WATER · MINERAL · ENERGY

Pilot Study Report
For
Weak Base Anion
Hexavalent Chromium Removal Process

San Bernardino County Water – CSA 70 Zone-J
San Bernardino, CA
February 15th – April 14th, 2016

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TABLE OF CONTENTS

DISCLOSURE STATEMENT

This Pilot Plant Study Report has been prepared by Layne Christensen Company - Water Treatment Group (Layne) for the purpose of presenting to San Bernardino County, California, (Recipients), the results of the Hexavalent Chromium Removal pilot study conducted at the CSA 70 Zone-J Well #5 together with recommended full scale treatment plant for the removal of hexavalent chromium including capital and operating costs.

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Figures

Tables

EXECUTIVE SUMMARY

San Bernardino, California has wells which have elevated levels of hexavalent chromium, and the established MCL level requirement of 10 ppb. The goal of this project was to verify the effectiveness of a Weak Base Anion treatment process for San Bernardino County. The WBA process employs a high purity NSF-61 approved resin filtration media for the removal of hexavalent chromium. This report reviews a method for reduction in hexavalent chromium from drinking water and details the results of testing of the adsorption process

Pilot test equipment was set-up at the well designated CSA 70 Zone J Well #5, located off El Centro Rd in San Bernardino, California. The pilot test was conducted by Layne Christensen Company (Layne) with the assistance of San Bernardino's system operators to demonstrate the viability of the SIR-700-HP resin (manufactured by ResinTech) and S106 (manufactured by Purolite), for the removal of hexavalent chromium from drinking water. The weak base anion adsorption process is attractive for these well sites because of the simplicity of operation noting:

- the system does not require a sanitary sewer connection,
- does not generate a brine waste stream or any other discharge,
- has the capability to handle fluctuating levels of contaminant without additional labor, and
- has the ability to remove hexavalent chromium to an acceptable level suitable for blending (stated as 80% removal).

Based on analyses from previous pilot tests done by others, the spent resin is regarded as a hazardous waste in the State of California based on total chromium concentrations leached during the CWET test. The Glendale study noted that Resintech's SIR700-HP did not show appreciable propensity for radioactive accumulation. The parameters of the pilot testing did not include examination of radioactive accumulation, and therefore no data pertaining to radiation for this particular site is available.

The water source was a side-stream from the well during well operational hours, and during off-hours the source came from the line going to the water tank which had been fed by the well. Both sources were not treated (raw) prior to entry into the pilot except for pH adjustment. This change of water source was implemented such that the pilot could maximize data capture within the 60 day pilot period.

Layne conducted a pilot study for 60 days, from February 14th to April 14th, 2016. Throughout the study there were two flow rates desired to be maintained for each of the resins: 20 bv/hr (columns E, F) and 25 bv/hr (columns G, H) to reflect normal operating rates. As a result of pressure and flow control anomalies the final pressure and flow rate were modified; actual average flow rates were 18 bv/hr (columns E, F) and 22.3 bv/hr (columns G, H). This reduced rate does not present a concern to the protocol.

During the first week of testing, the pilot exhibited low level hexavalent chromium leakage as anticipated. Although leakage was above detection limits, leakage was well below the MCL and the County's treatment requirements. This low level leakage can be attributed to an initial

seasoning period. The leakage was not evident by the second week of testing. For the remainder of the 60-day period, lab results confirmed that Layne's Weak Base Anion adsorption method was able to maintain hexavalent chromium levels below laboratory detection limits.

The pilot test showed that the removal of the hexavalent chromium by weak base anion resins was very successful. During the 60 day period of the continuous pilot trial, the majority of the mass transfer zone was contained within the upper two inches of the resin bed. When translated to a full scale system, the predicted life of the media is 1.5 to 1.8 years with continuous production at a flow rate of up to 22.3 bed volumes per hour (24 hrs x365 days operation) at the well. This translates to over 293,000 bed volumes. A pilot duration of 60 days with virgin media presents the best-case scenario for performance. Actual utilization of the system and any particulate accumulation in the bed could result in a lower number of total bed volumes prior to media change out.

The proposed full scale system will be designed to treat the 650 GPM well flowrate with a bypass and blend arrangement. The proposed system will require pre and post pH adjustment as well as fine particle filtration along with the two weak-based anion exchange vessels (96" D) which will be arranged in lead-lag arrangement. The anticipated operating cost is estimated at ~$0.35/kgal for the system. More details on the operating costs and full scale proposal can be located in the Full Scale Equipment section of this report and in the separate full scale proposal document.

INTRODUCTION

There are several processes capable of hexavalent chromium removal. The purpose of the pilot study will be to minimize the capital cost and optimize the operating cost by selecting the desired filter loading rate for hexavalent chromium removal, and selecting the best resin for this particular water quality. The system is based on a miniaturization of a full-scale system. Flow rate and pH reflect conditions which would be seen in the full-scale system.

Media Selection

Weak base anion resins have been used in water treatment for a long time. With the advent of new governmental regulations for hexavalent chromium, the weak based anion resin has been pressed into service as one of several viable options for hexavalent chromium removal. The resin has been used in notable studies in locations such as Glendale, CA, and Hanford, WA.

The weak base anion adsorption process is attractive for well sites in arid regions because of the simplicity of operation: the system does not require a sanitary sewer connection, does not generate a brine waste stream or any other discharge, and has the ability to remove hexavalent chromium to an acceptable level suitable for blending.

Kinetics

Two weak base anion resins will be run in a head-to-head competition to determine the most suitable candidate for this application. Resintech SIR-700-HP and Purolite S106 are both epoxy polyamine weak base anion resins with similar capacity. Previous studies seem to indicate that chromium removal by the SIR-700 resin is not reflective of classic ion exchange mechanism. Their mechanism of hexavalent chromium removal is suspected to involve second-order kinetics, hence the slower flow rate.

Even though the pilot only showcased single columns per set of operating parameters, the configuration of the full-scale system will be lead-lag, providing protection from breakthrough while allowing for more complete exhaustion of the lead bed, thus making the system more cost-effective. In some previous studies, the resin bed in the lead column of a lead-lag system was replaced before the effluent from the lead column reached MCL breakthrough. The resin from the lead column was far from exhausted when it was replaced. One of the purposes of this pilot is to determine the depth of exhaustion at the top of the bed, and the size of the reaction zone. Data from this study will allow Layne to determine how to more completely exhaust the resin before it has to be replaced.

Seasoning

Given that the weak base anion resin is still relatively new to the scene for hexavalent chromium removal, manufacturers are constantly trying to improve on the available technology. An example would be the need to "season" the media. When the media arrives from the manufacturer, it is not seasoned. Seasoned media is not available at this time, but manufacturers are hoping to have it available in the near term.

"Seasoning" refers to the protonation of the surface of the resin by exposure to a low pH. The protonation of the surface accelerates the deposition of hexavalent chromium onto the resin, which is then reduced to trivalent chromium. The trivalent chromium is then retained in the resin bed. During the initial period of service, the resin is protonated by the low pH of the influent. The expected outcome of this procedure is that the initial period of service would see a small amount of hexavalent chromium leakage.

Initial leakage of hexavalent chromium should decrease as the resin becomes impregnated with protons. The length of this initial period is dependent on water quality and pH. The pilot becomes a vehicle in which a balancing act is defined – the lower the pH, the faster the resin becomes protonated and the less leakage occurs. However, the effluent pH must be raised to acceptable levels. Addition of chemicals to the effluent stream increases operational costs. Therefore, the pH of the pilot system is based on the scenario that the treated stream would be blended with an untreated stream for discharge without further adjustment.

An additional caveat to lowering the pH is the presence of total chromium in the influent. If the pH is below 5.5, trivalent chromium does not appear to be removed as easily as the hexavalent chromium and may result in trivalent chromium leakage. This is not an issue for San Bernardino County as it appears that all of its chromium in the influent is hexavalent chromium (based on lab analyses data presented by the County).

Capacity

The weak base anion resins used in this pilot were chosen for their high capacities and lack of secondary contaminants such as formaldehyde. Theoretically, the pilot columns should be able to remove hexavalent chromium to below the MCL for a minimum of several months.

A trademark of weak base anion resins is the slow increase of the contaminant in the effluent as the resin becomes exhausted. Depending on water quality and operating parameters, manufacturers have reported that the resins can conceivably retain up to five lbs of chromium per cubic foot.

PILOT EVALUATION

Testing Objectives

The pilot system is a simplified version of a full-scale Layne ion exchange system. Pilot testing is used to develop and quantify the following objectives:

- Document, through analytical testing, the quality of the raw water being treated with the understanding that the raw water to be treated during the pilot study is representative of the water that will be obtained during the commercial operation of a full-scale treatment plant.
- Observe the effects of surface loading rate change on effluent water quality - verify optimum filter rate and pH. This will involve running the pilot at two different flow rates.
- Verify, through sampling and analysis, the efficiency of hexavalent chromium removal on a periodic basis.
- Assess resins from two manufacturers for determining best performance for this particular water quality.
- Gather data for assessing resin exhaustion rate versus impregnation rate.
- Complete pilot study test report, documenting procedures and analytical data, with observations, conclusions, and recommendations.
- Determine the feasibility of a blend ratio (to 8 ug/L) as proposed in the initial full scale budget proposal.
- Complete preliminary engineering report for full-scale plant design summary, detailing capital costs, operating costs, process parameters, and equipment P&ID as part of the pilot report. This may also be provided as a separate document.

Experimental Methodology

Water pressure and pH adjustment were provided by the County of San Bernardino, California, as well as the sampling and monitoring of the system for days 5 through 60.

The system for pilot scale testing is comprised of the following components: pressure relief valve, flow meter, one micron cartridge filter, pressure gauge, and four identical 1.0 inch ID PVC columns. Flow rate was controlled by a series of needle valves.

Two columns, one for each resin, with a bed depth of 18 inches, were run at 18 bed volumes per hour, and two remaining columns, one for each resin, were run at 22.3 bed volumes per hour. Flow rates were individually controlled by needle valves at the top of the columns. Flowrates were monitored once a day and calibrated by measuring volume in a graduated cylinder; pH was monitored and adjusted once a day. The flow rate for the entire system was monitored by a Signet 1800 Microflow sensor and 8550 transmitter; pH was monitored by a Hach HQ440d bench-top unit. The pilot was run 24/7 for a continuous period of 60 days.

The pilot was set up at CSA 70 Zone J, Well #5 which contributes to a system of three holding tanks located approximately a mile from Well #5. It was assumed at the beginning of the study that the pump at Well #5 would be run continuously. However, the pump at Well #5 was shut off during low-usage periods. During these periods the water pressure is dependent on the head pressure from the tanks. This in turn affected the flow rate, which must be monitored daily, and valves adjusted as needed.

The pH adjusted water was provided by the County of San Bernardino as a slipstream from Well #5 when the pump is operational, and from a dedicated line to the storage tanks during non-operational hours. Because the pH was controlled by acid injection with a metering pump but did not include an automatic adjustment measure, the pH data was used to calculate the overall average pH of the system at approximately 6.2.

Fig. 1 Well head of CSA 70 Zone J Well #5.

Fig. 2 The pilot was housed in the trailer located at the well site.

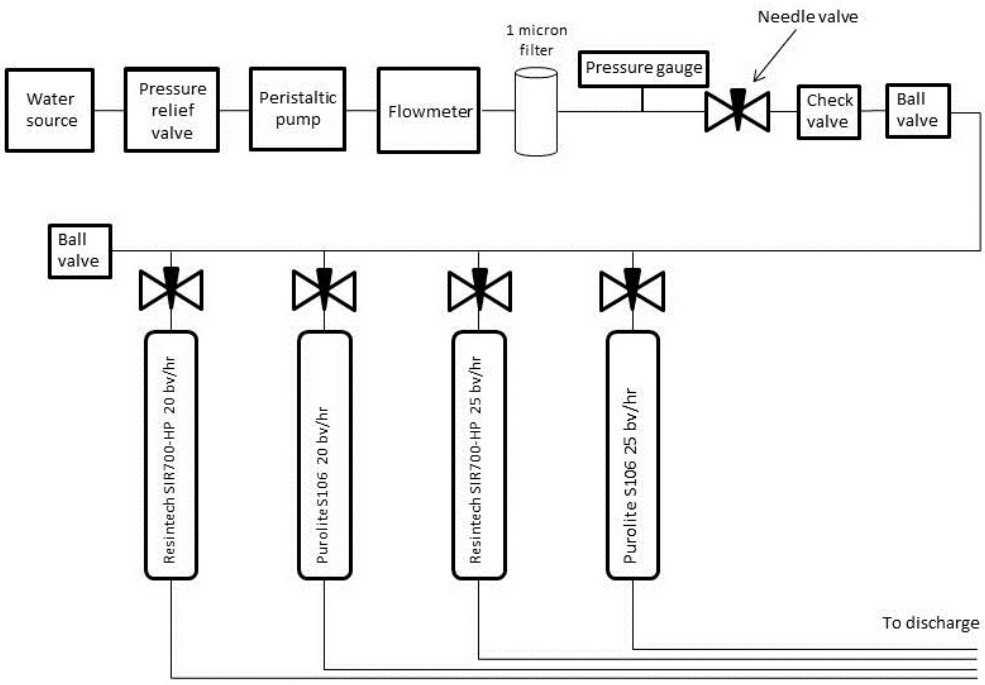


Fig. 3 Schematic of pilot system.

Fig. 4 Photograph of pilot system.

Water was obtained via a ¾" hose connection providing feed water to the pilot unit. Untreated water flowed into the trailer where it was introduced to sulfuric acid, and sent through a series of valves and controls to the WBA columns. Treated water was discharged to an on-site "run to waste" location as instructed by San Bernardino County.

Chemical injection was accomplished by utilizing an Iwaki electromagnetic metering pump, model EWN-B11VCUR capable of delivering 0.05 to 0.1 mL/stroke of metered flow. Due to the extremely low flowrate to the pilot column and to improve acid injection control, concentrated food-grade sulfuric acid was diluted to 7.2 percent, and the solution was metered into the influent for a final average pH of 6.2.

Rota-meters and gate valves were used to meter and control the flow, respectively. A pressure relief valve was installed to prevent damage to the system. A chemical injection port permitted the chemical injection pump to provide metered amounts of chemical.

PVC piping and Flexelene tubing (0.25” ID) carry the water to a 24” high vertical column filled with an 18” bed of WBA resin. The water was directed upflow into the bottom of the column for an initial backwash for twenty minutes, then operated down-flow during the remainder of the pilot.

Analytical Procedures

The Hach DR/890 Colorimeter was used for all field tests not related to pH: reagents are added to the sample, and the color change experienced indicates the amount of reactant in the sample. The instrument analyzes the color of the sample and returns a value in mg/L. Field tests were used only for quick assessments during the installation of the pilot. After installation, all analyses were performed by the Clinical Laboratory of San Bernardino, Inc. and Geo-Monitor, Inc. of Hesperia, CA. The Hach HQ440d table-top unit was used on a day-to-day basis for assessing pH.

Figure 5. Hach DR890 Colorimeter

Figure 6. Hach HQ440d pH meter

Reagents/Test methods used:

- Hexavalent Chromium (0 to 0.6 mg/L), 1,5 Diphenylcarbohydrazide method – Hach Method 8023
- Hach Pocket Pro pH, handheld probe

Pilot Test Results

Table 1. This table summarizes the results from samples submitted to the Clinical Laboratory of San Bernardino, Inc. These tests show that the effluent water consistently removed hexavalent chromium to below detectable levels. Full lab tests can be found in the appendices (ND=NonDetect, <1.0 ug/L). The data point at 2/18/2016 is consistent with the seasoning requirement as previously noted in the Introduction. It should be noted that the Influent data showed fluctuating amounts of hexavalent chromium.

		Resintech SIR700-HP		Purolite S106	
Date	Influent ppb	18 bv/hr	22.3 bv/hr	18 bv/hr	22.3 bv/hr
2/15/2016	22	<1.0	<1.0	<1.0	<1.0
2/16/2016	21	<1.0	<1.0	<1.0	<1.0
2/17/2016	21	<1.0	<1.0	<1.0	<1.0
2/18/2016*	23	1.8	2.7	1.3	1.3
2/25/2016	23	<1.0	<1.0	<1.0	<1.0
3/3/2016	22	<1.0	<1.0	<1.0	<1.0
3/10/2016	24	<1.0	<1.0	<1.0	<1.0
3/17/2016	24	<1.0	<1.0	<1.0	<1.0
3/24/2016	26	<1.0	<1.0	<1.0	<1.0
3/31/2016	22	<1.0	<1.0	<1.0	<1.0
4/7/2016	23	<1.0	<1.0	<1.0	<1.0
4/14/2016	23	<1.0	<1.0	<1.0	<1.0

*Effluent chromium levels should be attributed to the seasoning period as described in the report.

Table 2. Pilot process parameters.

	Influent	Resintech SIR700-HP		Purolite S106	
		18 bv/hr	22.3 bv/hr	18 bv/hr	22.3 bv/hr
Actual flow rate, bv/hr		18	22.3	*18	22.3
Flow rate, gpm	0.082	0.018	0.023	0.018	0.023
Process Loading rate, gpm/ft^2		3.72	4.66	3.72	4.66
Empty Bed Contact Time, min		3	2.4	3	2.4
Total volume treated, gallons	6732	1544	1928	*1327	1928
Total bed volumes treated		25,311	31,607	21,754	31,607
Media Bed Dimensions		18-inch bed depth, 1-inch diameter			
Media Type		Epoxy polyamine, condensate		Epoxy polyamine, spherical bead	
Backwash Bed Expansion		6 inches (33%)			
Backwash Duration		20 minutes			

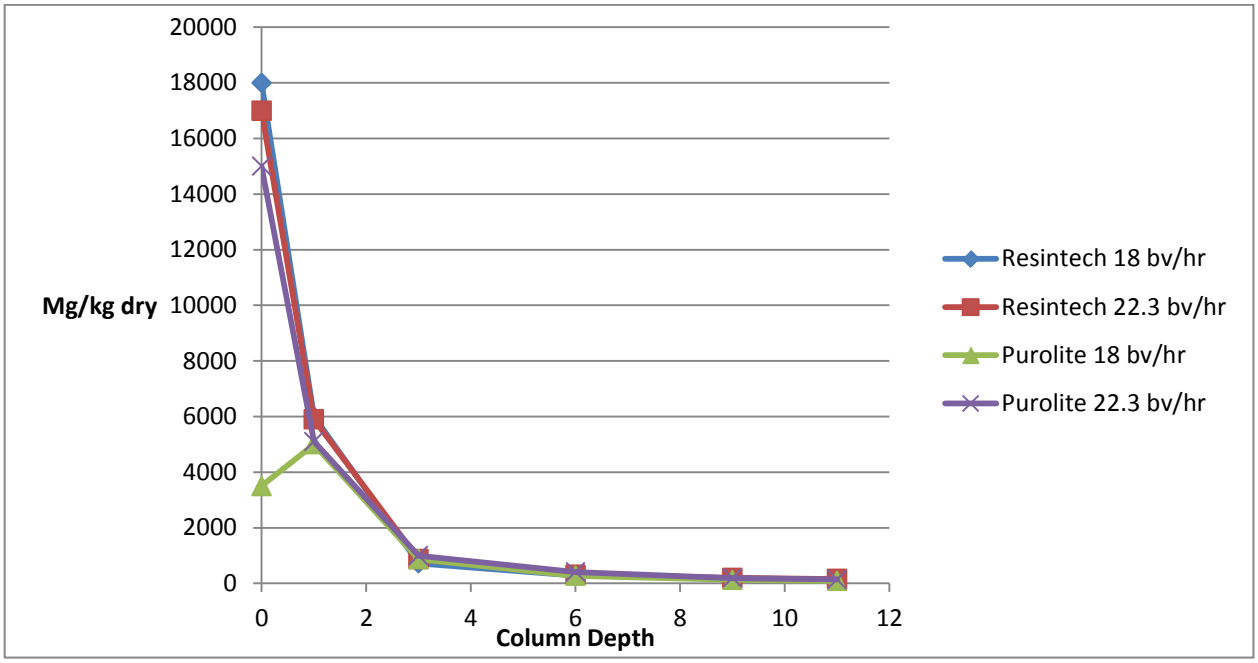
*The column containing the Purolite S106 that was ran at18 bv/hr experienced biofouling which reduced flow rate on 3/22/16, 37 days from the beginning of the pilot. After 3/22/16, the flow rate was reduced to 12.8 bv/hr, a reduction to 71% flow rate. The effects of biofouling were two-fold: the resin on top of the bed was coated with slime, which restricted exposure to the influent, thereby reducing uptake at the top layer of the bed. Secondly, the slower flow rate during part of the 60 days created an anomalous situation for the core data, thereby rendering the transfer zone data unreliable for predictions.

Table 3. Comparison between columns.

	Influent	ResinTech SIR700-HP		Purolite S106	
		18 bv/hr	22.3 bv/hr	18 bv/hr	22.3 bv/hr
Influent Mean pH	6.19				
Effluent Mean pH		6.04	5.84	5.91	5.83
Effluent deviation from influent, pH units		0.15	0.35	0.28	0.36
Breakthrough during seasoning, ppb		1.8	2.7	1.3	1.3
Chromium, bed depth 0-1”, mg/kg		18000	17000	3500	15000
Chromium, bed depth 1-2”, mg/kg		6000	5900	5000	5100
Chromium, bed depth 3-4”, mg/kg		720	870	870	1000
Chromium, bed depth 6-7”, mg/kg		280	310	270	410
Chromium, bed depth 9-10”, mg/kg		180	200	130	190
Chromium, bed depth 11-12”, mg/kg		140	160	90	140

Based on the data collected in Table 3, regardless of the resin or flow rate, the pH of the effluent can be expected to be close to or slightly below that of the influent. This is in line with what other studies have noted for weak based ion exchange columns: that there were negligible changes in the pH between the influent and effluent. Impregnation data is based on dry weight and depicted in Figure 7 below.

Figure 7. Total chromium deposition as a function of column depth.



Over the course of 60 days, the initial height of 18" of the resin bed was reduced to approximately 15 inches. This reduction is seen as a normal function of the bed in a downflow system. The amount of compaction observed during the pilot is not a process concern based on the expected compaction recognized by the resin manufacturers.

Table 4. Comparison of the total percentage of chromium retained within the resins.

Bed Depth	Resintech SIR700-HP		Purolite S106	
	18 bv/hr	22.3 bv/hr	18 bv/hr*	22.3 bv/hr
0-1 inches	71.1	69.6	35.5	68.7
1-2 inches	23.7	24.1	50.7	23.4
3-4 inches	2.8	3.6	8.8	4.6
6-7 inches	1.1	1.3	2.7	1.9
9-10 inches	0.7	0.8	1.3	0.9
11-12 inches	0.6	0.7	0.9	0.6

*This column experienced difficulties with biofouling which affected flow rate and impregnation.

Table 4 illustrates that for 60 days, the majority of the chromium captured by the resins was retained within the top two inches of resin.

CONCLUSIONS

The compiled lab data shows conclusive results. Both resins performed well at an average pH of 6.2, with the effluents' pH within a 0.5 pH unit of the influent. The level of influent hexavalent chromium was initially at 21-26 ppb. The hexavalent chromium was successfully reduced to a level not only below its MCL, but also below detection limits of 1 ppb during the trial for both resin candidates and flow rates of 18 bv/hr and 22.3 bv/hr.

Examination of the impregnation data indicated that slightly more chromium was retained at the top of the bed for SIR700-HP. While the overall transfer zones were similar in depth of penetration, the Purolite S106 retained chromium deeper in the bed. The slight difference seen in this one sample suggests that in this instance, Resintech SIR700HP may experience a slightly more thorough exhaustion prior to breakthrough, although the difference may not be substantial.

It should be noted that the Purolite S106 18 bv/hr column experienced a substantial loss of flow rate (29%) due to biofouling. The other columns did not experience any flow rate issues, although the potential for biofouling is similar for all columns. Two swabs were taken, one at the top of resin bed for Resintech SIR700-HP, and one at egress of Purolite S106. Both swabs indicated substantial heterotrophic bacterial presence. The top of the Purolite resin bed was not tested as there was a layer of slime on the resin. The presence of this slime may account for the lack of impregnation at the top of the bed for the 18 bv/hr column. Due to a reduction in flow rate from the biofouling, the data for this column can only be considered as a truncated run due to the reduced number of bed volumes. In a full scale system, biofouling may or may not be an issue due to the higher flow rate. If the influent stream is chlorinated, a dechlorination unit will have to be located upstream of the resin unit. Exposure of the resin to any oxidizer is definitely not recommended; use of a dechlorination unit is highly recommended.

In a scenario where a lead-lag system comprising of a Weak Base Anion Resin is run at approximately 22 bed volumes per hour, at a pH of approximately 6.2, it is projected that a bed depth of five feet will take 4-6 months to become incorporated into the transfer zone. However, because these resins show a propensity for the chromium to be retained mostly at the resin front, and leakage will not occur until the resin is somewhat saturated, breakthrough (considered at approximately 12 ppb in the effluent for a lead vessel, below detection for the lag vessel) is projected to occur at an estimated 293,000 bed volumes, or 548 consecutive days (1.5 years) at 24 hrs usage per day. At this point, the resin in the lead vessel may be considered exhausted. The lag vessel is then placed into the lead position. As the transfer zone has already been introduced into the lag vessel, this second vessel which is now the lead vessel, is projected to have approximately 500 consecutive days at 24 hrs usage per day, until it reaches breakthrough of 12 ppb. Breakthrough in the effluent is very gradual, and the lead-lag configuration allows the user to have flexibility when it comes time to replace the resin.

Exposure of epoxy polyamine to chlorine will result in the release of N-nitrosodimethylamine (NDMA). In the absence of chlorination, the issue of NDMAs released during the operation of the pilot was addressed – NDMAs were below detection limits during pilot operation.

Based on the worst case scenario of 26 ppb hexavalent chromium with a desired blending outcome of 8 ppb, with maximum allowable breakthrough of 2 ppb for the lag column, the treated stream should comprise of 75 - 86% of the total discharge. Savings may be claimed if the effluent hexavalent chromium levels are monitored and the blending ratio adjusted accordingly. In light of the softness of the water and the lack of natural alkalinity, the combined stream will exhibit a degree of corrosivity which must be taken into consideration. The calculated Langelier Saturation Index for the combined streams (at 65ºF, adjusted to pH 7) was approximately -2.66. Water with a Langelier Index of less than -2 is considered corrosive. Solutions to corrosivity are not part of the scope or this pilot study, but may be further discussed as an addendum to the proposed water treatment system.

For drinking water purposes, sodium hydroxide injection was calculated to bring the pH of the combined stream to 7.0. This should be considered a rough calculation as other factors in a fluctuating water quality may affect the final outcome. The following calculations are based on the worst case scenario of treatment of 86% of the stream. A pH adjustment system with carbon dioxide injection and aeration may offer savings in operating expenses. Alternatively, a calcite filter for the effluent stream will increase the alkalinity, reduce corrosivity, as well as raise the pH.

FULL SCALE DESIGN

The design of the full scale system for Well #5 is based on 650 gpm combined stream, with a treatment rate of 86% (560 gpm treated stream). The proposed system is designed to operate with a hydraulic loading rate of 11.2 gpm/ft^2, and consists of one configuration of a lead and lag vessel, for a total of two vessels. The proposed vessels are 8' diameter with a 10'straight side, with backwash capabilities. Based on their performances, either resin could be selected from an operational standpoint, and pricing and availability will have to be evaluated for final resin selection at the time of the final equipment selection/purchasing.

Table 5. Proposed full scale equipment size and parameters.

Parameter	Value
Media Name	ResinTech SIR700-HP or Purolite S106
Media Type	Epoxy polyamine (condensate or bead)
Treated Flow rate, gpm	560
Percentage Total Flow treated	86%
Hydraulic Loading rate, gpm/ft^2	11.2
Empty Bed Contact Time, min	3.4
Configuration	Lead-lag
Number of configurations	1
Number of vessels	2
Vessel size	96" diameter, 120" straight side
Media Bed Depth	60 inches
Media per vessel (cubic ft)	250
Total media (cubic ft, 2 vessels)	500
Initiation Sequence	20 min backwash followed by 10 min rinse
Initiation Sequence volume per tank	6,605 gallons
Initiation Sequence total volume (2 vessels)	13,210 gallons
Backwash Bed Expansion, 25-50%	Approx. 1 gpm/sq ft (depends on temperature)
Sulfuric acid 93%, 24 hrs per day	46.37 gallons
Sodium hydroxide 25%, 24 hrs per day	0.426 gallons

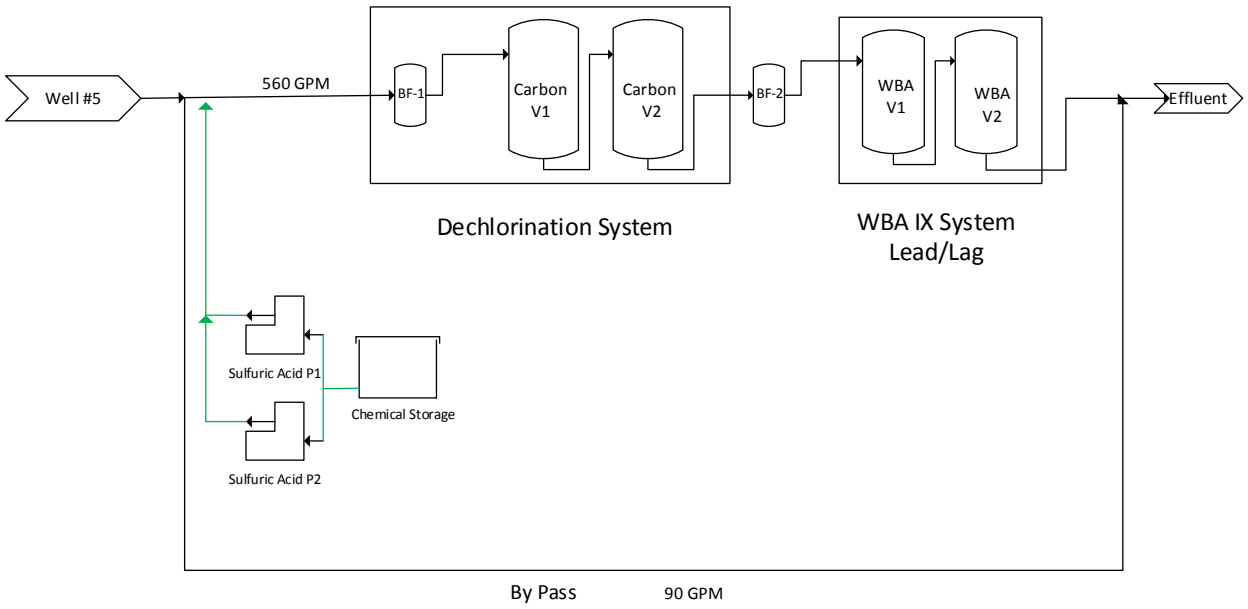


Figure 8. Proposed full-scale system summary. Waste from the Initiation Sequence may be recycled after filtration to remove particulates.

Table 6. Operational costs for a full-scale system using chemical injection are estimated as follows:

Resintech SIR700-HP, 22.3 bv/hr	**Amount**	**Unit**	**Cost per kgal water**
93% Sulfuric acid, per kgal	0.0575 gal, 0.694 lb.	$0.22/lb	$0.1528
25% Sodium hydroxide injection* per kgal	0.000113 gal	$1.80/gal	$0.000202
Labor	1 hr per 24 hr day	$25.00 /hr	$0.0267
Electrical for acid injection, 24 hrs/day,	0.373 kw·hr	$0.12 /kw·hr	$0.00133
Electrical for caustic injection, 24 hrs/day, 0.5 HP	0.373 kw·hr	$0.12 /kw·hr	$0.00133
Resin replacement cost, avg 1.5 years per bed (lead and lag averaged), 365 days per yr, 24 hrs per day	250 ft^3/vessel	$300.80/cu ft (depends on vendor)	$0.1703
		Total estimated cost per kgal	$0.3526
		Total estimated cost per 24 hr day	$330.07
		Total estimated cost per year (365 days, 24 hrs per day)	$120,475.24

* It should be noted that the effluent pH showed more deviation from the influent when the flow rate and pressure were fluctuating. If both elements can be held at more consistent levels, the pH did not seem to exhibit much deviation from the influent pH and may require less treatment.

RESIN SPECIFICATIONS

Layne
WATER · MINERAL · ENERGY

RESINTECH®

SIR-700-HP

ANION EXCHANGE RESIN
CHROMATE SELECTIVE
HCl FORM

RESINTECH SIR-700 is a granular gel weak base anion resin with unique epoxy polyamine functionality. It utilizes a secondary mechanism for chromate removal that causes chromium to precipitate inside the resin matrix when the feed pH is slightly acidic. *RESINTECH SIR-700* is intended for all chromate removal applications. SIR-700 is shipped in the acid chloride form and can be special ordered in the acid sulfate form (when ordered as *SIR-700-SO_4*).

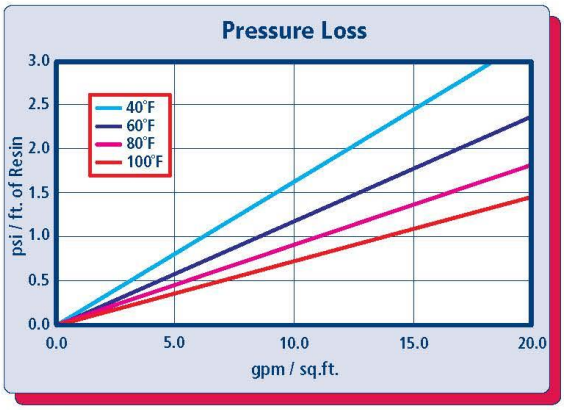
NSF/ANSI-61 CERTIFIED FOR MATERIAL SAFETY
WQA Gold Seal Certified when ordered as SIR-700-HP

FEATURES & BENEFITS

- **HIGHLY SELECTIVE FOR CHROMATE AND DICHROMATE**
  Secondary precipitation mechanism occurs within the resin during service, greatly enhancing chromate uptake, and resulting in large throughputs
- **INTENDED FOR SINGLE USE**
  High capacity media is designed for one-time use
- **CONTROLLED GRANULE SIZE**
  Large granules provide good physical strength and minimal fines provide low pressure loss
- **COMPLIES WITH US FDA REGULATIONS**
  Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the US FDA

Prior to first use for potable water, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

HYDRAULIC PROPERTIES



PRESSURE LOSSS

The graph above shows the expected pressure loss of *ResinTech SIR-700* per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH

The graph above shows the expansion characteristics of *ResinTech SIR-700* as a function of flow rate at various temperatures.

160 Cooper Road • West Berlin, NJ 08091 USA • p: 856.768.9600 • f: 856.768.9601 • e: ixresin@resintech.com • w: resintech.com

RESINTECH® SIR-700

PHYSICAL PROPERTIES

Polymer Structure	Epoxy polyamine
Polymer Type	Gel
Functional Group	Mixed amines
Physical Form	Granules
Ionic Form as shipped	Acid chloride
Total Capacity	
Acid Chloride form	>2.1 meq/mL
Water Retention	
Acid Chloride form	52 to 58 percent
Approximate Shipping Weight	
Acid Chloride form	40 lbs./cu.ft.
Screen Size Distribution (U.S. mesh)	12 to 40
Maximum Fines Content (<50 mesh)	1 percent
Uniformity Coefficient	2 approx.
Resin Color	Amber to yellow

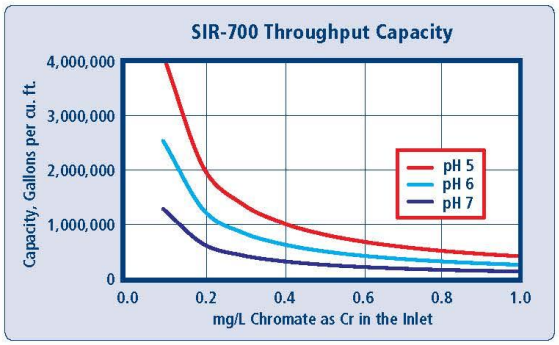
Note: Physical properties can be certified on a per lot basis, available upon request

SUGGESTED OPERATING CONDITIONS

Maximum continuous temperature	
Acid Chloride form	100°F
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	20 psi
Operating pH range	4 to 7 SU
Service flow rate	1 to 4 gpm/cu.ft.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.
For operation outside these guidelines, contact ResinTech Technical Support

APPLICATIONS

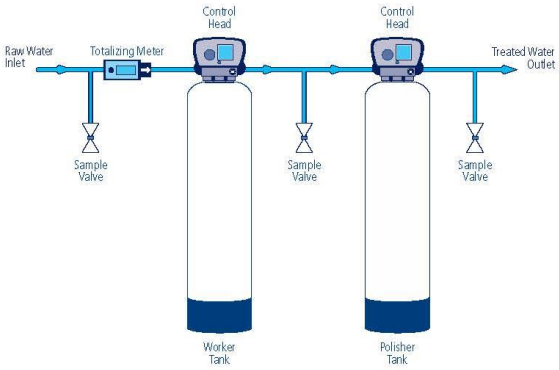


Capacity chart is based on waters with TDS less than 500 ppm and is for chromate alone, exclusive of other anions. Capacity shown is for the working bed in a worker polisher configuration. No engineering downgrade has been applied.

CHROMATE REMOVAL

RESINTECH SIR-700 is a unique weak base anion exchanger with a secondary hybrid capture mechanism for chromate. Under neutral to slightly acidic conditions, chromate is first exchanged into the resin, then reduced to trivalent chrome which covalently bonds to the resin backbone. Throughput capacity is many times greater than that provided by the ion exchange groups alone, allowing very high loading and infrequent change-outs. Because the hexavalent chromate reduction step is both time and pH dependent, it is the rate controlling step. Operation at pH greater than 6 requires low flow rates, rest periods, or periodic soak steps at lower pH to allow the reduction step to catch up. Capacities in excess of 5 lbs of chrome (as Cr) per cu. ft. of media are routinely achieved with SIR-700 when operated within it's pH/flow limits. SIR-700 is not affected by common ions such as nitrate, sulfate, or chloride but can be damaged or fouled by high levels of suspended solids, iron, manganese, chlorine, etc.

SUGGESTED SYSTEM CONFIGURATION FOR SIR-700



East Coast - West Berlin, NJ p:856.768.9600 • Midwest - Chicago, IL p:708.777.1167 • West Coast - Los Angeles, CA p:323.262.1600

LABORATORY ANALYSES

Layne
WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1246
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/16/16 17:20
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 02/22/16

Port D **16B1246-04 (Water)** **Sample Date:** 02/15/16 16:47 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	22	1.0	10	ug/L	02/15/16	02/15/16	1608387	

Port E2 **16B1246-05 (Water)** **Sample Date:** 02/15/16 16:50 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1608387	

Port F2 **16B1246-06 (Water)** **Sample Date:** 02/15/16 16:52 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1607610	

Port G2 **16B1246-07 (Water)** **Sample Date:** 02/15/16 16:55 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1607610	

Port H2 **16B1246-08 (Water)** **Sample Date:** 02/15/16 16:56 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1607610	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1244
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/16/16 17:20
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 02/23/16

Port D **16B1244-01 (Water)** **Sample Date:** 02/16/16 12:45 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	21	1.0	10	ug/L	02/16/16	02/16/16	1608387	

Port E-2 **16B1244-02 (Water)** **Sample Date:** 02/16/16 12:48 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/16/16	02/16/16	1608387	

Port F-2 **16B1244-03 (Water)** **Sample Date:** 02/16/16 12:51 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/16/16	02/16/16	1608387	

Port G-2 **16B1244-04 (Water)** **Sample Date:** 02/16/16 12:54 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/16/16	02/16/16	1608387	

Port H-2 **16B1244-05 (Water)** **Sample Date:** 02/16/16 12:59 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/16/16	02/16/16	1608387	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

16B1244

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

District Name: 70J

# of Containers Bacti / GP / Other — / — / 5

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

Sampler Name: Ruth Haldeman Report to DPH: Yes_____ No___X__

Sampler Signature: Ruth Haldeman

Sample Identification	Date	Time	Quantity	PH	Chromium 6								Hexavalent Chromium PILOT TEST COMMENTS
Port ~~A~~ D	2/16/16	1245	1		✓								Pre-Treat
Port E-2	2/16/16	1248	1		✓								Treated
Port F-2	2/16/16	1251	1		✓								Treated
Port G-2	2/16/16	1254	1		✓								Treated
Port H-2	2/16/16	1259	1		✓								Treated

Relinquished By:	Date/Time:	Received By:
Ruth Haldeman	2/16/16 1352	
Relinquished By:	Date/Time:	Received By:
	2-16-16 340p	
	2-16-16 15:20	

Rush 24hr___ 48hr___

On Ice Yes ✓ No___

Intact Yes ✓ No___

Temp 12.8°C Degrees Cel.

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1553
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/18/16 12:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/02/16

Port D **16B1553-01 (Water)** **Sample Date:** 02/17/16 13:02 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**21**	1.0	10	ug/L	02/17/16	02/17/16	1608396	

Port E-2 **16B1553-02 (Water)** **Sample Date:** 02/17/16 13:07 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/17/16	02/17/16	1608396	

Port F-2 **16B1553-03 (Water)** **Sample Date:** 02/17/16 13:10 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/17/16	02/17/16	1608396	

Port G-2 **16B1553-04 (Water)** **Sample Date:** 02/17/16 13:23 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/17/16	02/17/16	1608396	

Port H-2 **16B1553-05 (Water)** **Sample Date:** 02/17/16 13:27 **Sampler:** Ruth Haldenman

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/17/16	02/17/16	1608396	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

WECK LABORATORIES, INC.
Analytical Laboratory Service - Since 1964

Certificate of Analysis

Report Date: 02/25/16 15:43
Received Date: 02/19/16 09:28
Turnaround Time: 5 workdays

Project: 16B1553

Phones: (909) 825-7693
Fax: (909) 825-7696

P.O. #:

Attn: Gregory Nelson

Client: Clinical Laboratory of San Bernardino, Inc.
21881 Barton Road
Grand Terrace, CA 92313

Dear Gregory Nelson :

Enclosed are the results of analyses for samples received 2/19/2016 with the Chain of Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab ID: 6B19008-01 **Sample ID: Port E-2 / 16B1553-06** **Matrix:** Water
Sampled by: Client **Sampled: 02/17/16 13:35**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Formaldehyde	ND		30	ug/l	1	EPA 8315A	2/19/16	2/19/16 22:43	W6B1192	

Lab ID: 6B19008-02 **Sample ID: Port F-2 / 16B1553-07** **Matrix:** Water
Sampled by: Client **Sampled: 02/17/16 13:50**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Formaldehyde	ND		30	ug/l	1	EPA 8315A	2/19/16	2/19/16 23:01	W6B1192	

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Certificate of Analysis

Quality Control Section

Aldehydes by EPA Method 8315A - Quality Control

Batch W6B1192 - EPA 8315A

Blank (W6B1192-BLK1) — Prepared: 02/19/16 Analyzed: 02/19/16 21:12

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Formaldehyde		ND		ug/l					

LCS (W6B1192-BS1) — Prepared: 02/19/16 Analyzed: 02/19/16 21:30

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Formaldehyde		84.5		ug/l	100	85	44-173		

Matrix Spike (W6B1192-MS1) — Source: 6B19003-01 Prepared: 02/19/16 Analyzed: 02/19/16 21:48

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Formaldehyde	ND	92.5		ug/l	100	93	32-164		

Matrix Spike Dup (W6B1192-MSD1) — Source: 6B19003-01 Prepared: 02/19/16 Analyzed: 02/19/16 22:07

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Formaldehyde	ND	87.3		ug/l	100	87	32-164	6	20

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Certificate of Analysis

Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature
Contact: Brandon Gee
(Project Manager)

ELAP # 1132
LACSD # 10143
NELAC #4047-002 ORELAP

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

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SUBCONTRACT ORDER

Clinical Laboratory of San Bernardino

16B1553

6B19008

SENDING LABORATORY:	RECEIVING LABORATORY:
Clinical Laboratory of San Bernardino	Weck Lab, Analytical & Environmental
21881 Barton Road	Analytical & Environmental Svc 14859 E Clark Ave
Grand Terrace, CA 92313	Industry, CA 91745
Phone: 909.825.7693	Phone :(626) 336-2139
Fax: 909.825.7696	Fax: (626) 336-2634
Project Manager: Gregory Nelson	

Please email results to Project Manager: Gregory Nelson
[ ] glaubig@clinical-lab.com [ ] ybarra@clinical-lab.com [ ] styles@clinical-lab.com [✓] nelson@clinical-lab.com

California EDT transfer those samples with PS codes provided [ ] Yes [✓] No
Transfer File requested; log in with Element ID only [ ] Yes [✓] No

Turn Around Time [ ] 10 Days [✓] 5 Days [ ] Other __ Days
Subcontract Comments:

Analysis	Comments
Sample ID: Port E-2 / 16B1553-06	**Sampled: 02/17/16 13:35 PS Code:** **Water** **WTX ID:**
Formaldehyde EPA 8315	
Containers Supplied: 1 L Amber Glass (A)	
Sample ID: Port F-2 / 16B1553-07	**Sampled: 02/17/16 13:50 PS Code:** **Water** **WTX ID:**
Formaldehyde EPA 8315	
Containers Supplied: 1 L Amber Glass (A)	

1.9C.

Released By	Date / Time	Received By	Date / Time
[signature]	02/18/16 14:45	M. Clark	2/19/16 8:25
M Clark	2/19/16 9:25	[signature]	2/19/16 09:28

Chrome 6, Chain of Custody 16B1553

B

Clinical Lab of San Bernardino, Inc. 21881 Barton RDd., Grand Terrace, CA 92313 Phone (909) 825-7693 Fax (909) 825-7696	# of Containers ___/___/ 7 Bacti / GP / Other	County of San Bernardino SPECIAL DISTRICTS DEPARTMENT 12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323 Phone (760) 955-9885 Fax (760) 955-9685

Direct Contact: Steve Samaras

District Name: 70J Well 5

Direct Number: (760) 954-3262

Sampler Name: RUTH HALDEMAN

Report to DPH: Yes_____ No___X__

Sampler Signature: Ruth Haldeman

Hexavalent Chromium PILOT TEST

Sample Identification	Date	Time	Quantity	PH	Chromium 6	Formaldehyde						Buffered pH	COMMENTS
Port Valve D	2/17/16	1302	1		✓							9.50	Pre-Treat
Port E-2	2/17/16	1307	1		✓							9.50	Treated
Port F-2	2/17/16	1310	1		✓							9.50	Treated
Port G-2	2/17/16	1323	1		✓							9.48	Treated
Port H-2	2/17/16	1327	1		✓							9.50	Treated
PORT E2	2/17/16	1335	1			✓							
PORT F2	2/17/16	1350	1			✓							

Client/ID PPHCSD
[✓] Cr+6: Final pH ________
[ ] Metals
Analyst: KE
Date/Time 2-17-16/1630

Relinquished By:	Date/Time:	Received By:
Ruth Haldeman	2/17/16 1328 hrs	
[illegible]	2-17-16 230	[illegible]

K E [illegible] 2-15-16 1210

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 18.8° Degrees Cel.

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1624
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/19/16 13:17
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/02/16

Port D **16B1624-01 (Water)** **Sample Date:** 02/18/16 9:47 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**23**	1.0	10	ug/L	02/18/16	02/18/16	1608396	

Port E-2 **16B1624-02 (Water)** **Sample Date:** 02/18/16 9:50 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**1.8**	1.0	10	ug/L	02/18/16	02/18/16	1608396	

Port F-2 **16B1624-03 (Water)** **Sample Date:** 02/18/16 10:00 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**1.3**	1.0	10	ug/L	02/18/16	02/18/16	1608396	

Port G-2 **16B1624-04 (Water)** **Sample Date:** 02/18/16 10:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**2.7**	1.0	10	ug/L	02/18/16	02/18/16	1608396	

Port H-2 **16B1624-05 (Water)** **Sample Date:** 02/18/16 10:15 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**1.3**	1.0	10	ug/L	02/18/16	02/18/16	1608396	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

16B1624

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

District Name: 70J **Well 5**

# of Containers -/-/5 Bacti / GP / Other

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

Sampler Name: GERALD PALMER Report to DPH: Yes____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6							Buffered pH	Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	2-18-16	0947	1		X							9.38	Pre-Treat
Port E-2	" "	0950	1		X							9.40	Treated
Port F-2	" "	1000	1		X							9.42	Treated
Port G-2	" "	1010	1		X							9.47	Treated
Port H-2	" "	1015	1		X							9.41	Treated

Client/ID CSA70 J
[✓] Cr+6: Final pH _____
[ ] Metals
Analyst: KE
Date/Time 2-18-16 1650

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	2-18-16 1405	Hope Rodd
	2-19-16 / 13:17	

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 8.7° Degrees Cel.

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B2140
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/26/16 12:40
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/08/16

Port D **16B2140-01 (Water)** **Sample Date:** 02/25/16 10:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	23	1.0	10	ug/L	02/25/16	02/26/16	1609336	

Port E-2 **16B2140-02 (Water)** **Sample Date:** 02/25/16 10:20 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/25/16	02/26/16	1609336	

Port F-2 **16B2140-03 (Water)** **Sample Date:** 02/25/16 11:00 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/25/16	02/25/16	1609336	

Port G-2 **16B2140-04 (Water)** **Sample Date:** 02/25/16 11:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/25/16	02/25/16	1609336	

Port H-2 **16B2140-05 (Water)** **Sample Date:** 02/25/16 11:30 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/25/16	02/26/16	1609336	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

16B2140

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
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County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

District Name: 70J **Well 5**

# of Containers -/-/5 Bacti / GP / Other

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

Sampler Name: GERALD PALMER Report to DPH: Yes____ No__X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6	Buffered pH	Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	2-25-16	1010	1		X	9.45	Pre-Treat
Port E-2	" "	1020	1		X	9.46	Treated
Port F-2	" "	1100	1		X	9.49	Treated
Port G-2	" "	1110	1		X	9.40	Treated
Port H-2	" "	1130	1		X	9.42	Treated

Client/ID Well 5
[✓] Cr+6: Final pH _____
[ ] Metals
Analyst: KE
Date/Time 2-25-16/1600

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	2-25-16 1430	KE
Relinquished By:	Date/Time:	Received By:
	2-26-16 1240	H Gtez

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 10.7° Degrees Cel.

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16C0443
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 03/04/16 11:57
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/14/16

Port D **16C0443-01 (Water)** **Sample Date:** 03/03/16 9:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	22	1.0	10	ug/L	03/03/16	03/03/16	1610049	

Port E-2 **16C0443-02 (Water)** **Sample Date:** 03/03/16 10:05 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/03/16	03/03/16	1610049	

Port F-2 **16C0443-03 (Water)** **Sample Date:** 03/03/16 10:20 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/03/16	03/03/16	1610049	

Port G-2 **16C0443-04 (Water)** **Sample Date:** 03/03/16 10:40 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/03/16	03/03/16	1610049	

Port H-2 **16C0443-05 (Water)** **Sample Date:** 03/03/16 11:00 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/03/16	03/03/16	1610049	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

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16C0443

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

# of Containers ___/___/5 Bacti / GP / Other

Direct Contact: Steve Samaras

Direct Number: (760) 954-3262

District Name: 70J Well 5

Sampler Name: GERALD PALMER Report to DPH: Yes____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6							Buffered	Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	3-3-16	0945	1		X							9.36	Pre-Treat
Port E-2	" "	1005	1		X							9.41	Treated
Port F-2	" "	1020	1		X							9.41	Treated
Port G-2	" "	1040	1		X							9.46	Treated
Port H-2	" "	1100	1		X							9.46	Treated

Client/ID CSA 70 J - Well 5
[ ] Cr+6: Final pH _____
[ ] Metals
Analyst: KE
Date/Time 03 03 16 1040

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	3-3-16 1350	V. G.
[illegible]	3-4-16 11:57	[illegible]

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 9.7° Degrees Cel.

WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16C0991
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 03/10/16 13:35
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/15/16

Port Valve D **16C0991-01 (Water)** **Sample Date:** 03/10/16 9:30 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**24**	1.0	10	ug/L	03/10/16	03/10/16	1611091	

Port E-2 **16C0991-02 (Water)** **Sample Date:** 03/10/16 9:40 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/10/16	03/10/16	1611091	

Port F-2 **16C0991-03 (Water)** **Sample Date:** 03/10/16 10:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/10/16	03/10/16	1611091	

Port G-2 **16C0991-04 (Water)** **Sample Date:** 03/10/16 10:30 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**1.0**	1.0	10	ug/L	03/10/16	03/10/16	1611091	

Port H-2 **16C0991-05 (Water)** **Sample Date:** 03/10/16 10:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/10/16	03/10/16	1611091	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

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Chrome 6, Chain of Custody

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16C0991

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

District Name: 70J Well 5

Sampler Name: GERALD PALMER Report to DPH: Yes____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6								Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	3-10-16	0930	1		X								Pre-Treat
Port E-2	" "	0940	1		X								Treated
Port F-2	" "	1010	1		X								Treated
Port G-2	" "	1030	1		X								Treated
Port H-2	" "	1045	1		X								Treated
													PLEASE RUSH
													~~RUSH~~ 72HR
													RESULTS
													STEVE SAMARAS

Relinquished By: Gerald Palmer Date/Time: 3-10-16 1110 Received By: K. Gil.

Relinquished By: K. Gil. Date/Time: 3-10-16 1335 Received By:

Rush 24hr____ 48hr____

On Ice Yes✓ No____

Intact Yes✓ No____

Temp 15.9° Degrees Cel.

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16C1524
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 03/17/16 14:00
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/22/16

Port Valve D **16C1524-01 (Water)** **Sample Date:** 03/17/16 9:15 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	24	1.0	10	ug/L	03/17/16	03/17/16	1612056	

Port E-2 **16C1524-02 (Water)** **Sample Date:** 03/17/16 9:30 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/17/16	03/17/16	1612056	

Port F-2 **16C1524-03 (Water)** **Sample Date:** 03/17/16 10:00 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/17/16	03/17/16	1612056	

Port G-2 **16C1524-04 (Water)** **Sample Date:** 03/17/16 10:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/17/16	03/17/16	1612056	

Port H-2 **16C1524-05 (Water)** **Sample Date:** 03/17/16 10:20 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/17/16	03/17/16	1612056	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

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16C1524

Chrome 6, Chain of Custody

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County of San Bernardino
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Phone (760) 955-9885 Fax (760) 955-9685

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

District Name: 70J Well 5

Sampler Name: GERALD PALMER Report to DPH: Yes____ No__X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6								Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	3-17-16	0915	1		X								Pre-Treat
Port E-2	" "	0930	1		X								Treated
Port F-2	" "	1000	1		X								Treated
Port G-2	" "	1010	1		X								Treated
Port H-2	" "	1020	1		X								Treated
													PLEASE PUT 72 HRS RUSH SEND RESULTS TO STEVE SAMARAS
													THANK YOU!

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	3-17-16 1045	V.S.L.
Relinquished By:	Date/Time:	Received By:
	3-17-16 / 14:00	

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 12.4° Degrees Cel.

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16C1993
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 03/24/16 14:50
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 03/29/16

Port Valve D **16C1993-01 (Water)** **Sample Date:** 03/24/16 9:40 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	26	1.0	10	ug/L	03/24/16	03/24/16	1613330	

Port E-2 **16C1993-02 (Water)** **Sample Date:** 03/24/16 9:55 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/24/16	03/24/16	1613330	

Port F-2 **16C1993-03 (Water)** **Sample Date:** 03/24/16 10:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/24/16	03/24/16	1613330	

Port G-2 **16C1993-04 (Water)** **Sample Date:** 03/24/16 10:25 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/24/16	03/24/16	1613330	

Port H-2 **16C1993-05 (Water)** **Sample Date:** 03/24/16 10:40 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/24/16	03/24/16	1613330	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
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16c 1993

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

District Name: 70J Well 5

5other

Sampler Name: GERALD PALMER Report to DPH: Yes_____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6								Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	3-24-16	0940	1		X								Pre-Treat
Port E-2	" "	0955	1		X								Treated
Port F-2	" "	1010	1		X								Treated
Port G-2	" "	10:25	1		X								Treated
Port H-2	" "	1040	1		X								Treated
													PLEASE RUSH 72 HRS. SEND RESULTS TO STEVE SAMARAS THANK YOU!

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	3-24-16 1100	K. G. L.
K. G. L.	3-24-16 1450	

Rush 24hr___ 48hr___ 72 X

On Ice Yes ✓ No___

Intact Yes ✓ No___

Temp 14.1° Degrees Cel.

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16C2445
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 03/31/16 12:38
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/01/16

Port Valve D **16C2445-01 (Water)** **Sample Date:** 03/31/16 9:40 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	22	1.0	10	ug/L	03/31/16	04/01/16	1614045	

Port E-2 **16C2445-02 (Water)** **Sample Date:** 03/31/16 9:55 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/31/16	04/01/16	1614045	

Port F-2 **16C2445-03 (Water)** **Sample Date:** 03/31/16 10:25 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/31/16	04/01/16	1614045	

Port G-2 **16C2445-04 (Water)** **Sample Date:** 03/31/16 10:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/31/16	04/01/16	1614045	

Port H-2 **16C2445-05 (Water)** **Sample Date:** 03/31/16 10:55 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	03/31/16	04/01/16	1614045	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
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16C2445+

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

District Name: 70J Well 5

50 thru

Sampler Name: GERALD PALMER Report to DPH: Yes____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6								Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	3-31-16	0940	1		X								Pre-Treat
Port E-2	" "	0955	1		X								Treated
Port F-2	" "	1025	1		X								Treated
Port G-2	" "	1045	1		X								Treated
Port H-2	" "	1055	1		X								Treated
													PLEASE RUSH RESULTS ASAP TO STEVE SAMARAS THANK YOU!

Relinquished By: Gerald Palmer Date/Time: 3-31-16 1115 Received By: K. S. C.

Relinquished By: Date/Time: 3-31-16 / 1235 Received By: H. Grez 16.4°C

Rush 24hr ✓ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 11.4° Degrees Cel.

WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D0514
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 04/07/16 14:25
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/20/16

Port Valve D **16D0514-01 (Water)** **Sample Date:** 04/07/16 6:50 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Alkalinity, Total (as CaCO3)	SM 2320 B	**82**	mg/L	5.0		04/11/16	04/11/16	1615478	
Bicarbonate (HCO3)	SM 2320 B	**92**	mg/L	5.0		04/11/16	04/11/16	1615478	
Chloride (Cl)	EPA 300.0	**10**	mg/L	1.0	500	04/07/16	04/07/16	1615469	
Specific Conductance (E.C.)	SM 2510B	**220**	umhos/cm	2.0	1600	04/11/16	04/11/16	1615478	
Fluoride (F)	EPA 300.0	**0.35**	mg/L	0.10	2	04/07/16	04/07/16	1615469	
Nitrate as N (NO3-N)	EPA 300.0	**1.8**	mg/L	0.40	10	04/07/16	04/07/16	1615469	
pH (Lab)	SM 4500HB	**8.6**	pH Units			04/07/16	04/07/16	1615478	
Sulfate (SO4)	EPA 300.0	**5.0**	mg/L	0.50	500	04/11/16	04/11/16	1616066	
Total Filterable Residue/TDS	SM 2540C	**130**	mg/L	5.0	1000	04/12/16	04/13/16	1616076	
Metals									
Chromium (+6)	EPA 218.6	**23**	ug/L	1.0	10	04/07/16	04/07/16	1615298	
Chromium (Total Cr)	SM3113-B	**20**	ug/L	20	50	04/15/16	04/15/16	1616432	

Gregory Nelson

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D0514
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 04/07/16 14:25
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/20/16

Port E-2 **16D0514-02 (Water)** **Sample Date:** 04/07/16 7:15 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Alkalinity, Total (as CaCO3)	SM 2320 B	**72**	mg/L	5.0		04/11/16	04/11/16	1615478	
Bicarbonate (HCO3)	SM 2320 B	**88**	mg/L	5.0		04/11/16	04/11/16	1615478	
Chloride (Cl)	EPA 300.0	**11**	mg/L	1.0	500	04/07/16	04/07/16	1615469	
Specific Conductance (E.C.)	SM 2510B	**230**	umhos/cm	2.0	1600	04/11/16	04/11/16	1615478	
Fluoride (F)	EPA 300.0	**0.32**	mg/L	0.10	2	04/07/16	04/07/16	1615469	
Nitrate as N (NO3-N)	EPA 300.0	**2.0**	mg/L	0.40	10	04/07/16	04/07/16	1615469	
pH (Lab)	SM 4500HB	**7.8**	pH Units			04/07/16	04/07/16	1615478	
Sulfate (SO4)	EPA 300.0	**14**	mg/L	0.50	500	04/07/16	04/07/16	1615469	
Total Filterable Residue/TDS	SM 2540C	**130**	mg/L	5.0	1000	04/12/16	04/13/16	1616076	
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/07/16	04/07/16	1615298	
Chromium (Total Cr)	SM3113-B	ND	ug/L	10	50	04/15/16	04/15/16	1616432	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D0514
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 04/07/16 14:25
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/20/16

Port F-2 **16D0514-03 (Water)** **Sample Date:** 04/07/16 7:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Alkalinity, Total (as CaCO3)	SM 2320 B	**72**	mg/L	5.0		04/11/16	04/11/16	1615478	
Bicarbonate (HCO3)	SM 2320 B	**87**	mg/L	5.0		04/11/16	04/11/16	1615478	
Chloride (Cl)	EPA 300.0	**12**	mg/L	1.0	500	04/07/16	04/07/16	1615469	
Specific Conductance (E.C.)	SM 2510B	**230**	umhos/cm	2.0	1600	04/11/16	04/11/16	1615478	
Fluoride (F)	EPA 300.0	**0.33**	mg/L	0.10	2	04/07/16	04/07/16	1615469	
Nitrate as N (NO3-N)	EPA 300.0	**2.0**	mg/L	0.40	10	04/07/16	04/07/16	1615469	
pH (Lab)	SM 4500HB	**7.8**	pH Units			04/07/16	04/07/16	1615478	
Sulfate (SO4)	EPA 300.0	**14**	mg/L	0.50	500	04/07/16	04/07/16	1615469	
Total Filterable Residue/TDS	SM 2540C	**130**	mg/L	5.0	1000	04/12/16	04/13/16	1616076	
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/07/16	04/07/16	1615298	
Chromium (Total Cr)	SM3113-B	ND	ug/L	10	50	04/15/16	04/15/16	1616432	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D0514
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 04/07/16 14:25
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/20/16

Port G-2 **16D0514-04 (Water)** **Sample Date:** 04/07/16 8:30 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Alkalinity, Total (as CaCO3)	SM 2320 B	**68**	mg/L	5.0		04/11/16	04/11/16	1615478	
Bicarbonate (HCO3)	SM 2320 B	**83**	mg/L	5.0		04/11/16	04/11/16	1615478	
Chloride (Cl)	EPA 300.0	**12**	mg/L	1.0	500	04/07/16	04/07/16	1615469	
Specific Conductance (E.C.)	SM 2510B	**230**	umhos/cm	2.0	1600	04/11/16	04/11/16	1615478	
Fluoride (F)	EPA 300.0	**0.34**	mg/L	0.10	2	04/07/16	04/07/16	1615469	
Nitrate as N (NO3-N)	EPA 300.0	**2.0**	mg/L	0.40	10	04/07/16	04/07/16	1615469	
pH (Lab)	SM 4500HB	**7.8**	pH Units			04/07/16	04/07/16	1615478	
Sulfate (SO4)	EPA 300.0	**14**	mg/L	0.50	500	04/07/16	04/07/16	1615469	
Total Filterable Residue/TDS	SM 2540C	**150**	mg/L	5.0	1000	04/12/16	04/13/16	1616076	
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/07/16	04/07/16	1615298	
Chromium (Total Cr)	SM3113-B	ND	ug/L	10	50	04/15/16	04/15/16	1616432	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D0514
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 04/07/16 14:25
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/20/16

Port H-2 **16D0514-05 (Water)** **Sample Date:** 04/07/16 9:10 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Alkalinity, Total (as CaCO3)	SM 2320 B	**70**	mg/L	5.0		04/11/16	04/11/16	1615478	
Bicarbonate (HCO3)	SM 2320 B	**86**	mg/L	5.0		04/11/16	04/11/16	1615478	
Chloride (Cl)	EPA 300.0	**11**	mg/L	1.0	500	04/07/16	04/07/16	1615469	
Specific Conductance (E.C.)	SM 2510B	**230**	umhos/cm	2.0	1600	04/11/16	04/11/16	1615478	
Fluoride (F)	EPA 300.0	**0.34**	mg/L	0.10	2	04/07/16	04/07/16	1615469	
Nitrate as N (NO3-N)	EPA 300.0	**2.0**	mg/L	0.40	10	04/07/16	04/07/16	1615469	
pH (Lab)	SM 4500HB	**7.8**	pH Units			04/07/16	04/07/16	1615478	
Sulfate (SO4)	EPA 300.0	**13**	mg/L	0.50	500	04/07/16	04/07/16	1615469	
Total Filterable Residue/TDS	SM 2540C	**130**	mg/L	5.0	1000	04/12/16	04/13/16	1616076	
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/07/16	04/07/16	1615298	
Chromium (Total Cr)	SM3113-B	ND	ug/L	10	50	04/15/16	04/15/16	1616432	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D0514
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 04/07/16 14:25
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/20/16

pH (Lab) was analyzed ASAP but received and analyzed past the 15 minute hold time.

ND Analyte NOT DETECTED at or above the reporting limit

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

16D0514

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

District Name: 70J Well 5

# of Containers –/–/15 Bacti / GP / Other

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

Sampler Name: GERALD PALMER
Report to DPH: Yes_____ No__X__
Sampler Signature: [signature]

Hexavalent Chromium PILOT TEST

Sample Identification	Date	Time	Quantity	PH	Chromium 6	TOTAL CHROMIUM	ALKALINITY, HCO3, CL, EC, F, NO3, PA, SO4, TDS					COMMENTS
Port Valve D	4-7-16	0650	3		X	X	X					Pre-Treat
Port E-2	" "	0715	3		X	X	X					Treated
Port F-2	" "	0745	3		X	X	X					Treated
Port G-2	" "	0830	3		X	X	X					Treated
Port H-2	" "	0910	3		X	X	X					Treated

Relinquished By:	Date/Time:	Received By:
[signature]	4-7-16 1125	[signature]
[signature]	4-7-16 1425	[signature] H Crez

Rush 24hr____ 48hr____

On Ice Yes ✓ No____
Intact Yes ✓ No____
Temp 11.6° Degrees Cel.

WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1234
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/25/16

Port Valve D **16D1234-01 (Water)** **Sample Date:** 04/14/16 12:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (Total Cr)	EPA 200.7	**19**	10	50	ug/L	04/22/16	04/22/16	1617360	

Port E-2 **16D1234-02 (Water)** **Sample Date:** 04/14/16 12:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	04/22/16	04/22/16	1617360	

Port F-2 **16D1234-03 (Water)** **Sample Date:** 04/14/16 12:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	04/22/16	04/22/16	1617360	

Port G-2 **16D1234-04 (Water)** **Sample Date:** 04/14/16 12:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	04/22/16	04/22/16	1617360	

Port H-2 **16D1234-05 (Water)** **Sample Date:** 04/14/16 12:45 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	04/22/16	04/22/16	1617360	

Drum-sulfuric **16D1234-06 (Water)** **Sample Date:** 04/14/16 0:00 **Sampler:** Gerald Palmer

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Sulfate (SO4)	EPA 300.0	**72000**	130	500	mg/L	04/18/16	04/18/16	1617067	

ND Analyte NOT DETECTED at or above the reporting limit

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1234
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/25/16

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

16D1234

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

B

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

District Name: 70J Well 5

6 other

Sampler Name: GERALD Palmer Report to DPH: Yes_____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6	TOTAL CHROMIUM	SULFURIC ACID *	TEST FOR SULPHATES					Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	4-14-16	1245	1			X							Pre-Treat
Port E-2	" "	" "	1			X							Treated
Port F-2	" "	" "	1			X							Treated
Port G-2	" "	" "	1			X							Treated
Port H-2	" "	" "	1			X							Treated
DRUM-SULFURIC * ACID *	" "		1				X	X					

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	4-14-16 1545	K. S. L.
	4-15-16 13:10	

Rush 24hr____ 48hr____

On Ice Yes✓ No____

Intact Yes✓ No____

Temp 13.6° Degrees Cel.

WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1231
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/28/16

Port Valve D **16D1231-01 (Water)** **Sample Date:** 04/14/16 13:00 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	**21**	ug/L	1.0	10	04/14/16	04/14/16	1616499	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1231
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/28/16

Port E-2 **16D1231-02 (Water)** **Sample Date:** 04/14/16 13:15 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/14/16	04/14/16	1616499	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1231
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/28/16

Port F-2 **16D1231-03 (Water)** **Sample Date:** 04/14/16 13:30 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/14/16	04/14/16	1616499	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1231
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/28/16

Port G-2 **16D1231-04 (Water)** **Sample Date:** 04/14/16 13:40 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/14/16	04/14/16	1616499	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1231
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/28/16

Port H-2 **16D1231-05 (Water)** **Sample Date:** 04/14/16 13:50 **Sampler:** Gerald Palmer

Analyte	Method	Result	Units	Rep. Limit	MCL	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	ug/L	1.0	10	04/14/16	04/14/16	1616499	

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16D1231
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test Well 5	Received: 04/15/16 13:10
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 04/28/16

ND Analyte NOT DETECTED at or above the reporting limit

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Chrome 6, Chain of Custody

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

1GD1231

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

A

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

District Name: 70J Well 5

5 other

Sampler Name: GERALD PALMER Report to DPH: Yes_____ No___X__

Sampler Signature: Gerald Palmer

Sample Identification	Date	Time	Quantity	PH	Chromium 6							Buffered pH	Hexavalent Chromium PILOT TEST COMMENTS
Port Valve D	4-14-16	1300	1		X							5.41	Pre-Treat
Port E-2	" "	1315	1		X							9.44	Treated
Port F-2	" "	1330	1		X							9.52	Treated
Port G-2	" "	1340	1		X							9.50	Treated
Port H-2	" "	1350	1		X							9.47	Treated

Client/ID CSA70 Zone J Wells
[✓] Cr+6: Final pH _____
[ ] Metals
Analyst: KE
Date/Time 4-14-16 1630

Relinquished By:	Date/Time:	Received By:
Gerald Palmer	4-14-16 1545	K. E.
Relinquished By:	Date/Time:	Received By:
	4-15-16 1315	

Rush 24hr____ 48hr____

On Ice Yes_✓_ No____

Intact Yes_✓_ No____

Temp 11.8° Degrees Cel.

WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

Client:	County of San Bernardino - CSA 70 Zone - J	**Contact:**	Steve Samaras
	12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	**Phone:**	(760) 955-9885
	Victorville CA, 92393	**Fax:**	(760) 955-9685
		System:	3610125
Project:	CSA 70 Zone-J		
Sub Project:	Well 5 Hexavalent Chromium Pilot Test		
Sampler:	Ruth Haldenman		
Sampled:	04/14/16		
Received:	04/15/16 13:10		
Reported:	04/27/16		

RESULTS

Laboratory ID	Sample Time	Sample Location	Plate Count CFU/ml
16D1242-27	15:30	Blank	<1 [1]
16D1242-28	15:30	E	> 5700 [1] [2]
16D1242-29	15:30	F Spigot	840 [1] [2]

1 = Analysis performed outside of recommended 8 hour hold time but within required 24 hour hold time.

2 = Notified Steve Samaras 4/17/16 1310

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

WECK LABORATORIES, INC.
Analytical Laboratory Service - Since 1964

Certificate of Analysis

Report Date: 04/27/16 14:39
Received Date: 04/18/16 10:50
Turnaround Time: 7 workdays

Project: 16D1242

Phones: (909) 825-7693
Fax: (909) 825-7696

P.O. #:

Attn: Gregory Nelson

Client: Clinical Laboratory of San Bernardino, Inc.
21881 Barton Road
Grand Terrace, CA 92313

Dear Gregory Nelson :

Enclosed are the results of analyses for samples received 4/18/2016 with the Chain of Custody document. The samples were received in good condition, at 11.4 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab ID: 6D18038-01 **Sample ID: Port E 0/ 16D1242-01** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	18000	390	990	mg/kg dry	500	EPA 6010B	4/18/16	4/20/16 12:33	W6D0909	

Lab ID: 6D18038-02 **Sample ID: Port E 1/ 16D1242-02** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	6000	77	200	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 12:36	W6D0909	

Lab ID: 6D18038-03 **Sample ID: Port E 3/ 16D1242-03** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	720	7.7	20	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 12:39	W6D0909	

Lab ID: 6D18038-04 **Sample ID: Port E 6/ 16D1242-04** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	280	7.7	20	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 12:54	W6D0909	

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www.wecklabs.com

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Certificate of Analysis

Lab ID: 6D18038-05 **Sample ID: Port F 0/ 16D1242-05** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	3500	10	26	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 12:57	W6D0909	

Lab ID: 6D18038-06 **Sample ID: Port F 1/ 16D1242-06** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	5000	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:01	W6D0909	

Lab ID: 6D18038-07 **Sample ID: Port F 3/ 16D1242-07** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	870	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:04	W6D0909	

Lab ID: 6D18038-08 **Sample ID: Port F 6/ 16D1242-08** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	270	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:07	W6D0909	

Lab ID: 6D18038-09 **Sample ID: Port G 0/ 16D1242-09** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	17000	77	200	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:10	W6D0909	

Lab ID: 6D18038-10 **Sample ID: Port G 1/ 16D1242-10** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	5900	77	200	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:13	W6D0909	

Lab ID: 6D18038-11 **Sample ID: Port G 3/ 16D1242-11** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	870	77	200	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:16	W6D0909	

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Lab ID: 6D18038-12 **Sample ID: Port G 6/ 16D1242-12** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	310	77	200	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:19	W6D0909	

Lab ID: 6D18038-13 **Sample ID: Port H 0/ 16D1242-13** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	15000	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:22	W6D0909	

Lab ID: 6D18038-14 **Sample ID: Port H 1/ 16D1242-14** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	5100	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:34	W6D0909	

Lab ID: 6D18038-15 **Sample ID: Port H 3/ 16D1242-15** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	1000	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:37	W6D0909	

Lab ID: 6D18038-16 **Sample ID: Port H 6/ 16D1242-16** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 15:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	410	100	260	mg/kg dry	100	EPA 6010B	4/18/16	4/20/16 13:40	W6D0909	

Lab ID: 6D18038-17 **Sample ID: Port E 9/ 16D1242-17** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	180	7.7	20	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 13:43	W6D0909	

Lab ID: 6D18038-18 **Sample ID: Port E 11/ 16D1242-18** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	140	7.7	20	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 13:46	W6D0909	

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Lab ID: 6D18038-19 **Sample ID: Port F 9/ 16D1242-19** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	130	1.0	2.6	mg/kg dry	1	EPA 6010B	4/18/16	4/20/16 14:11	W6D0909	

Lab ID: 6D18038-20 **Sample ID: Port F 11/ 16D1242-20** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	90	1.0	2.6	mg/kg dry	1	EPA 6010B	4/18/16	4/20/16 14:17	W6D0909	

Lab ID: 6D18038-21 **Sample ID: Port G 9/ 16D1242-21** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	200	7.7	20	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 15:37	W6D0910	

Lab ID: 6D18038-22 **Sample ID: Port G 11/ 16D1242-22** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	160	7.7	20	mg/kg dry	10	EPA 6010B	4/18/16	4/20/16 15:41	W6D0910	

Lab ID: 6D18038-23 **Sample ID: Port H 9/ 16D1242-23** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	190	1.0	2.6	mg/kg dry	1	EPA 6010B	4/18/16	4/20/16 16:03	W6D0910	

Lab ID: 6D18038-24 **Sample ID: Port H 11/ 16D1242-24** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 16:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/27/16	4/27/16 14:32	W6D1494	A-01
Chromium, Total	140	1.0	2.6	mg/kg dry	1	EPA 6010B	4/18/16	4/20/16 16:06	W6D0910	

Lab ID: 6D18038-25 **Sample ID: Rep E, G/ 16D1242-25** **Matrix:** Solid
Sampled by: Client **Sampled: 04/14/16 00:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	50.4		0.100	% by Weight	1	EPA 160.3M	4/25/16	4/26/16 18:06	W6D1335	

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Lab ID: 6D18038-26 **Sample ID:** Rep F, H/ 16D1242-26 **Matrix:** Solid
Sampled by: Client **Sampled:** 04/14/16 00:00

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
% Solids	39.1		0.100	% by Weight	1	EPA 160.3M	4/25/16	4/26/16 18:06	W6D1335	

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Quality Control Section

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W6D1335 - EPA 160.3M

Duplicate (W6D1335-DUP1) Source: 6D25018-01 Prepared: 04/25/16 Analyzed: 04/26/16 18:06

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
% Solids	62.1	63.0		% by Weight				2	20

Metals (Non-Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W6D0909 - EPA 6010B

Blank (W6D0909-BLK1) Prepared: 04/18/16 Analyzed: 04/20/16 12:21

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total		ND		mg/kg wet					

LCS (W6D0909-BS1) Prepared: 04/18/16 Analyzed: 04/20/16 12:24

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total		44.6		mg/kg wet	50.0	89	80-120		

Matrix Spike (W6D0909-MS1) Source: 6D18038-04 Prepared: 04/18/16 Analyzed: 04/20/16 13:55

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total	281	400		mg/kg dry	98.2	121	75-125		

Matrix Spike Dup (W6D0909-MSD1) Source: 6D18038-04 Prepared: 04/18/16 Analyzed: 04/20/16 13:58

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total	281	400		mg/kg dry	98.7	120	75-125	0.05	20

Batch W6D0910 - EPA 6010B

Blank (W6D0910-BLK1) Prepared: 04/18/16 Analyzed: 04/20/16 14:51

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total		ND		mg/kg wet					

LCS (W6D0910-BS1) Prepared: 04/18/16 Analyzed: 04/20/16 14:54

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total		46.1		mg/kg wet	50.0	92	80-120		

Matrix Spike (W6D0910-MS1) Source: 6D18038-23 Prepared: 04/18/16 Analyzed: 04/20/16 15:57

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total	186	352	MS-02	mg/kg dry	123	135	75-125		

Matrix Spike Dup (W6D0910-MSD1) Source: 6D18038-23 Prepared: 04/18/16 Analyzed: 04/20/16 16:00

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chromium, Total	186	329		mg/kg dry	125	114	75-125	7	20

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Case Narrative:

Dry weight values for samples 25 and 26 were designated per client request to moisture correct results for samples 1-24.

Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature

Contact: Brandon Gee
(Project Manager)

ELAP # 1132
LACSD # 10143
NELAC #4047-002 ORELAP

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

A-01	Dry Weight values based on results from analysis of samples 16D1242-25, 26.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

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SUBCONTRACT ORDER

Clinical Laboratory of San Bernardino 6d18038

16D1242

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Clinical Laboratory of San Bernardino	Weck Lab, Analytical & Environmental
21881 Barton Road	Analytical & Environmental Svc 14859 E Clark Ave
Grand Terrace, CA 92313	Industry, CA 91745
Phone: 909.825.7693	Phone :(626) 336-2139
Fax: 909.825.7696	Fax: (626) 336-2634
Project Manager: Gregory Nelson	

Please email results to Project Manager: Gregory Nelson
[ ] glaubig@clinical-lab.com [ ] ybarra@clinical-lab.com [ ] styles@clinical-lab.com [✓] nelson@clinical-lab.com

California EDT transfer those samples with PS codes provided [ ] Yes [✓] No
Transfer File requested; log in with Element ID only [ ] Yes [✓] No

Turn Around Time [✓] 10 Days [ ] 5 Days [ ] Other __ Days
Subcontract Comments:

Please moisture correct all Cr results using % solid results from samples 25, 26

Analysis		**Comments**
Sample ID: Port E 0 / 16D1242-01	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**	
Sub-Contract Analysis - Special		Cr by EPA 6010
Containers Supplied: Plastic - Misc (A)		
Sample ID: Port E 1 / 16D1242-02	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**	
Sub-Contract Analysis - Special		Cr by EPA 6010
Containers Supplied: Plastic - Misc (A)		
Sample ID: Port E 3 / 16D1242-03	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**	
Sub-Contract Analysis - Special		Cr by EPA 6010
Containers Supplied: Plastic - Misc (A)		
Sample ID: Port E 6 / 16D1242-04	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**	
Sub-Contract Analysis - Special		Cr by EPA 6010
Containers Supplied: Plastic - Misc (A)		

Released By	04/18/16 08:20 Date / Time	Received By	4/18/16 9:00 Date / Time
Released By	4/18/16 Date / Time	Received By	4/18.16 1050 Date / Time

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SUBCONTRACT ORDER

Clinical Laboratory of San Bernardino 6J18038

16D1242

Analysis	Comments
Sample ID: Port F 0 / 16D1242-05	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port F 1 / 16D1242-06	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port F 3 / 16D1242-07	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port F 6 / 16D1242-08	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port G 0 / 16D1242-09	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port G 1 / 16D1242-10	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	

Released By	Date / Time	Received By	Date / Time
	04/18/16 08:20		4/18/16 9:00
	4/18/16		4.18.16 1050

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SUBCONTRACT ORDER 6D18038

Clinical Laboratory of San Bernardino

16D1242

Analysis	Comments
Sample ID: Port G 3 / 16D1242-11	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port G 6 / 16D1242-12	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port H 0 / 16D1242-13	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port H 1 / 16D1242-14	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port H 3 / 16D1242-15	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port H 6 / 16D1242-16	**Sampled: 04/14/16 15:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	

Released By	04/18/16 08:20 Date / Time	Received By	4/18/16 9:00 Date / Time
Released By	4/18/16 Date / Time	Received By	4.18.16 1050 Date / Time

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SUBCONTRACT ORDER

Clinical Laboratory of San Bernardino

16D1242

Analysis	Comments
Sample ID: Port E 9 / 16D1242-17	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port E 11 / 16D1242-18	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port F 9 / 16D1242-19	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port F 11 / 16D1242-20	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port G 9 / 16D1242-21	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	
Sample ID: Port G 11 / 16D1242-22	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied:	
Plastic - Misc (A)	

Released By	Date / Time	Received By	Date / Time
	04/18/16 08:20		4/18/16 9:00
	4/18/16		4.18.16 1050

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SUBCONTRACT ORDER

Clinical Laboratory of San Bernardino

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Analysis	Comments
Sample ID: Port H 9 / 16D1242-23	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied: Plastic - Misc (A)	
Sample ID: Port H 11 / 16D1242-24	**Sampled: 04/14/16 16:00 PS Code:** **Solid** **WTX ID:**
Sub-Contract Analysis - Special	Cr by EPA 6010
Containers Supplied: Plastic - Misc (A)	
Sample ID: Rep E, G / 16D1242-25	**Sampled: 04/14/16 00:00 PS Code:** **Solid** **WTX ID:**
Total Solid SM 2540-B (on Solid) Sub	Use to moisture correct results for 01,02,03,04,09,10,11,12,17,18,21,22
Containers Supplied: Plastic - Misc (A)	
Sample ID: Rep F, H / 16D1242-26	**Sampled: 04/14/16 00:00 PS Code:** **Solid** **WTX ID:**
Total Solid SM 2540-B (on Solid) Sub	Use to moisture correct results for 05,06,07,08,13,14,15,16,19,20,23,24
Containers Supplied: Plastic - Misc (A)	

Released By	04/18/16 08:20 Date / Time	Received By	4/18/16 9:00 Date / Time
Released By	4/18/16 Date / Time	Received By	4.18.16 1050 Date / Time

1c.4C

Chrome 6, Chain of Custody

16D 1242

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

26 Bags
3 plates

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

* use as dry wt for other samples

Direct Contact: Steve Samaras

Direct Number: (760) 954-3262

District Name: 70J Well 5

Sampler Name: Ruth Haldeman   Report to DPH: Yes____ No__X__

Sampler Signature: Ruth Haldeman

Hexavalent Chromium PILOT TEST

Sample Identification	Date	Time	Quantity	PH	~~Chromium 6~~	total Cr 200.7 I	total Cr 200.8 I Both Glass	dry weight*	total coliform	CrT EPA 6010	% Solid	HPC	COMMENTS
Port Valve D													Pre-Treat
Port E 0, 1, 3, 6	4/14/16	1500	4 bag			✓				X			Treated
Port F 0, 1, 3, 6	↓	↓	4 bag			✓				X			Treated
Port G 0, 1, 3, 6	↓	↓	4 bag			✓				X			Treated
Port H 0, 1, 3, 6	↓	↓	4 bag			✓				X			Treated
E 9, 11	4/14/16	1600	2 bag				✓			X			
F 9, 11	↓	↓	2 bag				✓			X			
G 9, 11	↓	↓	2 bag				✓			X			
H 9, 11	↓	↓	2 bag				✓			X			
Rep E, G			1 bag					✓			X		
Rep F, H			1 bag					✓			X		
Blank	4/14/16	1530	1 plate						✓			X	
E	↓	↓	1 plate						✓			X	
E spigot	↓	↓	1 plate						✓			X	

Relinquished By:	Date/Time:	Received By:
Ruth Haldeman	4/14/16 1700 hrs	4-15-16 8:40 [signature]
[signature]	4-15-16 / 13:10	[signature]

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 12.1°C Degrees Cel.

Layne
WATER · MINERAL · ENERGY

Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1246
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/16/16 17:20
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 02/26/16

Port D **16B1246-04 (Water)** **Sample Date:** 02/15/16 16:47 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	22	1.0	10	ug/L	02/15/16	02/15/16	1608387	

Port E2 **16B1246-05 (Water)** **Sample Date:** 02/15/16 16:50 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1608387	

Port F2 **16B1246-06 (Water)** **Sample Date:** 02/15/16 16:52 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1607610	

Port G2 **16B1246-07 (Water)** **Sample Date:** 02/15/16 16:55 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1607610	

Port H2 **16B1246-08 (Water)** **Sample Date:** 02/15/16 16:56 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Metals									
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	02/15/16	02/15/16	1607610	

Well Spigot **16B1246-09 (Water)** **Sample Date:** 02/15/16 16:25 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses									
Non-Filterable Residue/TSS	SM 2540D	ND	5.0		mg/L	02/22/16	02/23/16	1609150	TSS-01
Metals									
Iron (Fe)	EPA 200.7	ND	100	300	ug/L	02/17/16	02/17/16	1608200	
Manganese (Mn)	EPA 200.7	ND	20	50	ug/L	02/17/16	02/17/16	1608200	

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1246
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/16/16 17:20
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 02/26/16

Port E2 **16B1246-10 (Water)** **Sample Date:** 02/15/16 16:35 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Volatile Organic Analyses									
Vinyl Chloride (VC)	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
Trichlorofluoromethane (FREON 11)	EPA 524.2	ND	5.0	150	ug/L	02/18/16	02/23/16	1608423	
1,1-Dichloroethylene (1,1-DCE)	EPA 524.2	ND	0.50	6	ug/L	02/18/16	02/23/16	1608423	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	10	1200	ug/L	02/18/16	02/23/16	1608423	
Dichloromethane (Methylene Chloride)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
trans-1,2-Dichloroethylene (t-1,2-DCE)	EPA 524.2	ND	0.50	10	ug/L	02/18/16	02/23/16	1608423	
Methyl tert-Butyl Ether	EPA 524.2	ND	3.0	13	ug/L	02/18/16	02/23/16	1608423	
1,1-Dichloroethane (1,1-DCA)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
cis-1,2-Dichloroethylene (c-1,2-DCE)	EPA 524.2	ND	0.50	6	ug/L	02/18/16	02/23/16	1608423	
Chloroform (Trichloromethane)	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
Carbon Tetrachloride	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
1,1,1-Trichloroethane (1,1,1-TCA)	EPA 524.2	ND	0.50	200	ug/L	02/18/16	02/23/16	1608423	
Benzene	EPA 524.2	ND	0.50	1	ug/L	02/18/16	02/23/16	1608423	
1,2-Dichloroethane (1,2-DCA)	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
Trichloroethylene (TCE)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
1,2-Dichloropropane	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
Bromodichloromethane	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
Toluene	EPA 524.2	ND	0.50	150	ug/L	02/18/16	02/23/16	1608423	
Tetrachloroethylene (PCE)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
1,1,2-Trichloroethane (1,1,2-TCA)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
Dibromochloromethane	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
Monochlorobenzene (Chlorobenzene)	EPA 524.2	ND	0.50	70	ug/L	02/18/16	02/23/16	1608423	
Ethyl Benzene	EPA 524.2	ND	0.50	300	ug/L	02/18/16	02/23/16	1608423	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
m,p-Xylene	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
o-Xylene	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
Styrene	EPA 524.2	ND	0.50	100	ug/L	02/18/16	02/23/16	1608423	
Bromoform	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
1,4-Dichlorobenzene (p-DCB)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
1,2-Dichlorobenzene (o-DCB)	EPA 524.2	ND	0.50	600	ug/L	02/18/16	02/23/16	1608423	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
Total 1,3-Dichloropropene	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
Total Trihalomethanes (TTHM)	EPA 524.2	ND	1.0	80	ug/L	02/18/16	02/23/16	1608423	
Total Xylenes (m,p & o)	EPA 524.2	ND	0.50	1750	ug/L	02/18/16	02/23/16	1608423	
Surrogate: 1,2-Dichlorobenzene-d4	*EPA 524.2*	*87 %*				*02/18/16*	*02/23/16*	*1608423*	
Surrogate: Bromofluorobenzene	*EPA 524.2*	*83 %*				*02/18/16*	*02/23/16*	*1608423*	

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1246
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/16/16 17:20
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 02/26/16

Port F2 **16B1246-11 (Water)** **Sample Date:** 02/15/16 16:40 **Sampler:** J. Fish

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Volatile Organic Analyses									
Vinyl Chloride (VC)	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
Trichlorofluoromethane (FREON 11)	EPA 524.2	ND	5.0	150	ug/L	02/18/16	02/23/16	1608423	
1,1-Dichloroethylene (1,1-DCE)	EPA 524.2	ND	0.50	6	ug/L	02/18/16	02/23/16	1608423	
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 524.2	ND	10	1200	ug/L	02/18/16	02/23/16	1608423	
Dichloromethane (Methylene Chloride)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
trans-1,2-Dichloroethylene (t-1,2-DCE)	EPA 524.2	ND	0.50	10	ug/L	02/18/16	02/23/16	1608423	
Methyl tert-Butyl Ether	EPA 524.2	ND	3.0	13	ug/L	02/18/16	02/23/16	1608423	
1,1-Dichloroethane (1,1-DCA)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
cis-1,2-Dichloroethylene (c-1,2-DCE)	EPA 524.2	ND	0.50	6	ug/L	02/18/16	02/23/16	1608423	
Chloroform (Trichloromethane)	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
Carbon Tetrachloride	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
1,1,1-Trichloroethane (1,1,1-TCA)	EPA 524.2	ND	0.50	200	ug/L	02/18/16	02/23/16	1608423	
Benzene	EPA 524.2	ND	0.50	1	ug/L	02/18/16	02/23/16	1608423	
1,2-Dichloroethane (1,2-DCA)	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
Trichloroethylene (TCE)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
1,2-Dichloropropane	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
Bromodichloromethane	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
Toluene	EPA 524.2	ND	0.50	150	ug/L	02/18/16	02/23/16	1608423	
Tetrachloroethylene (PCE)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
1,1,2-Trichloroethane (1,1,2-TCA)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
Dibromochloromethane	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
Monochlorobenzene (Chlorobenzene)	EPA 524.2	ND	0.50	70	ug/L	02/18/16	02/23/16	1608423	
Ethyl Benzene	EPA 524.2	ND	0.50	300	ug/L	02/18/16	02/23/16	1608423	
cis-1,3-Dichloropropene	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
m,p-Xylene	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
o-Xylene	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
trans-1,3-Dichloropropene	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
Styrene	EPA 524.2	ND	0.50	100	ug/L	02/18/16	02/23/16	1608423	
Bromoform	EPA 524.2	ND	1.0		ug/L	02/18/16	02/23/16	1608423	
1,1,2,2-Tetrachloroethane	EPA 524.2	ND	0.50		ug/L	02/18/16	02/23/16	1608423	
1,4-Dichlorobenzene (p-DCB)	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
1,2-Dichlorobenzene (o-DCB)	EPA 524.2	ND	0.50	600	ug/L	02/18/16	02/23/16	1608423	
1,2,4-Trichlorobenzene	EPA 524.2	ND	0.50	5	ug/L	02/18/16	02/23/16	1608423	
Total 1,3-Dichloropropene	EPA 524.2	ND	0.50	0.5	ug/L	02/18/16	02/23/16	1608423	
Total Trihalomethanes (TTHM)	EPA 524.2	ND	1.0	80	ug/L	02/18/16	02/23/16	1608423	
Total Xylenes (m,p & o)	EPA 524.2	ND	0.50	1750	ug/L	02/18/16	02/23/16	1608423	
Surrogate: 1,2-Dichlorobenzene-d4	*EPA 524.2*	*100 %*				*02/18/16*	*02/23/16*	*1608423*	
Surrogate: Bromofluorobenzene	*EPA 524.2*	*81 %*				*02/18/16*	*02/23/16*	*1608423*	

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Clinical Laboratory of San Bernardino, Inc.

County of San Bernardino - CSA 70 Zone - J	Project: CSA 70 Zone-J	Work Order: 16B1246
12402 Industrial Blvd., Bldg. D6 (P.O Box 5004)	Sub Project: Hexavalent Chromium Pilot Test	Received: 02/16/16 17:20
Victorville CA, 92393	Project Manager: Steve Samaras	Reported: 02/26/16

TSS-01 Insufficient sample volume was available for compliance analysis.

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

WECK LABORATORIES, INC.
Analytical Laboratory Service - Since 1964

Certificate of Analysis

Report Date: 02/25/16 08:06
Received Date: 02/17/16 12:50
Turnaround Time: 5 workdays

Project: 16B1246

Phones: (909) 825-7693
Fax: (909) 825-7696

P.O. #:

Attn: Gregory Nelson

Client: Clinical Laboratory of San Bernardino, Inc.
21881 Barton Road
Grand Terrace, CA 92313

Dear Gregory Nelson :

Enclosed are the results of analyses for samples received 2/17/2016 with the Chain of Custody document. The samples were received in good condition, at 2.3 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab ID: 6B17073-01 **Sample ID: Port D / 16B1246-01** **Matrix:** Water
Sampled by: Client **Sampled: 02/15/16 16:27**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
N-Nitrosodimethylamine	ND		2.0	ng/l	1	EPA 521	2/18/16	2/19/16 21:16	W6B1091	
Surrogate: NDMA-d6	*86 %*		*70-130*	%	Concentration: *21.4*					

Lab ID: 6B17073-02 **Sample ID: Port E-2 / 16B1246-02** **Matrix:** Water
Sampled by: Client **Sampled: 02/15/16 16:37**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
N-Nitrosodimethylamine	ND		2.0	ng/l	1	EPA 521	2/18/16	2/19/16 21:44	W6B1091	
Surrogate: NDMA-d6	*101 %*		*70-130*	%	Concentration: *25.4*					

Lab ID: 6B17073-03 **Sample ID: Port F-2 / 16B1246-03** **Matrix:** Water
Sampled by: Client **Sampled: 02/15/16 16:45**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
N-Nitrosodimethylamine	ND		2.0	ng/l	1	EPA 521	2/18/16	2/19/16 22:11	W6B1091	
Surrogate: NDMA-d6	*105 %*		*70-130*	%	Concentration: *26.3*					

Weck Laboratories, Inc 14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

Certificate of Analysis

Quality Control Section

Nitrosamines by CI GC/MS/MS, EPA 521 - Quality Control

Batch W6B1091 - EPA 521

Blank (W6B1091-BLK1) — **Prepared: 02/18/16 Analyzed: 02/19/16 11:14**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: NDMA-d6		*24.4*		ng/l	*25.0*	*97*	*70-130*		
N-Nitrosodimethylamine		ND		ng/l					

LCS (W6B1091-BS1) — **Prepared: 02/18/16 Analyzed: 02/19/16 11:42**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: NDMA-d6		*18.8*		ng/l	*25.0*	*75*	*70-130*		
N-Nitrosodimethylamine		1.67		ng/l	2.00	83	50-150		

LCS Dup (W6B1091-BSD1) — **Prepared: 02/18/16 Analyzed: 02/19/16 13:31**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: NDMA-d6		*21.7*		ng/l	*25.0*	*87*	*70-130*		
N-Nitrosodimethylamine		1.96		ng/l	2.00	98	50-150	16	50

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Certificate of Analysis

Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature
Contact: Brandon Gee
(Project Manager)

ELAP # 1132
LACSD # 10143
NELAC #4047-002 ORELAP

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

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SUBCONTRACT ORDER

Clinical Laboratory of San Bernardino

16B1246 6B17073

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Clinical Laboratory of San Bernardino	Weck Lab, Analytical & Environmental
21881 Barton Road	Analytical & Environmental Svc 14859 E Clark Ave
Grand Terrace, CA 92313	Industry, CA 91745
Phone: 909.825.7693	Phone :(626) 336-2139
Fax: 909.825.7696	Fax: (626) 336-2634
Project Manager: Gregory Nelson	

Please email results to Project Manager: Gregory Nelson
[ ] glaubig@clinical-lab.com [ ] ybarra@clinical-lab.com [ ] styles@clinical-lab.com [✓] nelson@clinical-lab.com

California EDT transfer those samples with PS codes provided [ ] Yes [✓] No
Transfer File requested; log in with Element ID only [ ] Yes [✓] No

Turn Around Time [ ] 10 Days [✓] 5 Days [ ] Other __ Days
Subcontract Comments:

Analysis	**Comments**
Sample ID: Port D / 16B1246-01	**Sampled: 02/15/16 16:27 PS Code:** **Water** **WTX ID:**
521 NDMA	
Containers Supplied:	
1 L Amber Glass (A)	
Sample ID: Port E-2 / 16B1246-02	**Sampled: 02/15/16 16:37 PS Code:** **Water** **WTX ID:**
521 NDMA	
Containers Supplied:	
1 L Amber Glass (A)	
Sample ID: Port F-2 / 16B1246-03	**Sampled: 02/15/16 16:45 PS Code:** **Water** **WTX ID:**
521 NDMA	
Containers Supplied:	
1 L Amber Glass (A)	

Released By	02/17/16 07:50 Date / Time	Received By	2-17-16 / 11:09 Date / Time
Released By	12-17-16 / 12:50 Date / Time	Received By	2/17/16 12:50 2.3°C Date / Time

Chrome 6, Chain of Custody

16B1246

Clinical Lab of San Bernardino, Inc.
21881 Barton RDd., Grand Terrace, CA 92313
Phone (909) 825-7693 Fax (909) 825-7696

County of San Bernardino
SPECIAL DISTRICTS DEPARTMENT
12402 Industrial Blvd., Bldg D, Suite 6, Victorville, CA 92323
Phone (760) 955-9885 Fax (760) 955-9685

A

# of Containers ___/___/12+3 Bottles Bacti / GP / Other

District Name: 70J CSA 70 J Pilot

Direct Contact: Steve Samaras
Direct Number: (760) 954-3262

Sampler Name: J Fish

Sampler Signature:

Report to DPH: Yes____ No__X__

Sample Identification	Date	Time	Quantity	PH	Chromium 6		NDMA	TSS	Fe, Mn	VOC		Buffered pH	Hexavalent Chromium PILOT TEST COMMENTS
Port D	2/15/16	1627	1L			✓	✓						Pre-Treat
Port E-2	2/15/16	1637	1L				✓						Treated
Port F-2	2/15/16	1645	1L				✓						Treated
~~Port G-2~~													Treated
~~Port H-2~~													Treated
PORT D	2/15/16	1647	100 mL		✓							9.48	
PORT E2	2/15/16	1650	100 mL		✓	✓						9.41	Client/ID CSA 70 J
PORT F2	2/15/16	1652	100 mL		✓							9.50	[✓] Cr+6: Final pH
PORT G2	2/15/16	1655	100 mL		✓							9.43	[ ] Metals
PORT H2	2/15/16	1656	100 mL		✓							9.50	Analyst: KE
Well Spigot	2/15/16	1625	500 mL						✓				Date/Time 2-16-16 | 1455
Well Spigot	2/15/16	1623	500 mL					✓					
PORT E2	2/15/16	1635	2 vials							✓			
PORT F2	2/15/16	1641	2 vials							✓			

Relinquished By: Date/Time: 2-16-16 900 Received By:

Relinquished By: Date/Time: 2-16-16/1720 Received By:

Rush 24hr____ 48hr____

On Ice Yes ✓ No____

Intact Yes ✓ No____

Temp 7.5° Degrees Cel.