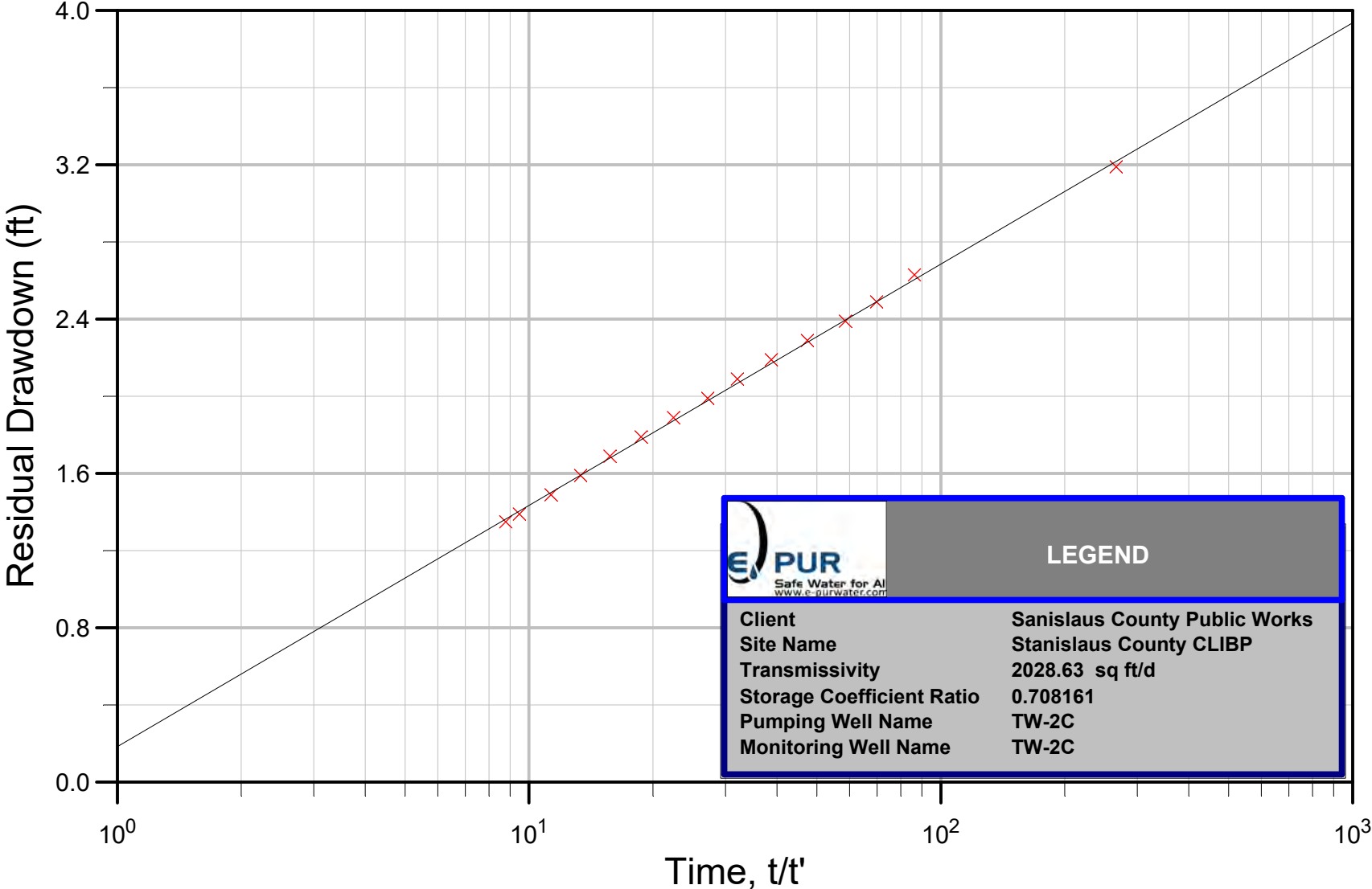
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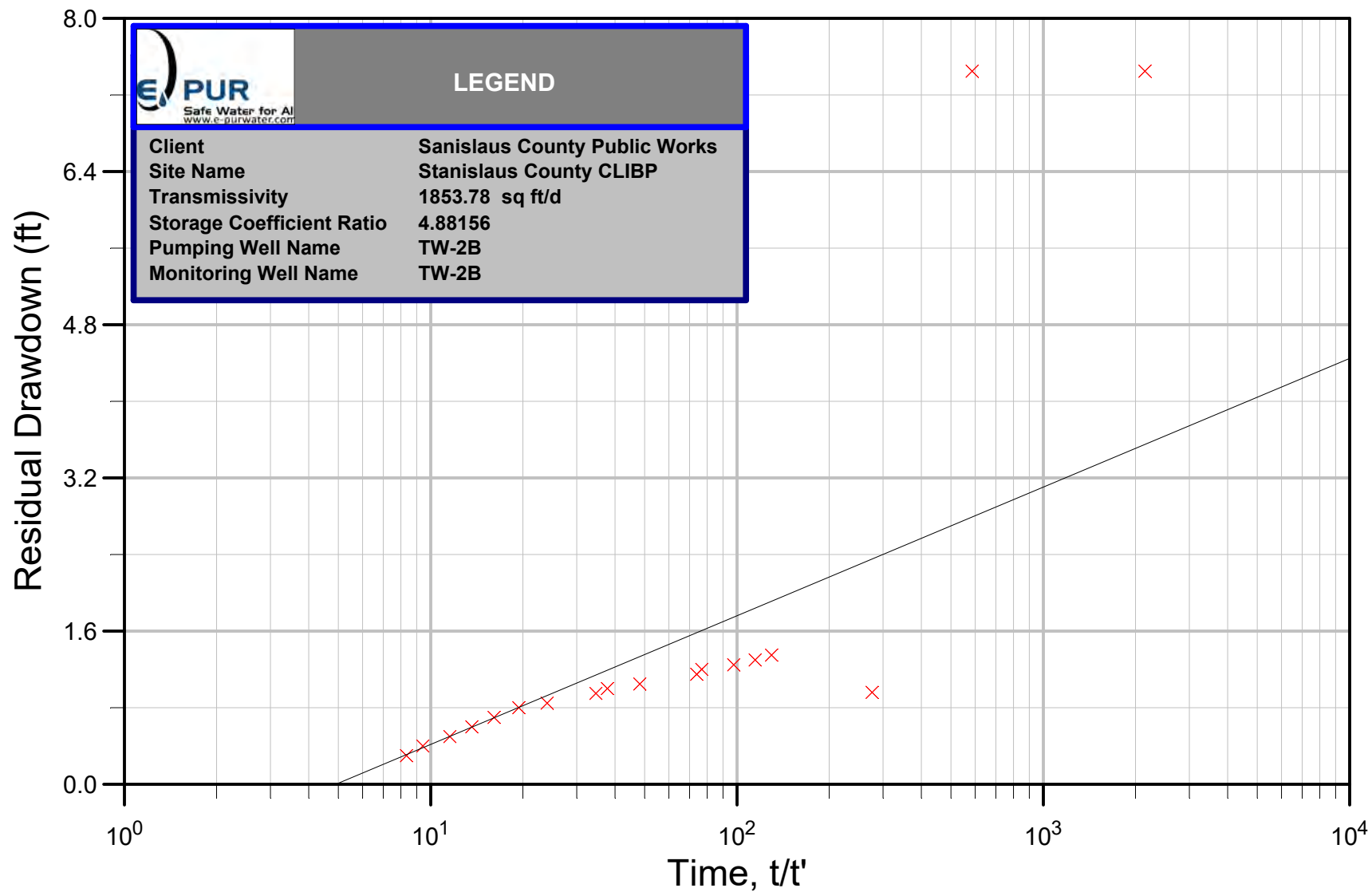
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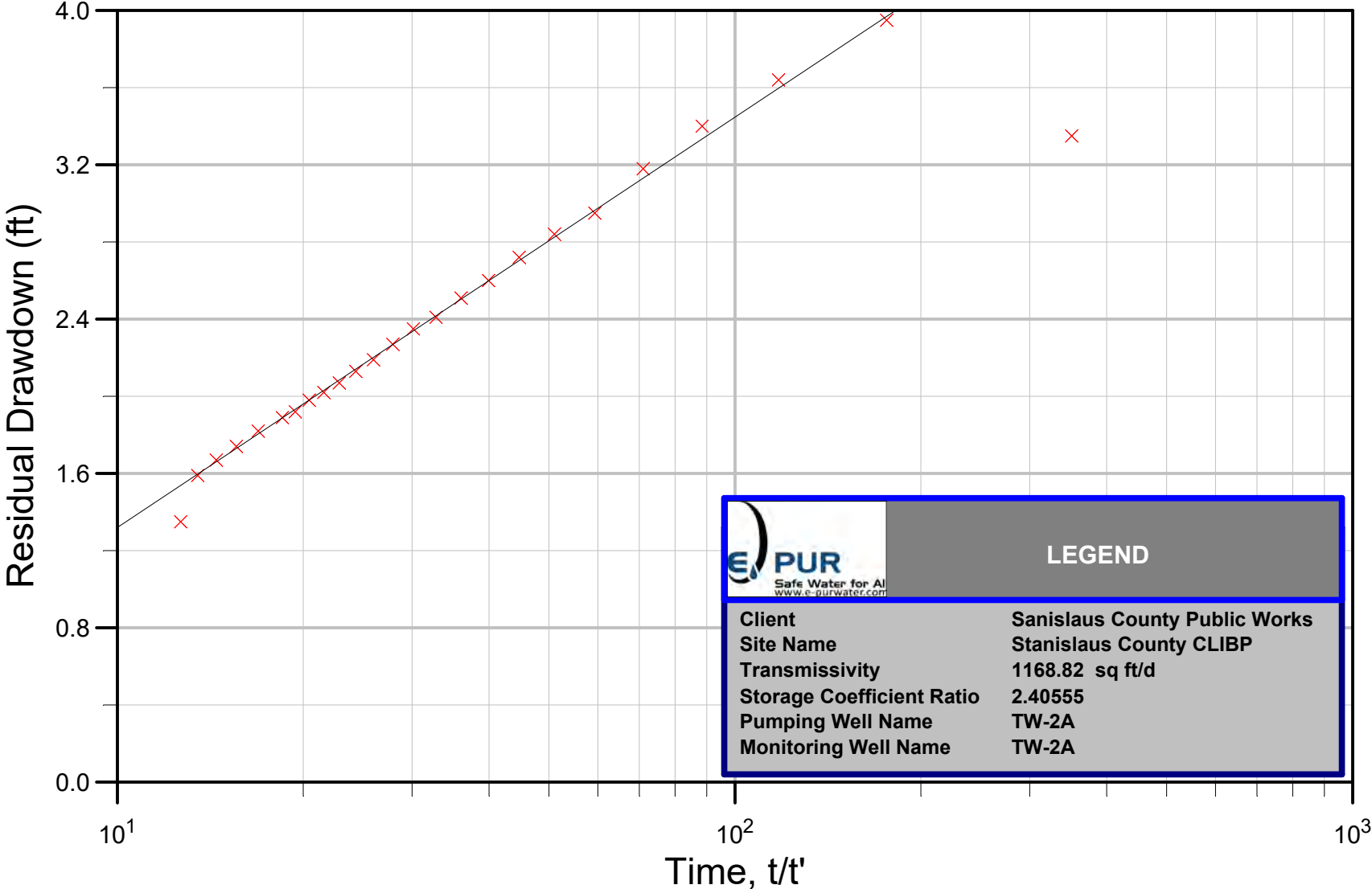
# Theis Recovery



# Theis Recovery



# Theis Recovery





## **ATTACHMENT D**

### **SUMMARY OF KEY WATER QUALITY CONSTITUENTS IN CROWS LANDING COMMUNITY SERVICES DISTRICT WELLS**

Summary Listing of Key Water Quality Constituents in the Current Two Crows Landing Community Services District Wells				
<b>Well #5</b>				
COC	Date	Concentration	Units	Qualifier
As	4/15/2015	0.0	ug/L	most recent
	2/19/2009	2.0	ug/L	Max. detected
Cr(VI)	11/18/2016	<b>14.0</b>	ug/L	most recent
		<b>15.0</b>		Max.
		<b>12.1</b>		Average
Sulfate		233	mg/L	Max.
		176.5	mg/L	Average
TDS	4/15/2015	515	mg/L	most recent
	2/6/2006	548.0	mg/L	Max. detected
<b>Well #4</b>				
COC	Date	Concentration	Units	Qualifier
As	4/15/2015	0.0	ug/L	recent
	3/15/2012	2.0	ug/L	max
Cr6	11/30/2016	0.1	ug/L	recent
	5/20/2016	<b>12.0</b>	ug/L	Max
		6.0	ug/L	Average
Sulfate		224	mg/L	Max.
		185.2	mg/L	Average
TDS	4/15/2015	604	mg/L	both

Note: **Red and Bold** Indicates Concentration Exceeds Primary MCL

ANALYTE	UNIT	CROWS LANDING CSD WELL 4		CROWS LANDING CSD WELL 5		TW-2C
		MAX	AVERAGE	MAX	AVERAGE	VALUE
1,2,3-TRICHLOROPROPANE	UG/L	0	0	0	0	0
1,2-DICHLOROETHANE	UG/L	0	0	0	0	0
ALKALINITY, BICARBONATE AS CaCO3	MG/L	216.4	194.84	256.3	237.6	140
ALKALINITY, CARBONATE AS CaCO3	MG/L	0	0	0	0	0
ALKALINITY, HYDROXIDE AS CaCO3	MG/L	0	0	0	0	0
ALKALINITY, TOTAL AS CaCO3	MG/L	216.3	196.78	256.2	237.5	140
AMMONIA AS N	UG/L					0
ANTIMONY	UG/L	0	0	0	0	0
ARSENIC	UG/L	0	0	0	0	2.2
BENZENE	UG/L	0	0	0	0	0
BORON	UG/L					290
CALCIUM	MG/L	80	71.56	78.5	73.65	110
CARBON TETRACHLORIDE	MG/L	0	0	0	0	0
CHLORIDE	MG/L	64	48.9	44.8	32.75	38
CHROMIUM	UG/L	13	6	28	18.25	4.3
FLUORIDE	UG/L	300	100	300	100	240
HARDNESS, TOTAL AS CaCO3	MG/L	366.7	321.52	370.4	361.9	490
IRON	MG/L	0	0	0.2899	0.1	0
MAGNESIUM	MG/L	30	27	37	35.7	53
MANGANESE	MG/L	0	0	0	0	0
MBAS	MG/L	0	0	0	0	0
MERCURY	UG/L	0	0	0	0	0
NITRATE AS N	MG/L	5.4	4.1	5	3.7	2.3
NITRITE AS N	MG/L	0	0	0	0	0
PERCHLORATE	UG/L	0	0	0	0	0
PH, FIELD						7.63
POTASSIUM	MG/L	5	3.32	3.5	1.9	2.8
SELENIUM	UG/L	0	0	7.5	5.15	10
SODIUM	MG/L	75	65.9	58	55.35	100
SPECIFIC CONDUCTANCE	UMHOS/CM	884	821.8	930	846.25	1400
SULFATE	MG/L	224	185.2	233	176.45	610
SULFIDE	UG/L					0
TOLUENE	UG/L	0	0	0	0	0
TOTAL DISSOLVED SOLIDS (TDS)	MG/L	604	562.2	548	528.75	1000
URANIUM	UG/L					0
VANDIUM	UG/L					6.1
XYLENES (TOTAL)	UG/L	0	0	0	0	0
ZINC	UG/L	69.4	27.68	74	18.5	0

\*\*"ND" values are reported as "0"

ATTACHMENT 2  
Amendment No. 1 to E-Pur, LLC Contract 2016-479

STANISLAUS COUNTY

First Amendment to Professional Design Services Agreement  
Crows Landing Industrial Business Park Project

This Amendment is made and entered into this 19th day of September, 2017, in the City of Modesto, State of California, by and between the County of Stanislaus (“County”) and E-PUR, LLC, (“Consultant”), for and in consideration of the promises, and the mutual promises, covenants, terms, and conditions, hereinafter contained.

WHEREAS, on September 20, 2016, the Stanislaus County Board of Supervisors awarded a Professional Design Services Agreement (“Agreement”) to Consultant for the Crows Landing Industrial Business Park project in the amount of \$312,879, and authorized the Director of Public Works to make change orders up to 10% of the contract value;

WHEREAS, the Director of Public Works has exercised his authority to make change orders totaling \$31,287.50;

WHEREAS, on May 2, 2017 the Stanislaus County Board of Supervisors approved an additional change order of \$30,852;

WHEREAS, now there is a need for new and additional services as shown in “Exhibit 1-A”, attached hereto and made a part of this Amendment;

WHEREAS, the Director of Public Works has determined that the additional services are necessary;

WHEREAS, an increase of One Hundred Seventy-Three Thousand Seven Hundred Fifty Dollars (\$173,750) to the Agreement is necessary to cover the additional services;

\$312,879.00	Agreement
+31,287.50	Initial Change Orders under 10%
+30,852.00	Additional Change Order
<u>+173,750.00</u>	First Amendment
\$548,768.50	Total

WHEREAS, Consultant has continued to diligently perform the services requested to support this project in good faith; and,

NOW THEREFORE, the parties agree as follows:

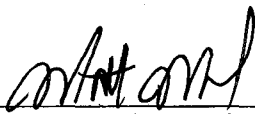
1. Section 1.1 Scope of Services is amended to include additional services as shown in “Exhibit 1-A” attached hereto and made a part of this Amendment.

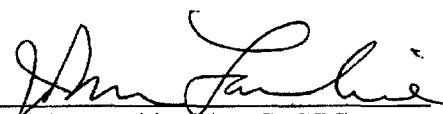
2. Section 3.1 Compensation is amended to include additional fees of One Hundred Seventy-Three Thousand Seven Hundred Fifty Dollars (\$173,750) as shown in "Exhibit 1-A" attached hereto and made a part of this Amendment. Consultant's compensation shall in no case exceed Five Hundred Forty-Eight Thousand Seven Hundred Sixty-Eight and 50/100 Dollars (\$548,768.50)

3. All other terms and conditions of the Agreement shall remain in full force and effect. IN WITNESS WHEREOF, the parties have executed this First Amendment effective on the date written above.

COUNTY OF STANISLAUS

E-PUR, LLC

By:   
Matt Machado, Director  
Department of Public Works

By:   
John Lambie, PE, PG, CEG  
Principal Hydrogeologist

APPROVED AS TO FORM  
John P. Doering, County Counsel


By:   
Amanda DeHart  
Deputy County Counsel



EXHIBIT 1-A

September 5, 2017

Mr. Matt Machado, P.E., L.S.  
Director, Stanislaus County Department of Public Works  
1716 Morgan Road  
Modesto, CA 95358

**SUBJECT: AMENDMENT TO STANISLAUS COUNTY CONTRACT 2016-479 TO PREPARE AN ASSESSMENT OF WATER SUPPLY ALTERNATIVES FOR CROWS LANDING INDUSTRIAL BUSINESS PARK**

Dear Matt:

The water supplies for the Crows Landing Industrial Business Park (CLIBP) require further assessment beyond the preliminary work done by AECOM in 2016 in preparing an Environmental Impact Report (EIR). Two things have changed as that project has evolved. The regulations on creating a new water system have changed and groundwater data gathered for water-supply-well design has changed the configuration of water-supply alternatives. The following letter proposal provides a scope of work and fee estimate that could be amended to Stanislaus County Contract 2016-479 to provide this assessment.

California Senate Bill 1263 passed into law in June 2016 mandates that any proposed new potable water supply system within a 3-mile radius of any portion of an existing water supply system's service area look rigorously at water system consolidation. For the CLIBP this includes both the City of Patterson's system and the Crows Landing Community Services District (CSD). The authority under the law is provided to the State Water Resources Control Board's Division of Drinking Water (DDW).

As for the water supply alternatives, the EIR assessed that potable water supply would need to come from a groundwater source since surface water is not reliable and available in the region. That EIR water supply assessment still holds.

The EIR evaluated the needed flow rates and yearly quantities of potable water supply from water producing zones beneath a region wide thick clay layer, the Corcoran Clay, and the same evaluation was done for non-potable water supply from water producing zones above the Corcoran Clay. This strategy of supplies was done because it was believed that the zone beneath the Corcoran Clay is a more reliable source for water quality and quantity. E-PUR's Technical Memorandum (TM) of May 17, 2017 documents our field findings of sufficiency of quantity beneath the Corcoran Clay at the north end of the airstrip but with concentrations of sulfate that necessitate either blending or treatment or both to produce potable water. Thus the configuration and conceptual engineering designs of water supplies to the CLIBP from groundwater zones beneath the CLIBP must be revisited if on-site groundwater is to be utilized in whole or in part for the CLIBP potable water supply. Other prospective water supply alternatives include connecting to groundwater sourced in Crows Landing CSD and/or the City of Patterson for the entire water supply.

26 East Wyandotte Street  
Stockton, California 95204  
(209) 451-5933

Assessment of CLIBP Groundwater Supply Alternatives  
Stanislaus County Public Works Department

As a result of both these legal and technical findings, an assessment of water supply alternatives to the CLIBP is warranted. Such an assessment will provide the best available information to Stanislaus County as it begins the required dialogue with DDW and the two nearby water systems. It will also provide needed information for subsequent engineering design of a reliable water system. We recommend further evaluation of on-site groundwater as the primary or sole source of both potable and non-potable water supply to the CLIBP. Collection of water quality (and quantity) data for groundwater zones immediately above the Corcoran Clay is essential to developing a thorough assessment of what may be both an affordable and a drought reliable water supply from on-site wells. The on-site alternative would involve blending water from wells completed in different aquifer zones to mitigate sulfate concentrations to below secondary drinking water standards; the most desirable outcome is to eliminate the need for sulfate treatment but the resulting outcome may be a reduction of the need for sulfate treatment. Regardless of the water quality and quantity associated with an on-site water supply alternative, this feasibility evaluation and engineering assessment must also be done in conjunction with an evaluation of the feasibility of consolidating with one or both of the nearby water systems, City of Patterson and Crows Landing CSD. This feasibility evaluation is required to comply with SB 1263. We recommend in the approach and scope meeting with DDW early in the process; this will enable the County staff to ascertain DDW's thinking on the options available and the required evaluations for them to grant a permit for a new public water system at the CLIBP. Similarly it is recommended to meet with Crows Landing CSD and the City of Patterson separately early in the process to describe the process and intended steps for Stanislaus County to evaluate with them how they would see the feasibility of a water system consolidation and what coordination of system design and development is warranted.

For the scope of work we have developed a recommended sequencing to guide the project efforts as rapidly as practical to a resolution of the probable water supplies to CLIBP. This has been done in order to provide information to the County's EIR consultancy, AECOM, as soon as possible to aid in getting a comprehensive Draft EIR (DEIR) out for public comment. To that end we have developed a process to identify a limited range of water supply alternatives after initial meetings with DDW and the two public water systems. That range of alternatives will be described in an interim TM ahead of preparing a feasibility study and conducting secondary discussions with DDW and the two public water systems to arrive at a preferred water supply alternative. Production of an interim TM that identifies the range of alternatives enables the EIR to move forward and assess each one as to their potential environmental impacts. The resulting recommended sequencing is for three (3) steps to this next phase of work on identifying a viable water supply to CLIBP.

#### **STEP 1 PRE-FEASIBILITY STUDY (FS) ACTIONS**

#### **STEP 2 FEASIBILITY STUDY OF VIABLE WATER SUPPLY ALTERNATIVES**

#### **STEP 3 PREPARE CONCEPTUAL DESIGN OF PREFERRED WATER SUPPLY ALTERNATIVE**

The structure of tasks we have developed in our internal discussions and in conjunction with you have been built out to fit within the three Steps. The outline of eighteen (18) tasks that fit within the three Steps is provided. There are recognizable but less well defined project work in this phase of water supply development for the CLIBP such as AECOM support for the DEIR comments. We have scoped this phase



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through the Final EIR and conceptual design process. All project design work beyond that point is reserved to a later phase and scope of work.

Step	Task Descriptions
<b>Step 1 Pre-Feasibility Study (FS) Actions</b>	Task 1 - Test Groundwater Quality from Existing Shallower Wells
	Task 2 - Collect and Compile Water-system Water-quality Data for Crows Landing CSD, City of Patterson, and Auxiliary Well for Western Hills Water District
	Task 3 - Meet with DDW to Review Supply Options and Discuss Prospective Feasibility Study Alternatives and DDW Requirements
	Task 4 –Meet with Public Works and AECOM to Review Supply Options
	Task 5 – Hold Initial Meetings with Crows Landing CSD and City of Patterson
	Task 6 – Develop a TM for EIR Analyses of Potential Water-supply Alternatives to be considered in the Feasibility Study
<b>Step 2 Feasibility Study (FS) of Water Supply Alternatives</b>	Task 7 (For Future Consideration) – Perform Additional Field Characterization of Groundwater Laterally and Vertically
	Task 8 - Investigate Feasibility of On-Site Supply Only via Blending of Shallow and Deep Groundwater or Limited Treatment
	Task 9 - Investigate Feasibility of a Blending System for Crows Landing CSD and CLIBP Sources
	Task 10 - Investigate Feasibility of a Blending System for City of Patterson and CLIBP Sources
	Task 11 – Prepare Initial FS Report of Supply Alternatives that identifies County preferred alternative
	Task 12 – Conduct Second Meetings with Crows Landing CSD and City of Patterson to discuss feasibility of consolidation or annexation
	Task 13 – Hold Second Meeting with DDW to Review Supply Alternatives and Feasibility of Annexation, Consolidation with Neighboring Systems

Assessment of CLIBP Groundwater Supply Alternatives  
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Step	Task Descriptions
<b>Step 3 Prepare Conceptual Design of Preferred Alternative</b>	Task 14 – Perform Background Investigation of Agency Data
	Task 15 – Preliminary Water Supply Engineering
	Task 16 – Develop Project Alignments for Water Supply System(s)
	Task 17 – Prepare Preliminary Engineering Report of the Preferred Water Supply Alternative
	Task 18 –Coordinate with AECOM on EIR input and response to comments on DEIR

## SCOPE OF WORK

### STEP 1 PRE-FEASIBILITY STUDY ACTIVITIES

The scope of work described for Step 1 is to perform an assessment of potential water supply alternatives. The sequence proposed is to first collect additional background data on water chemistry prior to meeting with DDW to assess what they will require in looking at the feasibility of consolidation with Crows Landing CSD and the City of Patterson. We would then meet with those two public water supply operators and confer on the range of a feasibility study alternative(s) to be evaluated. This assessment would be handed off in a TM to AECOM to proceed with preparation of an updated EIR as early as possible.

#### TASK 1 – COLLECT EXISTING WELL SAMPLES FOR SHALLOW GROUNDWATER

There are a number of existing wells that can be used to evaluate the suitability of shallow groundwater. There are four existing irrigation water-supply wells at the airfield that will be sampled, two above the Corcoran Clay and two screened above and below the Corcoran Clay. These wells with their different depth horizons can provide general mineral chemistry of groundwater for sulfates. E-PUR will sample these wells by purging the well casings with existing pumps and collecting samples from the active discharge after parameters stabilize. These samples will be submitted for general mineral chemistry analysis. In addition to testing agricultural supply wells at CLIBP, there are on-site wells related to the pollution studies for the Navy and NASA. We propose that samples be collected from these wells by coordinating with the Navy and its contractors to acquire the samples. E-PUR has contacted the Navy and requested that they provide access for our field staff to sample for general mineral analyses. E-PUR will send those samples to our lab, California Laboratory Services analysis.

There are two or more off site wells to the east on Perez Farms' and Escobar Farms' property that would provide valuable information on general mineral chemistry of the combination of groundwater units above and below the Corcoran Clay. Identification of these well records indicate that they are screened in both intervals. The proposed scope of work includes a request by E-PUR for general mineral chemistry and dissolved metals data from both farm groups, if it can be provided.

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E-PUR will prepare an evaluation of water quality projected from the combined aquifer units irrespective of whether samples can be provided by the Navy and whether Perez and Escobar can and will provide samples or data.

**TASK 2 - COLLECT AND COMPILE WATER QUALITY DATA FROM CROWS LANDING CSD, THE CITY OF PATTERSON, AND WESTHILLS WATER DISTRICT**

The project team will collect background water chemistry data on Crows Landing CSD and City of Patterson from the DDW website for public records. Additionally the project team will contact West Hills Water District to request data on their auxiliary water supply well that they have available to them as a backup for their water supply via a contract for water from the California Aqueduct.

**TASK 3 - MEET WITH STATE BOARD DIVISION OF DRINKING WATER TO DISCUSS OPTIONS AND PROSPECTIVE SUBMITTALS**

The project team will hold a meeting with regional DDW staff in their Stockton office to review water quality data and Stanislaus County's goals for a water supply system for CLIBP. It is anticipated that County staff will join the meeting. The discussions in the meeting and the data will be summarized in a Technical Memorandum of Water Quality Findings and DDW Meeting.

**TASK 4 –MEET WITH AECOM TO REVIEW SUPPLY OPTIONS UNDER CONSIDERATION**

This task consists of a key project meeting with Stanislaus County and its consultant for the CLIBP Environmental Impact Report (EIR), AECOM. The meeting will provide for a discussion of the options available under DDW's input regarding existing systems, on-site water quality, and their focus under SB 1263. This meeting will guide subsequent meetings with City of Patterson and Crows Landing CSD.

**TASK 5 – CONDUCT INITIAL MEETINGS WITH CITY OF PATTERSON AND CROWS LANDING CSD**

These meetings will identify the SB 1263 requirements and identify water supply alternatives to be addressed by Stanislaus County in a Feasibility Study. A separate meeting with each entity is scoped. The discussion will focus on CLIBP's need for a water supply and the County's intent to develop a water supply system at the site in conjunction with State requirements. Graphics will be prepared for the meeting describing the areas and intended focus within them. Input from each entity will be solicited regarding what possibilities they see for coordination and/or consolidation in accord with project findings to that point. Meetings will be documented into the TM of Task 6.

**TASK 6 – DEVELOP A TM FOR THE EIR ANALYSES OF THE ASSESSMENT OF POTENTIAL WATER SUPPLY ALTERNATIVES FOR THE CLIBP**

The overall deliverable for Step 1 will be a Technical Memorandum (TM) to document these background data findings and the discussions with these entities in the Pre- Feasibility Study Actions. This TM is scoped to form the basis for the EIR evaluations to move forward rapidly in the fall of 2017 to consider three (3) conceptual alternatives for water supply. The conceptual water supply layouts to connect to the existing AECOM/VVH pre-design assessment will be developed and presented in this preliminary assessment of water supply alternatives. The systems layouts will be general in nature and will follow general County requirements for access easements and other linear alignment and setoff requirements. This Pre-FS TM will not provide any preferred alternative as the three alternatives will not yet have been further developed with external entities and the timeframe does not allow for their feasibility and costs to have

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been considered. It will form the basis for the scope of work conducted in Step 2, a feasibility study of the water supply alternatives to the CLIBP. The FS will engage the DDW requirements for evaluating the feasibility of consolidation with either Crows Landing CSD and/or City of Patterson under SB 1263. The FS will also address desired or required DDW pre-treatment water quality standards for potable water system raw water influent.

#### STEP 1 SCHEDULE

The schedule depicted in Figure 1 indicates an aggressive schedule to first confer with DDW in late September 2017 accompanied by County staff. This is then followed by a meeting with AECOM on October 6, 2017 to identify concepts available for assembly to alternatives ahead of E-PUR's team and the County meeting with Crows Landing CSD and the City of Patterson to develop the water supply alternatives. The meeting on October 6<sup>th</sup> will enable AECOM to develop questions and information needs to be provided by E-PUR. October 24 is scheduled as the key date for production of a TM of the EIR ready description of the alternatives that will be further evaluated in Step 2.

#### STEP 2 FEASIBILITY STUDY OF WATER SUPPLY ALTERNATIVES

The water supply planning needs to move toward an engineering and hydrogeologic assessment of both potable and non-potable water supplies to the CLIBP from groundwater. Surface water was not available in AECOM's assessment for the programmatic EIR and that does not appear to have changed. Water supplies for the CLIBP are dependent upon suitable groundwater availability and water of suitable quality with or without treatment. We recommend preparing a focused engineering feasibility study of groundwater supply alternatives for the CLIBP with blending and treatment options. The pressing need for the CLIBP water supply is to evaluate more broadly the needs for both potable and non-potable supply sources. This evaluation needs to incorporate additional sources and approaches to those described by AECOM/VVH and Jacobsen James & Associates.<sup>1,2</sup> Those documents described a phased build out of construction for the CLIBP using untreated groundwater with a focus on quantity and rate of water production. In those earlier assessments, potable water supply from groundwater without treatment was projected to come from below the Corcoran Clay and non-potable water supply groundwater was projected to come from above the Corcoran Clay. While those source concepts are still viable the DDW will also require evaluation of consolidation with the two other systems nearby which notably are also wholly dependent on groundwater. The scope of our engineering Feasibility Study (FS) will be limited to evaluation of three water supply alternatives.

- Alternative 1. On-site wells only with blending (and treatment),
- Alternative 2. Combined on-site system with Crows Landing CSD, and
- Alternative 3. Combined on-site system with City of Patterson.

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<sup>1</sup> VVH, 2015 and 2016, "Crows Landing Industrial Business Park, Water Supply (Potable and Non-Potable) Infrastructure and Facilities Study, February 27, 2015 and Updated September 27, 2016.

<sup>2</sup> JJA, 2016, "Groundwater Resources Impact Assessment, Crows Landing Industrial Park, Stanislaus County, California", Draft August 19.

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These are the broad outlines of three conceptual alternatives for the FS. The number of alternatives will be fixed at three but the conceptual aspects of the three alternatives is likely to be influenced by the Pre-FS findings on blending options and combination vs. consolidation options with the neighboring systems.

For the current phase of the project we have scoped developing and evaluating each of the three alternatives. We provide an outline of the scope of work for developing each of the alternatives in Tasks 8 to 10.

For the alternatives analysis the project team will develop conceptual descriptions of the principal components for each supply alternative. The conceptual description will describe components needed to produce water to common point(s) of water-system supply for CLIBP Phase 1 and subsequent build out phases to address both potable and non-potable water needs.

The alternatives will be screened or ranked based upon implementability, reliability, cost, ease of administration, and public/consumer acceptance. Estimated construction and O&M costs for each alternative will be developed to an ACE Class 4 standard for feasibility study analysis. Estimated costs for each of the alternatives will be incorporated to a ranking criteria matrix and table for alternative screening. We note that alternatives involving consolidation/blending with other water systems involve highly uncertain real and administrative costs (e.g. legal costs and costs for improvements to existing water system facilities). To the extent these costs can be reasonably anticipated, they will be included in the opinions of probable cost.

E-PUR and Provost & Pritchard will work closely together on this phase of the project as it relies upon both companies' knowledge and expertise.

**TASK 7 (FOR FUTURE CONSIDERATION) – ADDITIONAL TEST BOREHOLE DRILLING AND ZONAL MONITORING WELL INSTALLATION TO SUPPORT ASSESSMENT OF ON-SITE WATER SUPPLY ALTERNATIVE(S)**

If the Pre FS Steps identify on-site blending and/or treatment is viable then additional field characterization is recommended to identify, the number of supply locations and their specific characteristics by area to ensure a blending solution is as reliable and inexpensive as possible; this work has been identified as Task 7 but due to the uncertainty of need and scope it is identified as an item for future consideration. If this confirmatory field work is deemed necessary then it could delay completion of the FS as it will take 7 to 12 weeks to complete.

**TASK 8 – INVESTIGATE FEASIBILITY OF ON-SITE SUPPLY ONLY VIA BLENDING OF SHALLOW AND DEEP GROUNDWATER OR LIMITED TREATMENT**

The project team will evaluate the water quality and supply potential of groundwater in the northern and northeastern portions of the CLIBP. The project team will develop conceptual well designs at the feasibility study level for extraction from zones above and below the Corcoran Clay along with conceptual pipeline alignments to supply Phase 1 areas and subsequent Phases. A conceptual water supply layout to connect to the existing AECOM/VVH pre-design assessment will be developed. The conceptual well design will be done in keeping with County and State requirements. We will evaluate groundwater aquifer characteristics to assess probable water production capacity of the combined units and make general design recommendations on the depth, number and spacing of wells screened in both intervals.

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The project team will also assess the cost and practicalities of treating high sulfate source water to potable water quality before blending and after blending. Treatment technologies would be pre-screened to identify the best technology for CLIBP. A potable water supply system could be conceptualized based on the most applicable of the treatment technologies for the high sulfate water found in the deeper aquifer units beneath the CLIBP. The probable configurations of a production wellfield and treatment plant(s) would be evaluated in the northern area of the CLIBP to supply Phase 1 in the south and subsequent phases. Those elements would be developed to a conceptual design for potable supply.

The project team will:

- Establish drinking water treatment goals for CLIBP supply
- Conduct client meetings to discuss technology types and project concepts prior to FS Level evaluation
- Develop an alternative for analysis with conceptual project layout
- Identify items requiring further study if the alternative is taken forward

In addition a non-potable water supply system conceptual design would be developed based upon the earlier water supply assessments by AECOM and VVH. A conceptual layout of non-potable wells and piping to a system of non-potable piping would be developed.

A technical memorandum on the treatment technology and alternative screening which will contain: a water quality table for before and after treatment as well as projected water quality in waste brine or residuals from treatment, and capacity rating data. Other alternative related information will be integrated into the FS report in Task 11 such as conceptual production well layout(s) and system configuration description, alternative ranking for project specific screening criteria.

#### **TASK 9 – INVESTIGATE FEASIBILITY OF A BLENDING SYSTEM FOR CROWS LANDING CSD AND CLIBP SOURCES**

Under this task Provost & Pritchard will lead the E-PUR project team efforts and develop concepts of piping water from Crows Landing to the CLIBP area and water from a CLIBP to a water treatment facility to blend and treat water to potable standards. This water would then be distributed to both the CLIBP and to Crows Landing CSD. The target for this conceptual alternative is to produce sufficient quantity of water to blend the sulfates at CLIBP to within target secondary MCL(s) for drinking water and to blend Crows Landing CSD water for hexavalent chromium, Cr(VI), to below the primary MCL.<sup>3</sup>

In this alternative, non-potable water will be supplied by onsite groundwater.

The project team will:

- Conduct a site area visit for project layout concepts
- Evaluate existing Crows Landing CSD water quality and supply capability
- Conduct a client meeting to discuss project concepts prior to FS evaluation

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<sup>3</sup> For the purposes of this proposal it is assumed that the current California MCL for Cr(VI) will remain in effect despite recent court rulings requiring the State Water Resources Control Board to prepare an economic impacts assessments as compared to the cost-benefit analysis they did in promulgating the current MCL.

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- Contact the Division of Drinking Water for further discussions about proposed blending arrangements
- Contact Crows Landing CSD for discussions of supplying water via blending or otherwise
- Establish required system improvements for Crows Landing CSD to reliably supply blending water to the CLIBP
- Identify water system connections points
- Evaluate blending water concepts

Additionally the expansion of Crows Landing CSD to include all of the CLIBP would be evaluated as part of the development of this conceptual alternative. This evaluation will include the practical steps required for an expansion.

A technical memorandum on the specific alternative components for potable water supply which will contain: water quality tables, conceptual pipeline alignments and water treatment plant location, mass balance calculations, and a list of required system improvements required for the Crows Landing CSD water supply alternative to be considered. The balance of the information developed for the alternative such as non-potable supply layouts and costs and then overall ranking of this blending alternative against project specific screening criteria, will be incorporated to the FS Report in Task 11.

**TASK 10 – INVESTIGATE FEASIBILITY OF A BLENDING SYSTEM FOR CITY OF PATTERSON AND CLIBP SOURCES**

Under this task Provost & Pritchard will lead the E-PUR project team efforts and develop concepts of piping water from City of Patterson to the CLIBP area and water from CLIBP to a water supply facility to blend and supply water to southern portions of the City of Patterson’s service area. This water would then be available to distribute to both CLIBP and the City of Patterson. The target for this conceptual alternative is to produce sufficient quantity of water to blend the sulfates at CLIBP to within target secondary MCL(s) for drinking water and to augment City of Patterson supplies and alleviate water quality concerns for hexavalent chromium, Cr(VI), and total dissolved solids.<sup>4</sup>

In this alternative, non-potable water will be supplied by onsite groundwater.

The project team will:

- Conduct a site area visit for project layout concepts
- Conduct a client meeting to discuss project concepts prior to FS Level evaluation
- Contact the Division of Drinking Water for discussion about the proposed blending arrangement
- Contact City of Patterson for further discussions of supplying water
- Contact the Division of Drinking Water for discussion about the potential water supply alternative under consideration
- Evaluate existing City of Patterson water quality and supply capability
- Establish required system improvements for City of Patterson to reliably supply blending water to the CLIBP

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<sup>4</sup> For the purposes of this proposal it is assumed that the current California MCL for Cr(VI) will remain in effect despite recent court rulings requiring the State Water Resources Control Board to prepare an economic impacts assessments as compared to the cost-benefit analysis they did in promulgating the current MCL.

Assessment of CLIBP Groundwater Supply Alternatives  
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- Identify water system connections points
- Evaluate blending water feasibility

Additionally the expansion of the City of Patterson system to include all of the CLIBP would be evaluated as a potential alternative prior to proceeding with the FS in Task 11. This evaluation will include the practical steps required for the expansion.

A technical memorandum on the specific alternative components for potable water supply which will contain: water quality tables, conceptual pipeline alignments and water treatment plant location, mass balance calculations, and a list of required system improvements required for the City of Patterson water system alternative. The balance of the information developed for the alternative such as non-potable supply layouts and costs and then overall ranking of this blending alternative against project specific screening criteria, will be incorporated to the FS Report in Task 11.

#### **TASK 11 – PREPARE FEASIBILITY STUDY REPORT OF WATER SUPPLY ALTERNATIVES**

The scope of this task encompasses summarizing the findings from the preceding task evaluations of specific water supply alternatives. The alternatives will be screened or ranked based upon implementability, reliability, cost, ease of administration, and public/consumer acceptance. Estimated construction and O&M costs for each alternative will be developed to an ACE Class 4 standard for feasibility study analysis. Estimated costs for each of the alternatives will be incorporated to a ranking criteria matrix and table for alternative screening.

E-PUR and Provost & Pritchard will work closely together on this phase of the project as it relies upon both companies' knowledge and expertise.

The scope for this task includes time for telephonic meetings to review preliminary findings and to develop a review draft feasibility study report assessing the water supply alternatives. These efforts will culminate in the delivery of a working draft FS Report suitable for presentation which describes the County's preferred alternative and rationale, probable costs, and recommendations.

**Deliverables:** Summary of study and cost assumptions, alternative ranking table for project specific screening criteria, project conceptual layouts of the best concept identified for each water supply alternative considered, a review draft FS Report describing project alternatives and the summary evaluation of matrix criteria for review and discussion, a project meeting to review the draft FS Report, followed by production of a working draft FS Report for subsequent presentation, discussion and meetings with various stakeholders and interested parties.

#### **TASK 12 – FOLLOW UP MEETINGS WITH CROWS LANDING CSD AND CITY OF PATTERSON**

Two separate meetings are again scoped for discussion with the nearby public water systems. These meetings would provide a copy of the working draft FS Report to each entity. The meetings would focus on further developing a preferred alternative between each party. An agenda would be developed for each meeting to guide the discussion, and subsequent meeting minutes would be prepared to document outcomes and any agreed upon actions.

#### **TASK 13 – HOLD SECOND MEETING WITH DDW TO REVIEW SUPPLY ALTERNATIVES AND OPTIONS**



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A meeting with regional DDW staff is scoped to discuss the working draft FS Report and its findings on water quality and water supply alternatives. The meeting will also serve to update the DDW on evaluative efforts of the feasibility of annexation and/or consolidation with the two neighboring systems. The meeting will seek to gain the DDW's buy in on the alternatives assessment and the direction being taken for finalizing a preferred water supply alternative for the CLIBP.

An agenda would be developed for each meeting to guide the discussion, and subsequent meeting minutes would be prepared to document outcomes and any agreed upon actions.

### STEP 2 SCHEDULE

Figure 1 depicts the estimated schedule for developing a Feasibility Study report. The schedule depicts delivery of a review draft FS Report by the end of November with a review period to December 13, 2017. After finalizing a working draft of the FS Report the second meetings with Crows Landing CSD and City of Patterson are targeted for before the end of the calendar year followed by an update meeting with DDW on a preferred alternative for the CLIBP. This schedule may be delayed if additional characterization data of the groundwater aquifer zones from Task 7 is deemed essential to completion of the FS Report. This would delay completion of the FS Report by 6 to 8 weeks into the February to March 2018 timeframe.

The project is anticipated to require routine telephonic meetings with Stanislaus County Public Works to review work progress, as well as to discuss in meetings where the findings of the project are moving the development of water supply alternatives in relation to the EIR, the FS, and the discussions with the other parties (i.e., DDW, Crows Landing CSD, and City of Patterson). The scope provided envisions two in-person meetings within the roughly seven meetings depicted on the Figure 1 schedule. The meetings will address next steps in the projects as well as the other future work items and information needs such as LAFCO and DDW requirements.

### STEP 3 PREPARE CONCEPTUAL DESIGN OF PREFERRED ALTERNATIVE

Following meetings with DDW and the neighboring water systems the assessment of water supply alternatives Step 3 of this phase of the project will develop a more detailed conceptual design of the preferred water supply alternative at the 5-10% design level. This will encompass reviewing additional system needs for information to guide the overall water supply program toward a water supply system alternative around which a preliminary technical report under SB 1263 can be developed. However this phase of the project and this Step 3 are not scoped to produce the preliminary technical report. For context the contents and requirements of a preliminary technical report are provided in Attachment A.

Step 3 will result in a conceptual design of sufficient detail that LAFCO requirements can be addressed and other requisite information needs identified for a full system design to be developed in a subsequent phase. The conceptual design will identify outstanding information needs for developing an SB 1263 preliminary technical report in a subsequent phase of work.

### TASK 14 – PERFORM BACKGROUND INVESTIGATION OF AGENCY DATA

A variety of additional information may need to be considered in further assessment of the preferred alternative. This would include Urban Water Management Plans, Water Master Plans, more detailed information on water quality data, water system flow characteristics, and existing hydraulic models such

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as those done by VVH for the CLIBP or for those in adjoining City of Patterson and/or Crows Landing if warranted by the preferred alternative.

**TASK 15 – PRELIMINARY ENGINEERING OF ALTERNATIVE**

This preliminary engineering step would evaluate the point of connection location(s) to potable and non-potable water distribution systems. It would determine the locations for water storage and footprint as well as the approximate pumping needs and pipe sizes necessary to augment VVH's hydraulic modeling of both potable and non-potable water supplies based on the preferred alternatives source locations for water to the systems. The scope of this preliminary engineering does not encompass performing additional hydraulic modeling. It will produce information sufficient for subsequent hydraulic modeling and subsequent pump location and sizing into an eventual project design.

**TASK 16 – PROJECT ALIGNMENT EVALUATION AND PRELIMINARY DESIGN**

This task will further refine the project piping alignments to the point(s) of connection and evaluate right of way issues. This will be taken to a level suitable for a subsequent Project Design. This Task and Step 3 will produce a water supply system Conceptual Design. It will not produce Technical Specifications and Drawings of a Project Design.

**TASK 17 – PREPARE CONCEPTUAL DESIGN REPORT OF PREFERRED ALTERNATIVE**

A full conceptual design will be developed of the preferred alternative suitable for incorporation to a Final EIR. The conceptual design report will identify information needs for the development of a preliminary technical report suitable for submittal to DDW and the County.

**TASK 18 –COORDINATE WITH AECOM AND STANISLAUS COUNTY REGARDING EIR**

This task is provided for as needed discussions with AECOM regarding the potential impacts on the EIR from the Feasibility Study portion of the project, Step 2, beyond the initial handoff and meetings at the conclusion of Step 1. It also provides as needed support to AECOM to respond to comments on the Public Draft EIR.

**STEP 3 SCHEDULE**

Figure 1 depicts engineering evaluations beginning in mid-December 2016 and requiring 9 weeks to complete. This schedule start is dependent upon conclusion of Step 2 to a working draft FS Report. Thus it may be delayed by completion of Step 2.

**SCHEDULE OF COST AND FEES**

From a budget authorization standpoint we are providing you the full budget for all the activities scoped. However, based on those same discussions we anticipate work being authorized by you incrementally for Steps 1, 2, and 3 as the needed scope elements become clearer during Step 1 for the subsequent Steps 2 and 3. The scope of this phase of project will require significant internal and external coordination and project administration to keep the project team efficient on work execution. Time has been budgeted for internal efforts to keep the team focused on the short term objectives and the project overall goals. We have made every effort to be comprehensive on the scope herein including a Project Coordination set of tasks intended to guide the project throughout implementation.

Assessment of CLIBP Groundwater Supply Alternatives  
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E-PUR can perform these services under an Amendment to our current contract, Stanislaus County Contract 2016-479. The work would be performed and invoice monthly on a time and materials basis in accordance with our Standard Fee Schedule in effect for this Stanislaus County Contract 2016-479. Our estimated costs inclusive of subcontracted activities are approximately \$173,750 as shown in the following table.

PROPOSED FEE BY STEP				
Scope Sequence	E-PUR Labor	Direct Expenses	Subcontracted Expenses	Subtotals by Task
Step 1 – Pre-Feasibility Study Actions	\$28,200	\$750	\$25,850	\$54,800
Step 2 – Feasibility Study Actions	\$30,000	\$400	\$44,350	\$74,750
Step 3 – Prepare Conceptual Design of Preferred Alternative	\$12,140	\$260	\$31,800	\$44,200
TOTAL ESTIMATED FEE				\$173,750

Fees will be invoiced monthly as they are accrued. Reimbursable expenses will be invoiced in addition to professional fees and are included in the estimate above. If it appears we will need to exceed the estimate above, we will notify you in writing before we do so, and will provide a revised estimate. We will not continue work beyond the initial budget without additional authorization.

### PROJECT SCHEDULE

A detailed schedule of the anticipated task duration, with key milestones and task interdependencies is provided in the attached Figure 1. The full schedule for this phase of the project is projected to be 23 weeks. However, this could be lengthened by as much as 6 to 8 weeks if the need for a field investigation (Task 7) delays completion of Step 2 which then delays the start of Step 3 by that same number of weeks.

### ASSUMPTIONS

Cost Estimating for CLIPB utility infrastructure is beyond the scope of this study including:

- Potable and/or Non-Potable CLIPB distribution systems.
- Power for CLIPB well or treatment locations.
- Paving costs for new CLIPB roads. Repaving in existing roads will be included in the unit price for new piping.

Hydraulic modeling of water distribution systems for the Feasibility Study alternatives and the Conceptual Design of the Preferred Alternative is beyond the scope of this study.

September 5, 2017

Assessment of CLIBP Groundwater Supply Alternatives  
Stanislaus County Public Works Department

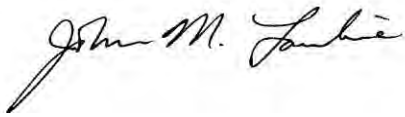
**CLOSING**

E-PUR and Provost & Pritchard can efficiently provide Stanislaus County a screening-level feasibility study of this focused subset of water-supply alternatives for the CLIBP. We want to continue to demonstrate the enthusiasm and the rigor with which we do our work to you and to Stanislaus County Public Works.

We are happy to discuss any aspects of the proposed work for assessing the availability of groundwater to meet the water supply needs for the CLIBP.

Sincerely,

E-PUR, LLC

A handwritten signature in black ink that reads "John M. Lambie". The signature is written in a cursive style with a long, sweeping underline.

John M. Lambie, PE, PG, CEG  
Principal Hydrogeologist

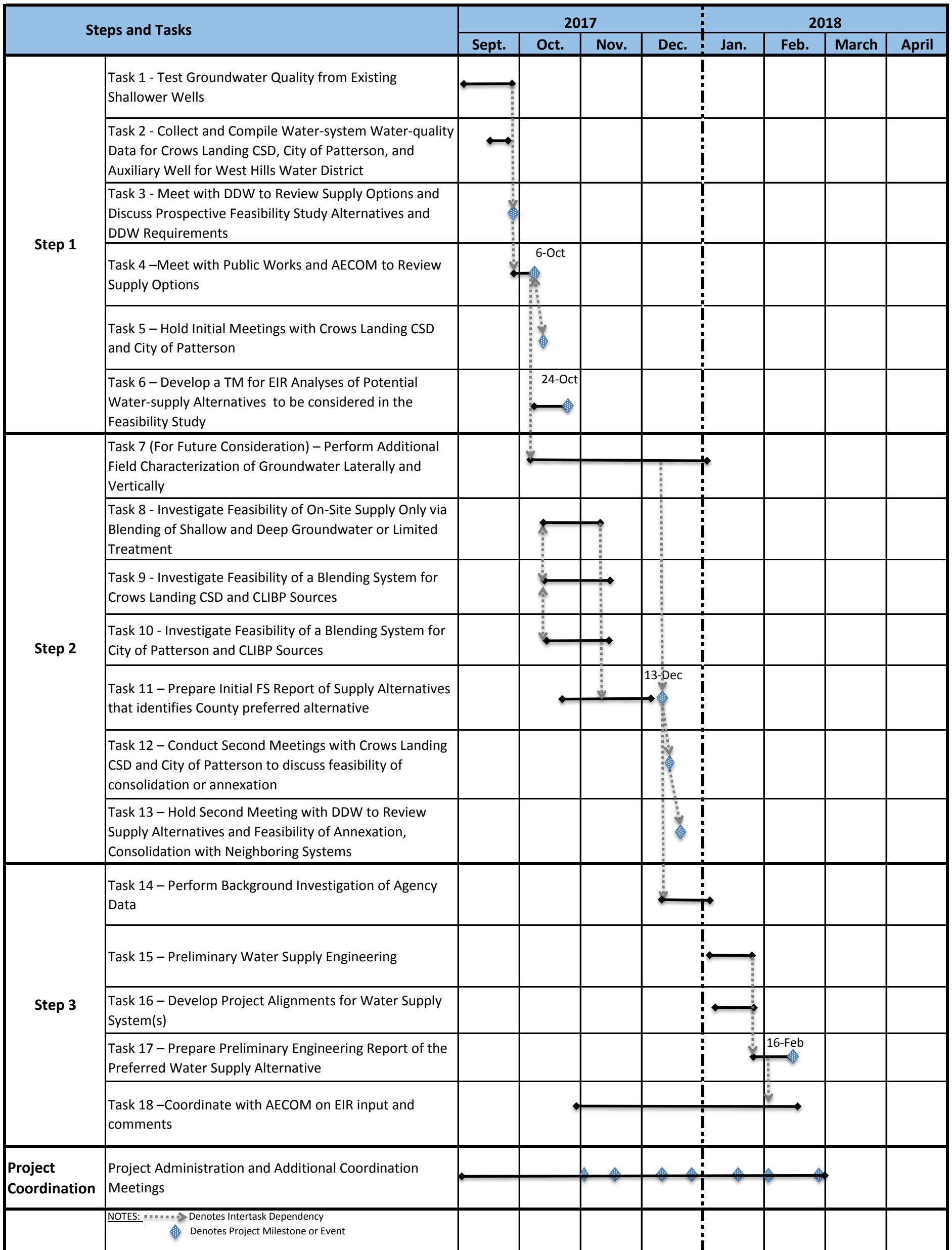
cc: Alex Bargmeyer, PE, E-PUR  
Dena Traina, PE, Provost & Pritchard  
Kevin Berryhill, PE, Provost & Pritchard  
David McGlasson, PE, Provost & Pritchard

Attachments:

Figure 1: Steps and Task with Execution Timeline

Attachment A: SB 1263 Requirements for an Engineer's Preliminary Technical Report

**Figure 1**  
**Steps and Tasks with Execution Timeline**  
**for Assessment of Water Supply Alternatives for the CLIBP**



**ATTACHMENT A**

**CALIFORNIA SENATE BILL 1263 REQUIREMENTS FOR AN  
ENGINEER'S PRELIMINARY TECHNICAL REPORT**

Health and Safety Code **116527**.

(b) (1) Before a person submits an application for a permit for a proposed new public water system, the person shall first submit a preliminary technical report to the state board at least six months before initiating construction of any water-related improvement.

The preliminary technical report shall include all of the following:

(1) The name of each public water system for which any service area boundary is within three miles, as measured through existing public rights-of-way, of any **boundary of the applicant's proposed public water system's service area**.

(2) A discussion of the feasibility of each of the adjacent public water systems identified pursuant to paragraph (1) annexing, connecting, or otherwise supplying **domestic water to the applicant's proposed new public water system's service area**. The applicant shall consult with each adjacent public water system in preparing the report and shall include in the report any information provided by each adjacent public water system regarding the feasibility of annexing, connecting, or otherwise supplying domestic water to that service area.

(3) A discussion of all actions taken by the applicant to secure a supply of domestic water from an existing public water system for the proposed new public water **system's service area**.

(4) All sources of domestic water supply for the proposed new public water system.

(5) The estimated cost to construct, operate, and maintain the proposed new public water system, including long-term operation and maintenance costs and a potential rate structure.

(6) A comparison of the costs associated with the construction, operation and maintenance, and long-term sustainability of the proposed new public water system to the costs associated with providing water to the proposed new public water **system's service area through annexation by, consolidation with, or connection to an existing public water system**.

(7) A discussion of all actions taken by the applicant to pursue a contract for managerial or operational oversight from an existing public water system.

(8) **An analysis of whether a proposed new public water system's total projected water supplies available during normal, single dry, or multiple dry water years during a 20-year projection will meet the projected water demand for the service area.**

(9) Any information provided by the local agency formation commission.