Well Completion Report For The Construction
And Testing Of An Upper Floridan Aquifer Test Well for ...

NED SUNBRIDGE SITE

Osceola County, Florida

FEBRUARY 2017

Prepared for

Tavistock East Services, LLC
6900 Tavistock Lakes Blvd, Suite #200
Orlando, Florida 32827

Prepared by

DEVO Engineering
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CONSULTING GEOTECHNICAL ENGINEER
FLORIDA REGISTRATION NO. 48303

Geotechnical Engineering • Ground Water Modeling • Hydrogeologic/Geo-Environmental Engineering

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Date: February 24, 2017	**Devo's Project No.** 17-925.02

To:
TAVISTOCK EAST SERVICES, LLC
6900 Tavistock Lakes Blvd., Suite #200
Orlando, Florida 32827
direct: 407-816-6592; email: lkaufmann@tavistock.com

attention: **LARRY KAUFMANN, P.E.**
DIRECTOR of DEVELOPMENT

NED Sunbridge Site - Well Completion Report For The Construction and Testing Of An Upper Floridan Aquifer Test Well

Osceola County, Florida

Dear Mr. Kaufmann:

We are pleased to submit the attached Well Completion Report which documents the construction and testing of an Upper Floridan Aquifer Test Well. Following construction, the well was tested for water quality and also aquifer response to pumping. Based on the results of our testing, water quality is considered to be very good and the aquifer is considered to have a moderately high transmissivity. Based on the test results, it is our opinion that the vicinity of the test well will be very good for the installation of potable supply wells.

We trust that the attached documentation will be sufficient for your needs. Please feel free to contact us if there are any questions or if any clarifications are needed.

Sincerely,

David H. Kincaid, P.G.
Florida Registration No. 1111
Date: February 24, 2017

Devo Seereeram, Ph.D., P.E.
Florida Registration No. 48303
Date: February 24, 2017

Robert Oros, P.G.
Consulting Hydrogeologist
Florida Registration No. 145
Date: February 24, 2017

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1.0 INTRODUCTION

Devo Engineering was retained to provide hydrogeologic support services for a planned potable well field to be located within the Sunbridge development. A test well was constructed in order to test water quality and aquifer hydraulic characteristics in the proposed area of the potable wells.

As shown on Figure 1 (attached) on the USGS Narcoossee, Florida 7.5 minute series quadrangle map, the test well is located within Section 2 of Township 24S, Range 31E in Osceola County, Florida. Based on information provided by Donald W. McIntosh & Associates, Inc, the test well is located at the following coordinates:

Latitude North: 28°20'37.532619"
Longitude West: 81°11'16.976272"

Construction of the 6-inch diameter test well was initiated in late December 2016 and completed in January of 2017, with aquifer hydraulic testing and water quality sampling performed during February of 2017.

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of the project was to investigate groundwater quality and aquifer hydraulic characteristics within the Upper Floridan aquifer at the client selected location. Our proposed scope of services included the following:

① **Project Review, Coordination And Client Assistance** - this task included the review of available well completion reports, initial planning of test well construction, solicitation and review of drilling quotes, attending an on-site inspection meeting and assisting the Client with contractor selection.

② **Construction Oversight** - this task included field observations and ongoing review of drill cuttings and the drillers log during drilling and consulting with the water well contractor. Based on the formation materials encountered, the most suitable depth was selected for the well casing depth. Following the installation of the well casing, oversight also included field water quality testing and water level measurements during drilling of the open borehole interval.

③ **Field Water Quality And Aquifer Hydraulic Testing During Drilling** - during drilling of the open borehole, water quality samples were collected at 20-ft intervals and field tested for chloride, specific conductance, total dissolved solids (TDS), pH and temperature. In addition, water levels were measured to evaluate the relative specific capacity of the well. The collected data was used to evaluate water quality and available production zones.

④ **Aquifer Hydraulic Testing** - Following well construction and development, the Client's water well contractor performed an 8-hour pump test. During pumping, the flow rate and water levels were measured in the well. The collected information was then used to evaluate aquifer hydraulic properties (drawdown, specific capacity and transmissivity) within the completed well and the Upper Floridan aquifer.

⑤ **Laboratory Water Quality Testing** - Following the completion of the pump test, water samples were collected and submitted to a certified laboratory for analyses of State Primary and Secondary Drinking Water Parameters.

⑥ **Data Interpretation, Evaluation And Report Preparation** - Following the completion of well construction and testing, collected data has evaluated and summarized in this report.

3.0 WELL CONSTRUCTION

Parsons Drilling Corporation (State Water Well Contractor #7287), performed all well permitting, construction and performance of the aquifer pumping test. The well was permitted through the Osceola County Health Department (permit #49-WP-I727438). The Well Construction permit is provided in Appendix A.

During construction, the 6-inch diameter steel well casing was installed down to a depth of 271 ft, where hard limestone was encountered. The casing was installed using a combination of mud rotary drilling and driving with a mechanical hammer. Following driving the casing into limestone formation, the open borehole was then drilled down to the termination depth of 540 ft below land surface using the mud-rotary and rotary reverse-air drilling methods. Based on the lithology encountered, undifferentiated sand, silt and clay underlie the site from land surface down to a depth of 40 ft below land surface. Below these surficial layers, layers of green clay, clayey sand and shell associated with the Hawthorn Group were encountered from the 40 ft depth down to a depth of 270 ft. Below this depth, rock formation consisting of cream to tan colored Eocene Age, Ocala Group and Avon Park limestone was encountered

from 270-460 ft below land surface. Below this depth, the site vicinity is underlain by brown to dark brown colored, hard, Avon Park dolostone from the 460 ft depth down to at least the 540 ft depth where the well was terminated. The Lithologic Log and Contractor Well Completion Report are provided in Appendix B.

During drilling of the open borehole interval, relative specific capacity and field water quality were tested at 20-ft depth intervals. Drawdown and specific capacity were measured in the well during airlifting and water samples were collected from the airlift discharge in order to identify potential production zones and water quality trends in the aquifer. A table summarizing the relative specific capacity and water quality results and a graph showing specific capacity are provided in Appendix C. As indicated by the highlighted area on the table, measured drawdown decreased and the well's specific capacity increased significantly at the 460 ft depth. The increase is also shown on the graph. Based on the decrease in drawdown and increase in specific capacity, the primary water bearing (production) zone is estimated to occur within the 460-540 ft depth interval. It is also noted that water quality parameters tested during drilling (including specific conductance, total dissolved solids, pH and chloride) indicated that water quality remained stable and well within potable water ranges.

4.0 WELL DEVELOPMENT

Following construction, the replacement well was developed by airlifting and then by pumping until the discharge was free of sediment and turbidity had been reduced. Final development was performed during the pumping test.

5.0 AQUIFER HYDRAULIC TESTING (PUMPING TEST)

Following well development, an 8-hour, constant rate pumping test was performed to evaluate the hydraulic characteristics of the Upper Floridan aquifer. Following the installation of a temporary 5 H.P. submersible pump, water levels and the discharge flow rate were measured at timed intervals over an 8-hour period. During pumping, field water quality parameters including temperature, specific conductance, total dissolved solids, salinity, pH, chloride and turbidity were also measured. A summary of the pumping test and field water quality results is provided in Appendix D. As indicated on the summary table, the well was pumped continuously at a rate of 115 gallons per minute (gpm) for 480 minutes. During

pumping, measured drawdown in the well ranged from only 0.88-0.69 ft and the final drawdown at the end of pumping was measured at only 0.69 ft. Transmissivity was estimated from the specific capactiy test results according to a method describe by Walton (1970). The Transmissivity estimate, along with calculations and an explanation of the method used are provided in Appendix E. As shown, an estimated aquifer Transmissivity of 633,000 gpd/ft was calculated using the Walton method.

An additional method, developed by the South Florida Water Management District (SFWMD) was also used to estimate aquifer Transmissivity within the Upper Floridan aquifer (Shaw & Trost, 1984). SFWMD estimated Transmissivity values calculated using a straight line method in which residual drawdown (recovery data) is plotted on semi-log paper against the the ratio of t/t', where t is the time since pumping started and t' is the time since pumping stopped. SFWMD then compared the Transmissivity estimated from the recovery tests to the corrected specific capacity of the same well measured during pumping. For their study, corrected specific capacity means specific capacity calculated after the casing friction losses are subtracted from the drawdown measurements. At a pumping rate of 115 gpm, the drawdown after 8 hours of pumping was 0.69 feet and the casing friction loss at this rate was 0.21, therefore, the corrected drawdown was 0.48 feet. Using this method, the corrected specific capacity measured at the test well site was 240 gpm/ft and the Transmissivity was estimated to be 730,000 gpd/ft. The graph displaying Transmissivity vs. Corrected Specific Capacity along with a map of the SFWMD study area is included in Appendix E. This method is considered valid only for the upper Floridan aquifer withing the study area.

Using the two methods described herein, the Transmissivity within the upper Floridan Aquifer is estimated to range from 633,000 gdp/ft to 730,000 gpd/ft. Based on the pumping test results, the upper Floridan Aquifer within the site vicinity is considered to have a moderately high Transmissivity.

6.0 WATER QUALITY TESTING

As discussed previously, water quality samples were collected during the constant rate pumping test and the samples were tested in the field. Based on the field water quality test results measured during the pumping test, all measured field parameters were stable and well within potable ranges.

Water quality samples were collected from a sampling spigot plumbed into the pump discharge pipe. The collected samples were placed in laboratory supplied containers and

transported to Flowers Chemical Laboratories, Inc for analyses of State Primary and Secondary Drinking Water Standards. Laboratory data sheets are provided in Appendix F. Based on the laboratory data, all tested parameters were either below laboratory method detection limits or were well within Primary and Secondary Drinking Water Standards in accordance with Chapter 62-550, F.A.C. A review of these data indicates that the water is of very good quality. During the pumping test, there was a slight but noticeable hydrogen sulfide odor.

A Geochemical Pattern Analysis (GPA) of the water sample collected for laboratory analyses was performed based on the method developed Frazee (1982). Results of the GPA are provided in Appendix G, along with laboratory data documenting the cation-anion balance used for the GPA. Based on the GPA, the water is Calcium Bicarbonate, type II, fresh recharge water. According to Frazee (1982), the groundwater at the test well site represents the purest and youngest form of limestone water with a strong relationship to karst and dominant sand ridges as the sources of recharge. According to this water type, the travel distance from the recharge source is relatively short and is indicative of shallow source water.

Based on the description of the water type and source water, (shallow source water & fresh recharge with a short travel distance) the low sulfate concentration measured in the laboratory water sample is most likely the result of direct recharge from sand ridges at the site and in the near site vicinity. A review of published hydrologic data (Butler, 2000), indicates that the site is in a good recharge area for the upper Floridan aquifer. According to the SFWMD, the site vicinity lies in an area mapped as a "good recharge area" (Appendix G).

7.0 REFERENCECS

Butler, D., 2000, Kissimmee Basin Water Supply Plan, South Florida Water Management District, Appendix H, Ground Water Modeling Reports, I. Osceola Regional Model.

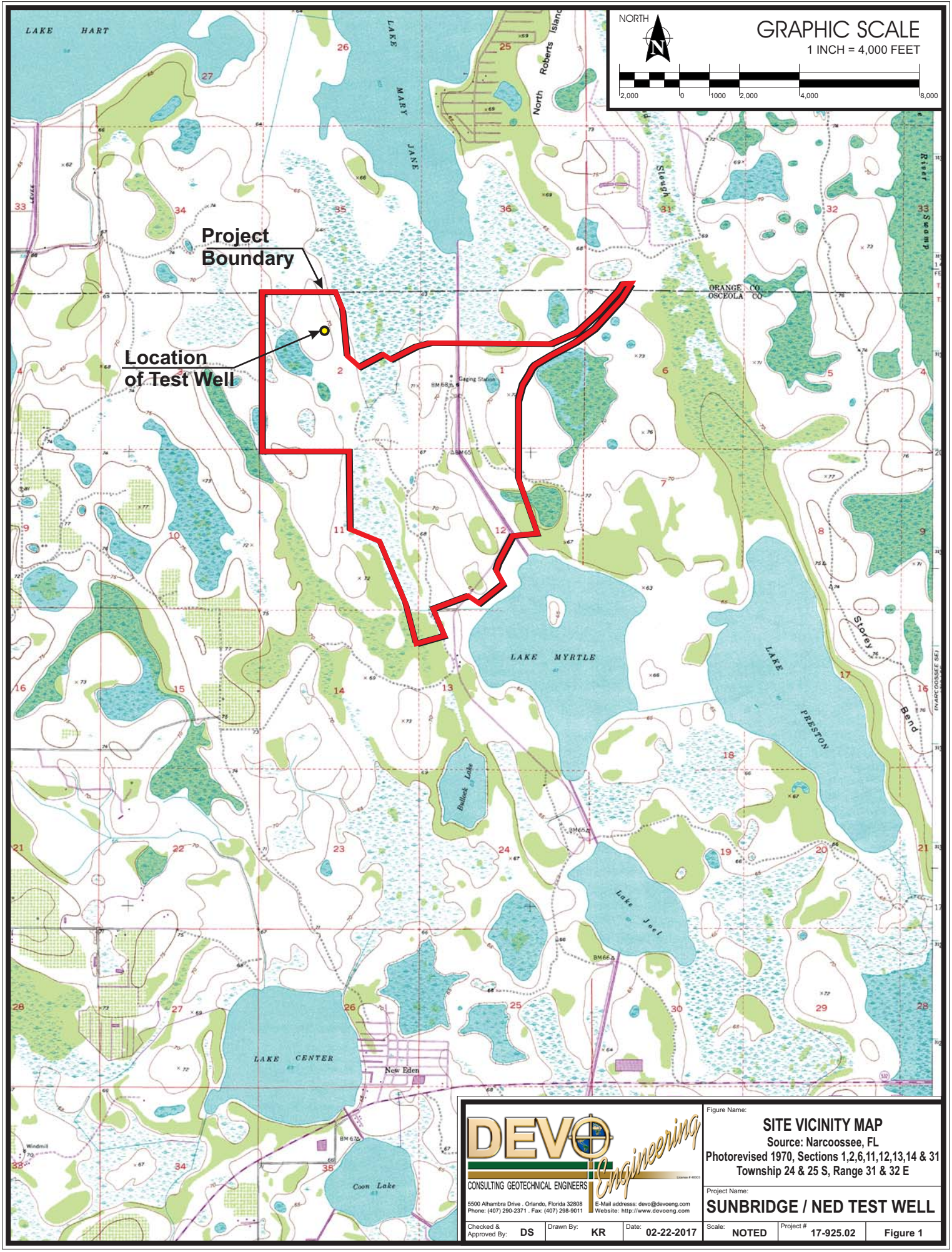
Frazee, J. M., 1982, Geochemical Pattern Analysis: Method of Describing the Southeastern Limestone Regional Aquifer System, In Proceedings of Southeast Groundwater Conference 1981, Georgia Southwestern College, Americus, Georgia, pp. 46-58.

Piper, A. M., 1944, A Graphic Prodedure in the Geochemical Interpretation of Water Analyses, Transactions of the American Geophysical.

Shaw J.E. & Trost S.M., 1984, Hydrogeology Of The Kissimmee Planning Area, South Florida Water Management District, Technical Publication #84-1, DRE-188, Part 1-Text.

Walton W.C., 1970, Groundwater Resource Evaluation, Chapter 5 - Well Design Criteria, Construction, Production Tests, And Maintenance, Section 5.11 Specific Capacity Data, McGraw-Hill Book Company, New York, New York, p. 315.

FIGURES



DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS
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Phone: (407) 290-2371 . Fax: (407) 298-9011
E-Mail addresss: devo@devoeng.com
Website: http://www.devoeng.com

Figure Name:
SITE VICINITY MAP
Source: Narcoossee, FL
Photorevised 1970, Sections 1,2,6,11,12,13,14 & 31
Township 24 & 25 S, Range 31 & 32 E

Project Name:
SUNBRIDGE / NED TEST WELL

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #	
DS	KR	02-22-2017	NOTED	17-925.02	Figure 1

APPENDIX A
OSCEOLA COUNTY
WELL CONSTRUCTION PERMIT

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
■ Delegated Authority (If Applicable) Osceola County Health Dept

PLEASE FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

The water well contractor is responsible for completing this form and forwarding the permit application to the appropriate delegated authority where applicable.

Permit No. 49-WP-172 7438
Florida Unique ID
Permit Stipulations Required (See Attached)
62-524 Quad No. ____ Delineation No. ____
CUP/WUP Application No. ____

1. Tavistock Services East, LLC (*Owner, Legal Name if Corporation) 6900 Tavistock Lakes Blvd., Suite 200 (*Address) Orlando (*City) FL (*State) 32827 (*ZIP) (407) 816-6592 (*Telephone Number)
2. Cyrils Dr., Kenansville (*Well Location - Address, Road Name or Number, City)
3. 2-25-31-0000-0010-0000 (*Parcel ID No. (PIN) or Alternate Key (Circle One)) Lot ____ Block ____ Unit ____
4. 2 (*Section or Land Grant) 25 (*Township) 31 (*Range) Osceola (*County) ____ (Subdivision) Check if 62-524: ___ Yes ___ No
5. Eric Parsons (*Water Well Contractor) 7287 (*License Number) (352) 242-6197 (*Telephone Number) pdrillingcorp@aol.com (E-mail Address)
6. 657 Bennett Trl. (*Water Well Contractor's Address) Geneva (City) FL (State) 32732 (ZIP)

7. *Type of Work: ✓ Construction ___Repair ___Modification ___Abandonment (*Reason for Repair, Modification, or Abandonment)
8. *Number of Proposed Wells 1
9. *Specify Intended Use(s) of Well(s):

___Domestic ___Bottled Water Supply ___Public Water Supply (Limited Use/DOH) ___Public Water Supply (Community or Non-Community/DEP) ___Class I Injection
___Landscape Irrigation ___Recreation Area Irrigation
___Agricultural Irrigation ___Livestock ___Nursery Irrigation ___Commercial/Industrial ___Golf Course Irrigation
___Site Investigation ___Monitoring ✓Test ___Earth-Coupled Geothermal ___HVAC Supply ___HVAC Return

Class V Injection: ___Recharge ___Commercial/Industrial Disposal ___Aquifer Storage and Recovery ___Drainage
Remediation: ___Recovery ___Air Sparge ___Other (Describe)
___Other (Describe) (Note: Not all types of wells are permitted by a given permitting authority)

Date Stamp
Official Use Only

10. *Distance from Septic System if ≤ 200 ft. n/a 11. Facility Description Undeveloped land 12. Estimated Start Date 12-30-16
13. *Estimated Well Depth 550 ft. *Estimated Casing Depth 315 ft. *Primary Casing Diameter 6 in. Open Hole: From ___ To ___ ft.
14. Estimated Screen Interval: From ___ To ___ ft.
15. *Primary Casing Material: ✓Black Steel ___Galvanized ___PVC ___Stainless Steel ___Not Cased ___Other:
16. Secondary Casing: ___Telescope Casing ___Liner ___Surface Casing Diameter ___ in.
17. Secondary Casing Material: ___Black Steel ___Galvanized ___PVC ___Stainless Steel ___Other
18. *Method of Construction, Repair, or Abandonment: ___Auger ___Cable Tool ___Jetted ___Rotary ___Sonic ✓Combination (Two or More Methods) ___Hand Driven (Well Point, Sand Point) ___Hydraulic Point (Direct Push) ___Horizontal Drilling ___Plugged by Approved Method ___Other (Describe)
19. Proposed Grouting Interval for the Primary, Secondary, and Additional Casing:
From ___ To ___ Seal Material (___Bentonite ___Neat Cement ___Other ___)
From ___ To ___ Seal Material (___Bentonite ___Neat Cement ___Other ___)
From ___ To ___ Seal Material (___Bentonite ___Neat Cement ___Other ___)
From ___ To ___ Seal Material (___Bentonite ___Neat Cement ___Other ___)
20. Indicate total number of existing wells on site ___ List number of existing unused wells on site ___
21. *Is this well or any existing well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ___Yes ___No If yes, complete the following: CUP/WUP No. ___ District Well ID No. ___
22. Latitude ___ Longitude ___
23. Data Obtained From: ___GPS ___Map ___Survey Datum: ___NAD 27 ___NAD 83 ___WGS 84

I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided in this application is accurate and that I will obtain necessary approvals from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after completion of the construction, repair, modification, or abandonment authorized by this permit, or the permit expiration, whichever occurs first.

*Signature of Contractor ____ 7287 (*License No.)

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am the agent for the owner that the information provided is accurate, and that I have informed the owner of their responsibilities as stated above. Owner consents to allowing personnel of this WMD or Delegated Authority access to the well site during the construction, repair, modification, or abandonment authorized by this permit.

*Signature of Owner or Agent ____ 12/13/16 (*Date)

Approval Granted By Jeffrey Smith Issue Date 12-19-16 Expiration Date 6-19-17 Hydrologist Approval ____ (Initials)
Fee Received $ 100 Receipt No. ____ Check No. ____

THIS PERMIT IS NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD OR DELEGATED AUTHORITY. THE PERMIT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL CONSTRUCTION, REPAIR, MODIFICATION, OR ABANDONMENT ACTIVITIES.

APPENDIX B
CONTRACTOR WELL COMPLETION REPORT AND LITHOLOGIC LOG

NED Sunbridge Test Well Lithologic Log	
Depth	Lithology
0-10	Grayish-brown fine sand with trace of roots and organics
10-20	Brown slightly silty to silty fine sand
20-30	Brown silty to slightly clayey fine sand
30-40	Brown clayey fine sand
40-50	Greenish-gray clayey fine sand to sandy clay
50-80	Green clay
80-110	Shell fragments with trace to some gray fine sand
110-120	Shell fragments with trace to some light gray clay
120-130	Brownish-gray silty to slightly clayey fine sand with shell framgents
130-140	Shell fragments with light gray clay
140-150	Green sandy clay with shell fragments
150-190	Green clay with abundant shell fragments
190-200	Shell fragments with trace of green clay
200-225	Green clay with abundant shell fragments
225-260	Shell fragments with fine sand
260-270	Gray, medium to coarse quartz sand with trace of shell fragments
270-280	Limestone, light brownish-gray color, hard
280-300	Limestone, cream color, moderately hard
300-350	Limestone, tan color, moderately hard
350-380	Limestone, cream to tan color, moderately soft to soft
380-410	Limestone, cream to tan color, moderately hard
410-420	Limestone, cream and tan color, moderately soft
420-430	Limestone, tan and light brown color, moderately hard to hard
430-440	Limestone, tan color, moderately hard
440-460	Limestone, light brown color, moderately hard
460-510	Dolostone, brown color, hard
510-540	Dolostone, dark brown color, hard
	Termination depth@ 540 ft

STATE OF FLORIDA WELL COMPLETION REPORT

Date Stamp

Official Use Only

☐Southwest
☐Northwest
☐St. Johns River
☐South Florida
☐Suwannee River
☐DEP
☒Delegated Authority (If Applicable) Osceola County Health Dept.

PLEASE, FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

1.*Permit Number 49-WD-1727438 CUP/WUP Number n/a *DID Number _____ 62-524 Delineation No. _____

2.*Number of permitted wells constructed, repaired, or abandoned 1 *Number of permitted wells not constructed, repaired, or abandoned 0

3.*Owner's Name Tavistock Services East, LLC. 4.*Completion Date 2-2-2017 5. Florida Unique ID _____

6. Cynk Dr. Kenansville
*Well Location - Address, Road Name or Number, City, ZIP

7. *County Osceola *Section 2 Land Grant _____ *Township 25 *Range 31

8. Latitude _____ Longitude _____

9. Data Obtained From: ____GPS ____Map ____Survey Datum: ____NAD 27 ____NAD 83 ____WGS 84

10.*Type of Work: ✓Construction ____Repair ____Modification ____Abandonment

11.*Specify Intended Use(s) of Well(s):
____Domestic
____Bottled Water Supply
____Public Water Supply (Limited Use/DOH)
____Public Water Supply (Community or Non-Community/DEP)
____Class I Injection
____Landscape Irrigation
____Recreation Area Irrigation
____Agricultural Irrigation
____Livestock
____Nursery Irrigation
____Commercial/Industrial
____Golf Course Irrigation
____Site Investigation
____Monitoring
✓Test
____Earth-Coupled Geothermal
____HVAC Supply
____HVAC Return
Class V Injection: ____Recharge ____Commercial/Industrial Disposal ____Aquifer Storage and Recovery ____Drainage
Remediation: ____Recovery ____Air Sparge ____Other (Describe) _____
____Other (Describe) _____

12.*Drill Method: ____Auger ____Cable Tool ____Rotary ✓Combination (Two or More Methods) ____Jetted ____Sonic ____Horizontal Drilling ____Hydraulic Point (Direct Push) ____Other _____

13.*Measured Static Water Level 33 ft. Measured Pumping Water Level _____ ft. After _____ Hours at _____ GPM

14.*Measuring Point (Describe) _____ Which is ____ ft. ____Above ____Below Land Surface *Flowing: ____Yes ____No

15.*Casing Material: ✓Black Steel ____Galvanized ____PVC ____Stainless Steel ____Not Cased ____Other _____

16.*Total Well Depth 540 ft. Cased Depth 271 ft. *Open Hole: From 271 To 540 ft. *Screen: From ____ To ____ ft. Slot Size ____

17.*Abandonment: ____Other (Explain) _____
From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____

18.*Surface Casing Diameter and Depth:
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____

19.*Primary Casing Diameter and Depth:
Dia 6 in. From 2165 ft. To 271 ft. No. of Bags 6 Seal Material (Check One): ____Neat Cement ✓Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____

20.*Liner Casing Diameter and Depth:
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____

21.*Telescope Casing Diameter and Depth:
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____
Dia ____ in. From ____ ft. To ____ ft. No. of Bags ____ Seal Material (Check One): ____Neat Cement ____Bentonite ____Other ____

22. Pump Type (If Known):
____Centrifugal ____Jet ____Submersible ____Turbine
Horsepower _____ Pump Capacity (GPM) _____
Pump Depth _____ ft. Intake Depth _____ ft.

23. Chemical Analysis (When Required):
Iron _____ ppm Sulfate _____ ppm Chloride _____ ppm
____Laboratory Test ____Field Test Kit

24. Water Well Contractor:
*Contractor Name Eric Parsons *License Number 7287 E-mail Address patrillingcorp@aol.com
*Contractor's Signature _____ *Driller's Name (Print or Type) _____
(I certify that the information provided in this report is accurate and true.)

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
2379 BROAD STREET, BROOKSVILLE, FL 34604-6899
PHONE: (352) 796-7211 or (800) 423-1476
WWW.SWFWMD.STATE.FL.US

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
4049 REID STREET, PALATKA, FL 32178-1429
PHONE: (386) 329-4500
WWW.SJRWMD.COM

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
152 WATER MANAGEMENT DR., HAVANA, FL 32333-4712
(U.S. Highway 90, 10 miles west of Tallahassee)
PHONE: (850) 539-5999
WWW.NWFWMD.STATE.FL.US

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
P.O. BOX 24680
3301 GUN CLUB ROAD
WEST PALM BEACH, FL 33416-4680
PHONE: (561) 686-8800
WWW.SFWMD.GOV

SUWANNEE RIVER WATER MANAGEMENT DISTRICT
9225 CR 49
LIVE OAK, FL 32060
PHONE: (386) 362-1001 or (800) 226-1066 (Florida only)
WWW.MYSUWANNEERIVER.COM

***DRILL CUTTINGS LOG** (Examine cuttings every 20 ft. or at formation changes. Note cavities and depth to producing zone. Grain Size: F=Fine, M=Medium, and C=Coarse)

From	To	Color	Grain Size (F, M, C)	Material
From 0 ft.	To 20 ft.	Color Blk & White	Grain Size (F, M, C) M	Material Sand
From 20 ft.	To 40 ft.	Color Blk & White	Grain Size (F, M, C) M	Material Sand
From 40 ft.	To 60 ft.	Color Blk & White	Grain Size (F, M, C) M	Material Sand
From 60 ft.	To 80 ft.	Color Green & White	Grain Size (F, M, C) M	Material Shell, Clay, Sand
From 80 ft.	To 100 ft.	Color Green & White	Grain Size (F, M, C) M	Material Shell, Clay, Sand
From 100 ft.	To 120 ft.	Color Green & White	Grain Size (F, M, C) M	Material Shell, Clay, Sand
From 120 ft.	To 140 ft.	Color Green & White	Grain Size (F, M, C) M	Material Clay, Shell, Sand
From 140 ft.	To 160 ft.	Color Green & White	Grain Size (F, M, C) M	Material Shell, clay & Sand
From 160 ft.	To 180 ft.	Color Green & Gray	Grain Size (F, M, C) M	Material Sand & clay
From 180 ft.	To 200 ft.	Color Green & Gray	Grain Size (F, M, C) M	Material Sand & clay
From 200 ft.	To 220 ft.	Color Green & Gray	Grain Size (F, M, C) M	Material Sand & clay shell
From 220 ft.	To 240 ft.	Color Green & Gray	Grain Size (F, M, C) M	Material Sand & clay some shell
From 240 ft.	To 260 ft.	Color Green & Gray	Grain Size (F, M, C) M	Material Sand & clay some shell
From 260 ft.	To 280 ft.	Color Green Gray & White	Grain Size (F, M, C) M/C	Material Sand & clay 2" Rock
From 280 ft.	To 300 ft.	Color White & Tan	Grain Size (F, M, C) C/M	Material Rock
From 300 ft.	To 320 ft.	Color White & Tan	Grain Size (F, M, C) C/M	Material Rock
From 320 ft.	To 340 ft.	Color White & Tan	Grain Size (F, M, C) M/C	Material Rock
From 340 ft.	To 360 ft.	Color White & Tan	Grain Size (F, M, C) M/C	Material Rock
From 360 ft.	To 380 ft.	Color White & Tan	Grain Size (F, M, C) M/C	Material Rock
From 380 ft.	To 400 ft.	Color White & Tan	Grain Size (F, M, C) C	Material Rock
From 400 ft.	To 420 ft.	Color Tan & White	Grain Size (F, M, C) M/C	Material Rock
From 420 ft.	To 440 ft.	Color Tan & White	Grain Size (F, M, C) C	Material Rock
From 440 ft.	To 460 ft.	Color Brown Tan	Grain Size (F, M, C) C	Material Rock
From 460 ft.	To 480 ft.	Color Brown & Tan	Grain Size (F, M, C) C	Material Rock
From 480 ft.	To 500 ft.	Color Brown	Grain Size (F, M, C) C	Material Rock
From 500 ft.	To 540 ft.	Color Brown	Grain Size (F, M, C) C	Material Rock

Comments:

***Detailed Site Map of Well Location**

N

Give distances from all reference points or structures, septic systems, sanitary hazards, and contamination sources within 500 ft. of well.

APPENDIX C
SPECIFIC CAPACITY TESTS DURING DRILLING AND WATER QUALITY FIELD TESTING

NED SUNBRIDGE TEST WELL

Specific Capacity Test Tank Size = 300 gallons Stick Up: 2.33 ft

Date	Depth (ft-btoc)*	Fill Up time (minutes)	Pumping Rate (gpm)	Pumping Wat. Lev. (ft-btoc)	Draw-down (feet)	Spec. Capacity (gpm/ft)	Temp. C	Spec. Cond. (mS/cm)	TDS (mg/L)	Salinity	pH std. units	Chloride** (mg/L)	Static water level (ft-btoc)
24-Jan	320	7.25	39	98.20	60.60	0.64	-	510	331	0.25	7.18	20	37.60
24-Jan	340	6.00	50	73.70	36.10	1.39	-	542	352	0.26	7.45	16	37.60
24-Jan	360	6.00	50	56.00	18.40	2.71	-	524	341	0.26	7.52	20	37.60
24-Jan	380	5.58	54	54.60	17.00	3.18	-	517	336	0.25	7.56	16	35.00
24-Jan	400	5.30	57	53.75	16.15	3.54	22.14	506	329	0.24	7.52	22	37.60
25-Jan	420	7.17	42	43.85	9.10	4.60	21.18	497	323	0.24	7.55	16	34.75
25-Jan	440	4.75	63	39.20	4.45	14.19	22.02	489	318	0.24	7.60	20	34.75
25-Jan	450	-	-	36.50	1.75	-	23.06	481	313	0.23	7.84	20	34.75
26-Jan	460	5.00	60	35.20	0.20	300	22.85	492	320	0.24	7.66	20	35.00
26-Jan	480	5.50	55	35.38	0.38	145	22.92	476	310	0.23	7.69	24	35.00
27-Jan	500	5.00	60	35.00	0.77	78	22.00	441	286	0.21	7.79	32	34.23
27-Jan	520	4.92	61	34.65	0.42	145	22.54	427	278	0.21	7.98	36	34.23
28-Jan	540	3.83	78	34.51	0.32	245	21.17	454	295	0.22	7.71	28	34.19

ft-btoc* = feet below top of casing Chloride** = LaMotte field titration chloride kit

COMMENTS: Hard, fractured, water bearing dolostone & dolomite penetrated from 460' - 540'

Spec. Capacity (gpm/ft)	Depth (ft-btoc)*
0.64	320
1.39	340
2.71	360
3.18	380
3.54	400
4.60	420
14.19	440
300	460
145	480
78	500
145	520
245	540

APPENDIX D
PUMPING TEST AND
FIELD WATER QUALITY RESULTS

NED SUNBRIDGE TEST WELL - TAVISTOCK

NED Sunbridge Test Well Pumping Test - February 1, 2017

Static Water Level (ft-btoc) 33.10 ft-btoc

Casing Stick Up (feet) 2.33 feet

Pump Started at 9:00 AM

Pump Turned Off at 5:00 PM

Time of Day	Elapsed Time (minutes)	Water Level (ft-btoc)	Draw-down (feet)	Pumping Rate (gpm)	Temp. C	Spec. Cond. (mS/cm)	TDS (mg/L)	Salinity	pH (std. Unit)	Chloride (mg/L)	Turbidity (NTU)
902	2	33.98	0.88	115							
903	3	33.98	0.88	115							
905	5	33.95	0.85	115							
907	7	33.91	0.81	115							
910	10	33.89	0.79	115							
915	15	33.88	0.78	115							
920	20	33.86	0.76	115							
925	25	33.85	0.75	115	22.02	472	307	0.23	7.19	22	4.00
930	30	33.84	0.74	115	22.33	468	304	0.23	7.29	22	3.31
940	40	33.85	0.75	115	22.27	468	304	0.23	7.35	22	2.25
950	50	33.85	0.75	115	22.43	459	298	0.22	7.34	26	2.40
1000	60	33.85	0.75	115	22.27	461	300	0.22	7.32	24	1.75
1010	70	33.83	0.73	115	22.56	457	298	0.22	7.31	24	1.28
1020	80	33.84	0.74	115	22.47	457	297	0.22	7.29	28	0.84
1030	90	33.85	0.75	115	22.45	456	296	0.22	7.29	24	2.18
1040	100	33.85	0.75	115	22.45	453	295	0.22	7.33	20	1.82
1105	125	33.85	0.75	115	22.29	450	292	0.22	7.33	20	1.48
1130	150	33.86	0.76	115	22.65	444	289	0.21	7.37	20	0.98
1220	200	33.82	0.72	115	22.82	442	287	0.21	7.36	25	0.36
1310	250	33.8	0.70	115	22.78	438	284	0.21	7.38	22	0.62
1400	300	33.8	0.70	115	22.91	437	284	0.21	7.42	24	1.57
1500	360	33.79	0.69	115	23.39	437	284	0.21	7.35	24	0.90
1600	420	33..79	0.69	115	23.41	433	282	0.21	7.44	28	0.00
1700	480	33.79	0.69	115	23.40	431	280	0.21	7.47	24	0.08

APPENDIX E
TRANSMISSIVITY ESTIMATES USING WALTON AND SFWMD METHODS

METHOD FOR ESTIMATING TRANSMISSIVITY
FROM SPECIFIC CAPACITY PIJMPING TEST DATA

Reference: Walton, W.C. 1970, *Groundwater Resource Evaluation*, New York, McGraw-Hill Book Company pages 314-315.

The specific capacity of a pumping well can be used to estimate the transmissivity of an aquifer according to the following formula:

$$\frac{Q}{s} = \frac{T}{264 \log\left(\frac{Tt}{2{,}693 r_w^2 S}\right) - 65.5}$$

where: $\frac{Q}{s}$ = specific capacity, in gpm/ ft

Q = discharge, in gpm

s = drawdown, in feet

T = transmissivity, in gpd/ft

S = coefficient of storage, fraction

r_w = nominal radius of well, in feet

t = time after pumping started, in minutes

The equation assumes that: (1) the production well penetrates and is uncased through the total saturated thicknes of the aquifer. (2) well loss is negligible, and (3) the effective radius of the production well has not been affected by drilling and/or well development, and (4) the effective radius of the well is equal to the nominal radius of the production well.

The coefficient of storage of an aquifer can estimated from published technical data. Because specific capacity varies with the logarithm of 1/S, large errors in estimated coefficients of storage result in comparatively small errors in transmissivity estimated with specific capacity data.

Data from NED Sunbridge Test Well Pumping Test (test conducted 2-1-2017)

Terms in the specific capacity equation used to estimate transmissivity:

Q/s = specific capacity in gpm/ft

Q = discharge, in gpm

s = drawdown, in feet

T= transmissivity in gpd/ft

S = storage, fraction

rw = radius well, in feet

t = time after pumping started, in minutes

Summary of pumping test data from the NED Sunbridge Test Well:

Q = 115 gpm

s = 0.69 feet

0.22 ft of friction loss in the well casing (see below)

s' = corrected drawdown by subtracting friction loss (0.69 - 0.21 = 0.48)

Q/s = 115/0.48 = 240 gpm/ft

S = 0.0001 (estimated from regional data)

rw = 3 inches (0.25 ft)

t = 480 minutes (0.33 day)

T = 632,748 gpd/ft

Friction Loss in Well Casing:

The test pump was set at a depth of 80 ft below land surface (bls) for the pumping test. The 6-inch casing was installed to a depth of 271 ft. below land surface. Friction loss in the well casing was calculated from 80 feet to 271 feet at a pumping rate of 115 gpm (0.11 feet of friction loss/100 feet of 6-inch casing).

TECHNICAL PUBLICATION #84-1

DRE - 188
PART 1-TEXT

HYDROGEOLOGY OF THE KISSIMMEE PLANNING AREA SOUTH FLORIDA WATER MANAGEMENT DISTRICT

by

Jonathan E. Shaw & Sharon M. Trost

1984

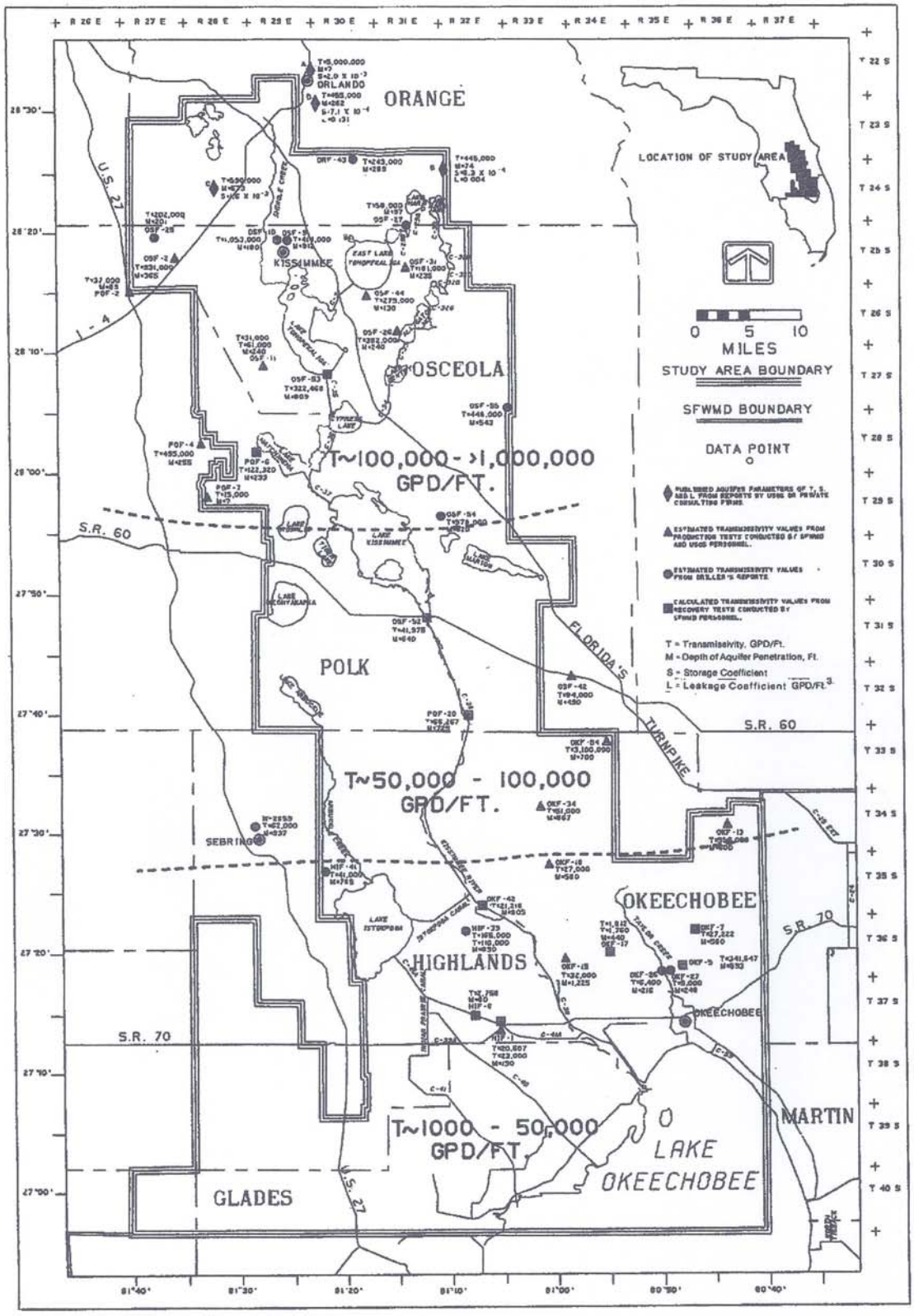


Figure 67 DISTRIBUTION OF AQUIFER PARAMETERS

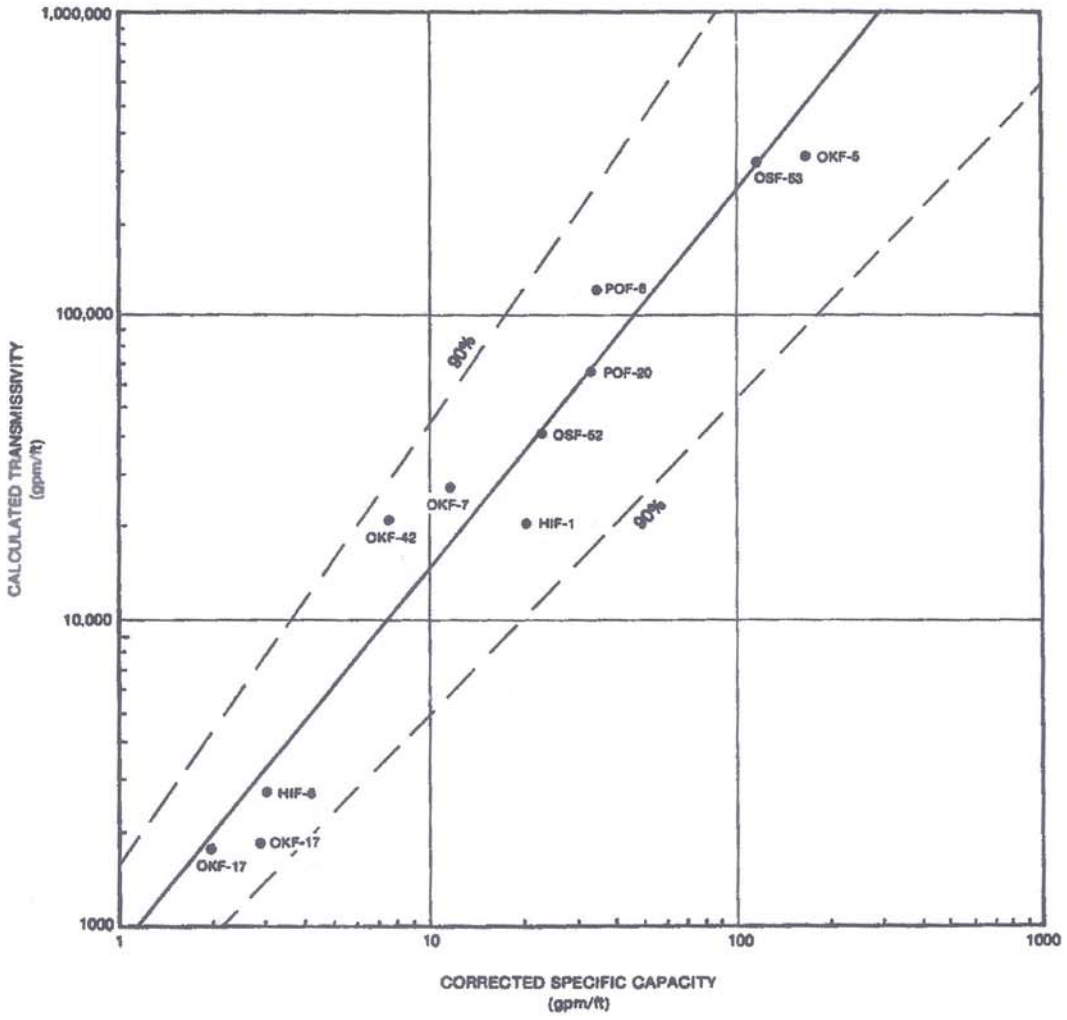
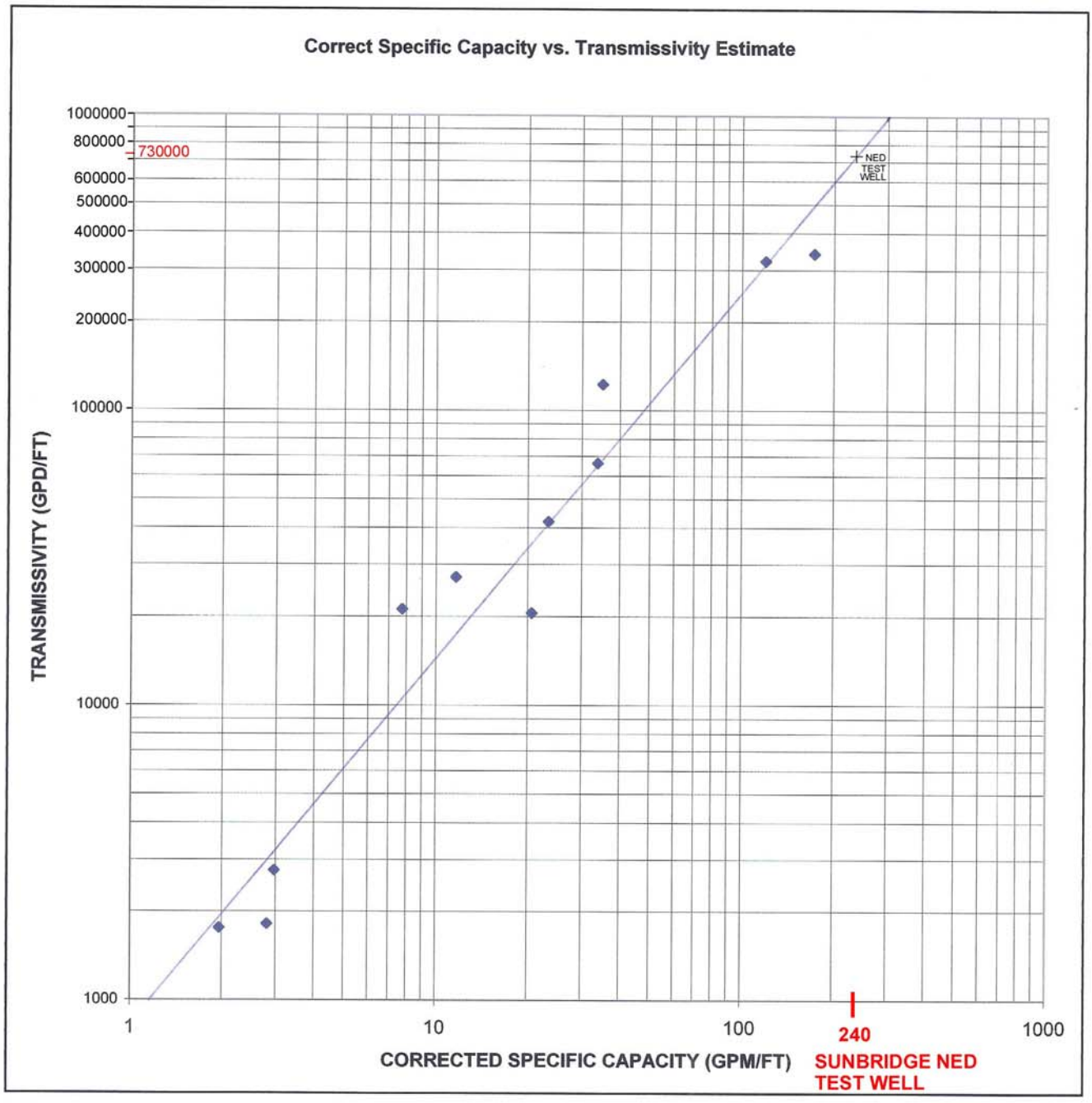


Figure 68 CORRECTED SPECIFIC CAPACITY VERSUS CALCULATED TRANSMISSIVITY FROM RESIDUAL RECOVERY ANALYSIS FOR SELECTED WELLS



REFERENCE: Shaw & Trost, 1984
SFWMD Technical Publication #84-1
DRE-188 Part 1 - Text
Hydrogeology of the Kissimmee Planning Area

APPENDIX F
LABORATORY WATER QUALITY DATA SHEETS

FLOWERS CHEMICAL LABORATORIES INC.
P.O. Box 150597, Altamonte Springs, FL 32715-0597 Phone: 407-339-5984 E83018 (Main Lab)
571 NW Mercantile Pl, Suite 111, Port St. Lucie, FL 34986 Phone: 772-343-8006 E86562 (South Lab)
812 SW Harvey Green Dr, Madison, FL 32340 Phone: 850-973-6878 E82405 (North Lab)
3980 Overseas Hwy, Suite 103, Marathon, FL 33050 Phone: 305-743-8598 E35834 (Keys Lab)

Devo Engineering
5500 Alhambra Drive
Orlando,FL 32808

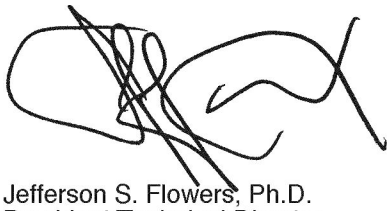
PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Report Summary

Date Received: Feb 2, 2017 FCL Project Manager: June S. Flowers

Laboratory #	Sample Description	Analysis	Chemist	Location	SampleMatrix
322267DW1	Test Well-Ned Sunbridge				Drinking Water

Certificate of Results
Sample integrity was certified prior to analysis. Test results meet all requirements of the NELAC Standards except as noted in the Quality Control Report. Uncertainties for these data are available on request. This report may not be reproduced in part; results relate only to items tested.



Jefferson S. Flowers, Ph.D.
President/Technical Director

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Devo Engineering
5500 Alhambra Drive
Orlando,FL 32808

PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Analysis Report

Lab #: 322267DW1 **Sampled:** 02/01/17 04:00 PM **Desc:** Test Well-Ned Sunbridge

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed	
Carbofuran	0.900 U	ug/L	1.00	0.900	4.00	10274061	EPA531.1	1563-66-2	02/14/17	
Oxamyl (Vydate)	2.00 U	ug/L	1.00	2.00	4.00	10274061	EPA531.1	23135-22-0	02/14/17	
Color	5.00 U	CU	1.00	5.00	10.0	10332563	SM2120 B		02/02/17	09:40 AM
Odor (TON)	1.00 U	TON@40C	1.00	1.00	2.00	10332568	SM2150 B		02/02/17	09:40 AM
Chloride	28.5	mg/L	1.00	0.400	0.800	10332572	EPA300.0	16887-00-6	02/02/17	
Fluoride	0.200 U	mg/L	1.00	0.200	0.400	10332572	EPA300.0	16984-48-8	02/02/17	
Nitrate(as N)	0.200 U	mg/L	1.00	0.200	0.400	10332572	EPA300.0	14797-55-8	02/02/17	01:30 PM
Nitrite(as N)	0.200 U	mg/L	1.00	0.200	0.400	10332572	EPA300.0	14797-65-0	02/02/17	01:30 PM
Sulfate	1.00 U	mg/L	1.00	1.00	2.00	10332572	EPA300.0	14808-79-8	02/02/17	
Total Alkalinity CaCO3	216	mg/L	1.00	1.00	4.00	10332581	SM2320 B	T-005	02/02/17	
Lab pH (units)	7.95 Q	pH	1.00	0.0100	0.0200	10332588	SM4500-H B	39-38-4	02/02/17	04:26 PM
Foaming Agents (MBAS)	0.200 U	mg/L	1.00	0.200	0.400	10332627	SM5540 C		02/02/17	03:00 PM
1,1,1-Trichloroethane	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	71-55-6	02/03/17	
1,1,2-Trichloroethane	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	79-00-5	02/03/17	
1,1-Dichloroethene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	75-35-4	02/03/17	
1,2,4-trichlorobenzene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	120-82-1	02/03/17	
1,2-dichloroethane	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	107-06-2	02/03/17	
1,2-dichloropropane	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	78-87-5	02/03/17	
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	71-43-2	02/03/17	
Carbon Tetrachloride	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	56-23-5	02/03/17	
Chlorobenzene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	108-90-7	02/03/17	
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	100-41-4	02/03/17	
Methylene chloride	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	75-09-2	02/03/17	
Para-dichlorobenzene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	106-46-7	02/03/17	
Styrene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	100-42-5	02/03/17	
Tetrachloroethene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	127-18-4	02/03/17	
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	108-88-3	02/03/17	

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Devo Engineering
5500 Alhambra Drive
Orlando,FL 32808

PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Lab #: 322267DW1 **Sampled:** 02/01/17 04:00 PM **Desc:** Test Well-Ned Sunbridge

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Trichloroethene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	79-01-6	02/03/17
Vinyl chloride	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	75-01-4	02/03/17
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	1330-20-7	02/03/17
cis-1,2-dichloroethene	0.200 U	ug/L	1.00	0.200	0.400	10332745	EPA524.2	156-59-2	02/03/17
o-dichlorobenzene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	95-50-1	02/03/17
trans-1,2-dichloroethene	0.500 U	ug/L	1.00	0.500	1.00	10332745	EPA524.2	156-60-5	02/03/17
Glyphosate	6.00 U	ug/L	1.00	6.00	10.0	10332753	EPA547	1071-83-6	02/03/17
Iron	0.234	mg/L	1.00	0.0100	0.0200	10332765	EPA200.7	7439-89-6	02/02/17
Manganese	0.0100 U	mg/L	1.00	0.0100	0.0200	10332765	EPA200.7	7439-96-5	02/02/17
Sodium	18.0	mg/L	1.00	0.500	1.00	10332765	EPA200.7	7440-23-5	02/02/17
Aluminum	0.0200 U	mg/L	1.00	0.0200	0.0400	10332788	EPA200.8	7429-90-5	02/02/17
Antimony	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-36-0	02/02/17
Arsenic	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-38-2	02/02/17
Barium	0.00710	mg/L	1.00	0.00200	0.00400	10332788	EPA200.8	7440-39-3	02/02/17
Beryllium	0.000500 U	mg/L	1.00	0.000500	0.00200	10332788	EPA200.8	7440-41-7	02/02/17
Cadmium	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-43-9	02/02/17
Chromium	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-47-3	02/02/17
Copper	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-50-8	02/02/17
Lead	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7439-92-1	02/02/17
Nickel	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-02-0	02/02/17
Selenium	0.00730	mg/L	1.00	0.00200	0.00400	10332788	EPA200.8	7782-49-2	02/02/17
Silver	0.000500 U	mg/L	1.00	0.000500	0.00100	10332788	EPA200.8	7440-22-4	02/02/17
Thallium	0.00100 U	mg/L	1.00	0.00100	0.00200	10332788	EPA200.8	7440-28-0	02/02/17
Zinc	0.0100 U	mg/L	1.00	0.0100	0.0200	10332788	EPA200.8	7440-66-6	02/02/17
TDS	332	mg/L	1.00	2.50	5.00	10332892	SM2540 C	10-33-3	02/03/17
Gross Alpha	1.00 Attached	Report	1.00			10332904	Gross Alpha		02/07/17
Radium 226	1.00 Attached	Report	1.00			10332905	Radium 226		02/07/17
Radium 228	1.00 Attached	Report	1.00			10332906	Radium 228		
Chlor_Herb_Extraction	40.0	ml	1.00			10332943	X515.4		02/07/17

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PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Lab #: 322267DW1 **Sampled:** 02/01/17 04:00 PM **Desc:** Test Well-Ned Sunbridge

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Brom_Insect_Extraction	34.9	ml	1.00			10333077	X504		02/08/17
Chlor_Pest_Extraction	34.9	ml	1.00			10333078	X505		02/08/17
2,4,5-TP (Silvex)	0.200 U	ug/L	1.00	0.200	0.500	10333099	EPA515.4	93-72-1	02/08/17
2,4-D	0.100 U	ug/L	1.00	0.100	0.500	10333099	EPA515.4	94-75-7	02/08/17
Dalapon	0.100 U	ug/L	1.00	0.100	0.500	10333099	EPA515.4	75-99-0	02/08/17
Dinoseb	0.200 U	ug/L	1.00	0.200	0.500	10333099	EPA515.4	88-85-7	02/08/17
Pentachlorophenol	0.0400 U	ug/L	1.00	0.0400	0.100	10333099	EPA515.4	87-86-5	02/08/17
Picloram	0.100 U	ug/L	1.00	0.100	0.200	10333099	EPA515.4	1918-02-1	02/08/17
Chlordane	0.0100 U	ug/L	1.00	0.0100	0.0200	10333102	EPA505	57-74-9	02/08/17
Endrin	0.0100 U	ug/L	1.00	0.0100	0.0200	10333102	EPA505	72-20-8	02/08/17
Heptachlor	0.0100 U	ug/L	1.00	0.0100	0.0200	10333102	EPA505	76-44-8	02/08/17
Heptachlor epoxide	0.0100 U	ug/L	1.00	0.0100	0.0200	10333102	EPA505	1024-57-3	02/08/17
Hexachlorobenzene	0.100 U	ug/L	1.00	0.100	0.200	10333102	EPA505	118-74-1	02/08/17
Hexachlorocyclopentadiene	0.100 U	ug/L	1.00	0.100	0.200	10333102	EPA505	77-47-4	02/08/17
Lindane (g-BHC)	0.0100 U	ug/L	1.00	0.0100	0.0200	10333102	EPA505	58-89-9	02/08/17
Methoxychlor	0.0500 U	ug/L	1.00	0.0500	0.100	10333102	EPA505	72-43-5	02/08/17
Total Arochlors	0.100 U	ug/L	1.00	0.100	0.200	10333102	EPA505	1336-36-3	02/08/17
Toxaphene	0.500 U	ug/L	1.00	0.500	1.00	10333102	EPA505	8001-35-2	02/08/17
1,2-Dibromoethane (EDB)	0.0100 U	ug/L	1.00	0.0100	0.0200	10333104	EPA504.1	106-93-4	02/08/17
1,2-dibromo-3-chloropropane	0.0200 U	ug/L	1.00	0.0200	0.0400	10333104	EPA504.1	96-12-8	02/08/17
Mercury	0.0000200 U	mg/L	1.00	0.0000200	0.0000400	10333105	EPA245.1	7439-97-6	02/09/17
Endothall_Extraction	100	ml	1.00			10333378	X548		02/08/17
Iron,Dissolved	0.0224	mg/L	1.00	0.0100	0.0200	10333422	EPA200.7		02/02/17
Total Sulfide	1.78	mg/L	1.00	0.100	1.00	10333425	SM4500-S F	18496-25-8	02/08/17
Diquat_Extraction	100	ml	1.00			10333443	X549.2		02/08/17
Diquat	0.400 U	ug/L	1.00	0.400	0.800	10333444	EPA549.2	85-00-7	02/13/17
Endothall	9.00 U	ug/L	1.00	9.00	18.0	10333553	EPA548.1	145-73-3	02/14/17
TOC	4.86	mg/L	1.00	0.500	1.00	10333562	SM5310C-DW	E701250	02/02/17
Acid Base Extraction	1000	ml	1.00			10333701	X525		02/13/17

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PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Lab #: 322267DW1 **Sampled:** 02/01/17 04:00 PM **Desc:** Test Well-Ned Sunbridge

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Alachlor (Lasso)	0.200 U	ug/L	1.00	0.200	0.400	10333877	EPA525.2	15972-60-8	02/15/16
Atrazine	0.100 U	ug/L	1.00	0.100	0.200	10333877	EPA525.2	1912-24-9	02/15/16
Benzo(a)pyrene	0.0200 U	ug/L	1.00	0.0200	0.100	10333877	EPA525.2	50-32-8	02/15/16
Bis(2-ethylhexyl)phthalate	0.600 U	ug/L	1.00	0.600	1.20	10333877	EPA525.2	117-81-7	02/15/16
Di(2-ethylhexyl) adipate	0.600 U	ug/L	1.00	0.600	1.20	10333877	EPA525.2	103-23-1	02/15/16
Simazine	0.0700 U	ug/L	1.00	0.0700	0.140	10333877	EPA525.2	122-34-9	02/15/16
Cyanide	0.00500 U	mg/L	1.00	0.00500	0.0100	10334158	SM4500CN-E	57-12-5	02/15/17

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Quality Report

Quality Control Batch: 10274061 **Analyst:** YGS

Blank	**Result**	**Units**
Carbofuran	0.900U	ug/L
Oxamyl (Vydate)	2.00U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Carbofuran	22.7	ug/L	25.0	90.79	50.00-160.00
Oxamyl (Vydate)	25.5	ug/L	25.0	102.16	50.00-160.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Carbofuran	27.2	ug/L	25.0	108.96	50.00-160.00	0.900U
Oxamyl (Vydate)	26.2	ug/L	25.0	104.90	50.00-160.00	2.00U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Carbofuran	24.7	ug/L	25.0	98.82	50.00-160.00	0.900U	9.75	40.00
Oxamyl (Vydate)	27.8	ug/L	25.0	111.35	50.00-160.00	2.00U	5.96	40.00

Quality Control Batch: 10332572 **Analyst:** YGS

Blank	**Result**	**Units**
Chloride	0.400U	mg/L
Fluoride	0.200U	mg/L
Nitrate(as N)	0.200U	mg/L
Nitrite(as N)	0.200U	mg/L
Sulfate	1.00U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Chloride	2.02	mg/L	2.00	100.81	90.00-110.00

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Quality Control Batch: 10332572 **Analyst:** YGS

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Fluoride	2.15	mg/L	2.00	107.47	90.00-110.00
Nitrate(as N)	1.96	mg/L	2.00	97.88	90.00-110.00
Nitrite(as N)	2.07	mg/L	2.00	103.28	90.00-110.00
Sulfate	1.97	mg/L	2.00	98.37	90.00-110.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Chloride	2.65	mg/L	2.00	132.31	90.00-110.00	0.400U
Fluoride	1.99	mg/L	2.00	99.53	90.00-110.00	0.200U
Nitrate(as N)	1.93	mg/L	2.00	96.39	90.00-110.00	0.200U
Nitrite(as N)	2.13	mg/L	2.00	106.26	90.00-110.00	0.200U
Sulfate	2.68	mg/L	2.00	133.79	90.00-110.00	1.00U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Chloride	2.72	mg/L	2.00	136.12	90.00-110.00	0.400U	2.84	20.00
Fluoride	2.22	mg/L	2.00	111.18	90.00-110.00	0.200U	11.06	20.00
Nitrate(as N)	1.91	mg/L	2.00	95.58	90.00-110.00	0.200U	0.84	20.00
Nitrite(as N)	2.12	mg/L	2.00	106.00	90.00-110.00	0.200U	0.25	20.00
Sulfate	2.53	mg/L	2.00	126.35	90.00-110.00	1.00U	5.72	20.00

Quality Control Batch: 10332581 **Analyst:** JEB

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Total Alkalinity CaCO3	100	mg/L	100	100.48	80.00-120.00

Quality Control Batch: 10332627 **Analyst:** CTH

Blank	**Result**	**Units**
Foaming Agents (MBAS)	0.200U	mg/L

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Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Foaming Agents (MBAS)	0.175	mg/L	0.200	87.51	75.00-125.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Foaming Agents (MBAS)	1.03	mg/L	1.00	102.90	80.00-120.00	0.200U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Foaming Agents (MBAS)	1.01	mg/L	1.00	101.47	80.00-120.00	0.200U	1.39	20.00

Quality Control Batch: 10332745 **Analyst:** CTH

Blank	**Result**	**Units**
1,1,1-Trichloroethane	0.500U	ug/L
1,1,2-Trichloroethane	0.500U	ug/L
1,1-Dichloroethene	0.500U	ug/L
1,2,4-trichlorobenzene	0.500U	ug/L
1,2-dichloroethane	0.500U	ug/L
1,2-dichloropropane	0.500U	ug/L
Benzene	0.500U	ug/L
Carbon Tetrachloride	0.500U	ug/L
Chlorobenzene	0.500U	ug/L
Ethylbenzene	0.500U	ug/L
Methylene chloride	0.500U	ug/L
Para-dichlorobenzene	0.500U	ug/L
Styrene	0.500U	ug/L
Tetrachloroethene	0.500U	ug/L
Toluene	0.500U	ug/L
Trichloroethene	0.500U	ug/L
Vinyl chloride	0.500U	ug/L
Xylenes	0.500U	ug/L
cis-1,2-dichloroethene	0.200U	ug/L
o-dichlorobenzene	0.500U	ug/L

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Quality Control Batch: 10332745 **Analyst:** CTH

Blank	**Result**	**Units**
trans-1,2-dichloroethene	0.500U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
1,1,1-Trichloroethane	44.0	ug/L	40.0	110.00	50.00-170.00
1,1,2-Trichloroethane	40.5	ug/L	40.0	101.15	50.00-170.00
1,1-Dichloroethene	45.0	ug/L	40.0	112.53	50.00-170.00
1,2,4-trichlorobenzene	41.9	ug/L	40.0	104.73	50.00-170.00
1,2-dichloroethane	46.8	ug/L	40.0	117.03	50.00-170.00
1,2-dichloropropane	45.1	ug/L	40.0	112.80	50.00-170.00
Benzene	44.1	ug/L	40.0	110.25	50.00-170.00
Carbon Tetrachloride	47.9	ug/L	40.0	119.80	50.00-170.00
Chlorobenzene	41.7	ug/L	40.0	104.32	50.00-170.00
Ethylbenzene	39.2	ug/L	40.0	98.00	50.00-170.00
Methylene chloride	45.2	ug/L	40.0	113.10	50.00-170.00
Para-dichlorobenzene	41.2	ug/L	40.0	102.90	50.00-170.00
Styrene	43.1	ug/L	40.0	107.75	50.00-170.00
Tetrachloroethene	39.9	ug/L	40.0	99.70	50.00-170.00
Toluene	41.6	ug/L	40.0	104.10	50.00-170.00
Trichloroethene	44.2	ug/L	40.0	110.55	50.00-170.00
Vinyl chloride	46.4	ug/L	40.0	116.08	50.00-170.00
Xylenes	124	ug/L	120	103.53	50.00-170.00
cis-1,2-dichloroethene	43.9	ug/L	40.0	109.83	50.00-170.00
o-dichlorobenzene	41.4	ug/L	40.0	103.37	50.00-170.00
trans-1,2-dichloroethene	44.4	ug/L	40.0	110.90	50.00-170.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
1,1,1-Trichloroethane	27.1	ug/L	20.0	135.45	50.00-170.00	0.500U
1,1,2-Trichloroethane	24.6	ug/L	20.0	122.85	50.00-170.00	0.500U
1,1-Dichloroethene	27.8	ug/L	20.0	139.00	50.00-170.00	0.500U

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Quality Control Batch: 10332745 **Analyst:** CTH

Matrix Spike	Result	Units	Spike	%REC	%REC Lim	Sample
1,2,4-trichlorobenzene	23.6	ug/L	20.0	117.95	50.00-170.00	0.500U
1,2-dichloroethane	28.9	ug/L	20.0	144.65	50.00-170.00	0.500U
1,2-dichloropropane	28.0	ug/L	20.0	140.05	50.00-170.00	0.500U
Benzene	27.7	ug/L	20.0	138.35	50.00-170.00	0.500U
Carbon Tetrachloride	29.4	ug/L	20.0	146.80	50.00-170.00	0.500U
Chlorobenzene	25.2	ug/L	20.0	126.05	50.00-170.00	0.500U
Ethylbenzene	24.0	ug/L	20.0	120.20	50.00-170.00	0.500U
Methylene chloride	28.5	ug/L	20.0	142.65	50.00-170.00	0.500U
Para-dichlorobenzene	24.2	ug/L	20.0	120.85	50.00-170.00	0.500U
Styrene	25.7	ug/L	20.0	128.55	50.00-170.00	0.500U
Tetrachloroethene	24.0	ug/L	20.0	119.90	50.00-170.00	0.500U
Toluene	25.8	ug/L	20.0	129.05	50.00-170.00	0.500U
Trichloroethene	27.3	ug/L	20.0	136.45	50.00-170.00	0.500U
Vinyl chloride	25.6	ug/L	20.0	128.10	50.00-170.00	0.500U
Xylenes	75.5	ug/L	60.0	125.88	50.00-170.00	0.500U
cis-1,2-dichloroethene	27.7	ug/L	20.0	138.55	50.00-170.00	0.200U
o-dichlorobenzene	24.8	ug/L	20.0	123.90	50.00-170.00	0.500U
trans-1,2-dichloroethene	27.9	ug/L	20.0	139.70	50.00-170.00	0.500U

Matrix Spike Duplicate	Result	Units	Spike	%REC	%REC Lim	Sample	RPD	RPD Lim
1,1,1-Trichloroethane	26.4	ug/L	20.0	132.05	50.00-170.00	0.500U	2.54	30.00
1,1,2-Trichloroethane	23.8	ug/L	20.0	118.80	50.00-170.00	0.500U	3.35	30.00
1,1-Dichloroethene	26.9	ug/L	20.0	134.55	50.00-170.00	0.500U	3.25	30.00
1,2,4-trichlorobenzene	23.9	ug/L	20.0	119.35	50.00-170.00	0.500U	1.18	30.00
1,2-dichloroethane	28.1	ug/L	20.0	140.45	50.00-170.00	0.500U	2.95	30.00
1,2-dichloropropane	27.0	ug/L	20.0	134.95	50.00-170.00	0.500U	3.71	30.00
Benzene	26.5	ug/L	20.0	132.25	50.00-170.00	0.500U	4.51	30.00
Carbon Tetrachloride	28.7	ug/L	20.0	143.55	50.00-170.00	0.500U	2.24	30.00
Chlorobenzene	24.5	ug/L	20.0	122.60	50.00-170.00	0.500U	2.77	30.00

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Quality Control Batch: 10332745 **Analyst:** CTH

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Ethylbenzene	23.2	ug/L	20.0	115.90	50.00-170.00	0.500U	3.64	30.00
Methylene chloride	27.2	ug/L	20.0	135.95	50.00-170.00	0.500U	4.81	30.00
Para-dichlorobenzene	23.2	ug/L	20.0	116.10	50.00-170.00	0.500U	4.01	30.00
Styrene	24.9	ug/L	20.0	124.35	50.00-170.00	0.500U	3.32	30.00
Tetrachloroethene	23.2	ug/L	20.0	115.80	50.00-170.00	0.500U	3.48	30.00
Toluene	24.7	ug/L	20.0	123.65	50.00-170.00	0.500U	4.27	30.00
Trichloroethene	26.9	ug/L	20.0	134.35	50.00-170.00	0.500U	1.55	30.00
Vinyl chloride	25.1	ug/L	20.0	125.55	50.00-170.00	0.500U	2.01	30.00
Xylenes	73.1	ug/L	60.0	121.82	50.00-170.00	0.500U	3.28	30.00
cis-1,2-dichloroethene	26.6	ug/L	20.0	132.75	50.00-170.00	0.200U	4.28	30.00
o-dichlorobenzene	24.0	ug/L	20.0	120.05	50.00-170.00	0.500U	3.16	30.00
trans-1,2-dichloroethene	27.2	ug/L	20.0	136.05	50.00-170.00	0.500U	2.65	30.00

Quality Control Batch: 10332753 **Analyst:** YGS

Blank	**Result**	**Units**
Glyphosate	6.00U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Glyphosate	51.3	ug/L	50.0	102.62	50.00-170.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Glyphosate	54.0	ug/L	50.0	108.04	50.00-170.00	6.00U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Glyphosate	53.6	ug/L	50.0	107.14	50.00-170.00	6.00U	0.84	30.00

Quality Control Batch: 10332765 **Analyst:** EVB

Blank	**Result**	**Units**
Iron	0.0100U	mg/L

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Quality Control Batch: 10332765 **Analyst:** EVB

Blank	**Result**	**Units**
Manganese	0.0100U	mg/L
Sodium	0.500U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Iron	5.01	mg/L	5.00	100.13	80.00-120.00
Manganese	5.09	mg/L	5.00	101.87	80.00-120.00
Sodium	5.31	mg/L	5.00	106.14	80.00-120.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Iron	5.86	mg/L	5.00	112.56	80.00-120.00	0.234
Manganese	5.90	mg/L	5.00	117.94	80.00-120.00	0.0100U
Sodium	24.2	mg/L	5.00	123.28	80.00-120.00	18.0

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Iron	5.69	mg/L	5.00	109.17	80.00-120.00	0.234	2.93	20.00
Manganese	5.71	mg/L	5.00	114.11	80.00-120.00	0.0100U	3.30	20.00
Sodium	25.0	mg/L	5.00	139.28	80.00-120.00	18.0	3.25	20.00

Quality Control Batch: 10332788 **Analyst:** EVB

Blank	**Result**	**Units**
Aluminum	0.0200U	mg/L
Antimony	0.00100U	mg/L
Arsenic	0.00100U	mg/L
Barium	0.00200U	mg/L
Beryllium	0.000500U	mg/L
Cadmium	0.00100U	mg/L
Chromium	0.00100U	mg/L
Copper	0.00100U	mg/L
Lead	0.00100U	mg/L

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Quality Control Batch: 10332788 **Analyst:** EVB

Blank	**Result**	**Units**
Nickel	0.00100U	mg/L
Selenium	0.00200U	mg/L
Silver	0.000500U	mg/L
Thallium	0.00100U	mg/L
Zinc	0.0100U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Aluminum	0.110	mg/L	0.100	110.10	80.00-120.00
Antimony	0.0941	mg/L	0.100	94.10	80.00-120.00
Arsenic	0.103	mg/L	0.100	102.70	80.00-120.00
Barium	0.107	mg/L	0.100	106.60	80.00-120.00
Beryllium	0.109	mg/L	0.100	108.50	80.00-120.00
Cadmium	0.0947	mg/L	0.100	94.70	80.00-120.00
Chromium	0.110	mg/L	0.100	109.80	80.00-120.00
Copper	0.108	mg/L	0.100	108.40	80.00-120.00
Lead	0.0975	mg/L	0.100	97.50	80.00-120.00
Nickel	0.111	mg/L	0.100	110.50	80.00-120.00
Selenium	0.103	mg/L	0.100	103.20	80.00-120.00
Silver	0.0987	mg/L	0.100	98.70	80.00-120.00
Thallium	0.107	mg/L	0.100	106.80	80.00-120.00
Zinc	0.0984	mg/L	0.100	98.40	80.00-120.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Aluminum	0.114	mg/L	0.100	113.60	80.00-120.00	0.0200U
Antimony	0.100	mg/L	0.100	100.20	80.00-120.00	0.00100U
Arsenic	0.121	mg/L	0.100	121.10	80.00-120.00	0.00100U
Barium	0.112	mg/L	0.100	105.00	80.00-120.00	0.00710
Beryllium	0.119	mg/L	0.100	119.30	80.00-120.00	0.000500U
Cadmium	0.100	mg/L	0.100	100.10	80.00-120.00	0.00100U

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Quality Control Batch: 10332788 **Analyst:** EVB

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Chromium	0.110	mg/L	0.100	109.90	80.00-120.00	0.00100U
Copper	0.0936	mg/L	0.100	93.60	80.00-120.00	0.00100U
Lead	0.0967	mg/L	0.100	96.70	80.00-120.00	0.00100U
Nickel	0.106	mg/L	0.100	106.10	80.00-120.00	0.00100U
Selenium	0.124	mg/L	0.100	116.70	80.00-120.00	0.00730
Silver	0.0884	mg/L	0.100	88.40	80.00-120.00	0.000500U
Thallium	0.103	mg/L	0.100	102.70	80.00-120.00	0.00100U
Zinc	0.123	mg/L	0.100	116.00	80.00-120.00	0.00730

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Aluminum	0.118	mg/L	0.100	117.70	80.00-120.00	0.0200U	3.55	20.00
Antimony	0.107	mg/L	0.100	106.50	80.00-120.00	0.00100U	6.10	20.00
Arsenic	0.128	mg/L	0.100	127.80	80.00-120.00	0.00100U	5.38	20.00
Barium	0.120	mg/L	0.100	112.60	80.00-120.00	0.00710	6.56	20.00
Beryllium	0.117	mg/L	0.100	117.10	80.00-120.00	0.000500U	1.86	20.00
Cadmium	0.106	mg/L	0.100	106.20	80.00-120.00	0.00100U	5.91	20.00
Chromium	0.116	mg/L	0.100	116.20	80.00-120.00	0.00100U	5.57	20.00
Copper	0.0985	mg/L	0.100	98.50	80.00-120.00	0.00100U	5.10	20.00
Lead	0.103	mg/L	0.100	103.00	80.00-120.00	0.00100U	6.31	20.00
Nickel	0.114	mg/L	0.100	113.60	80.00-120.00	0.00100U	6.83	20.00
Selenium	0.133	mg/L	0.100	125.40	80.00-120.00	0.00730	6.78	20.00
Silver	0.0916	mg/L	0.100	91.60	80.00-120.00	0.000500U	3.56	20.00
Thallium	0.110	mg/L	0.100	109.80	80.00-120.00	0.00100U	6.68	20.00
Zinc	0.136	mg/L	0.100	128.50	80.00-120.00	0.00730	9.65	20.00

Quality Control Batch: 10332892 **Analyst:** PLB

Blank	**Result**	**Units**
TDS	2.50U	mg/L

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Laboratory Control Sample	Result	Units	Spike	%REC	%REC Lim
TDS	1420	mg/L	1500	94.80	50.00-150.00

Quality Control Batch: 10333099 **Analyst:** DLJ

Blank	Result	Units
2,4,5-TP (Silvex)	0.200U	ug/L
2,4-D	0.100U	ug/L
Dalapon	0.100U	ug/L
Dinoseb	0.200U	ug/L
Pentachlorophenol	0.0400U	ug/L
Picloram	0.100U	ug/L

Laboratory Control Sample	Result	Units	Spike	%REC	%REC Lim
2,4,5-TP (Silvex)	2.49	ug/L	2.50	99.79	50.00-170.00
2,4-D	2.45	ug/L	2.50	98.13	50.00-170.00
Dalapon	2.07	ug/L	2.50	82.69	50.00-170.00
Dinoseb	2.26	ug/L	2.50	90.24	50.00-170.00
Pentachlorophenol	2.49	ug/L	2.50	99.49	20.00-160.00
Picloram	2.44	ug/L	2.50	97.79	50.00-170.00

Matrix Spike	Result	Units	Spike	%REC	%REC Lim	Sample
2,4,5-TP (Silvex)	1.80	ug/L	2.50	72.04	50.00-170.00	0.200U
2,4-D	3.49	ug/L	2.50	139.49	50.00-170.00	0.100U
Dalapon	1.45	ug/L	2.50	58.10	50.00-170.00	0.100U

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Quality Control Batch: 10333099 **Analyst:** DLJ

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Dinoseb	1.83	ug/L	2.50	73.14	50.00-170.00	0.200U
Pentachlorophenol	1.64	ug/L	2.50	65.62	20.00-160.00	0.0400U
Picloram	1.73	ug/L	2.50	69.01	50.00-170.00	0.100U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
2,4,5-TP (Silvex)	2.29	ug/L	2.50	91.64	50.00-170.00	0.200U	23.94	30.00
2,4-D	3.62	ug/L	2.50	144.62	50.00-170.00	0.100U	3.61	30.00
Dalapon	1.52	ug/L	2.50	60.80	50.00-170.00	0.100U	4.55	30.00
Dinoseb	1.76	ug/L	2.50	70.52	50.00-170.00	0.200U	3.65	30.00
Pentachlorophenol	1.84	ug/L	2.50	73.74	20.00-160.00	0.0400U	11.65	30.00
Picloram	1.82	ug/L	2.50	72.87	50.00-170.00	0.100U	5.44	30.00

Quality Control Batch: 10333102 **Analyst:** DLJ

Blank	**Result**	**Units**
Chlordane	0.0100U	ug/L
Endrin	0.0100U	ug/L
Heptachlor	0.0100U	ug/L
Heptachlor epoxide	0.0100U	ug/L
Hexachlorobenzene	0.100U	ug/L
Hexachlorocyclopentadiene	0.100U	ug/L
Lindane (g-BHC)	0.0100U	ug/L
Methoxychlor	0.0500U	ug/L
Total Arochlors	0.100U	ug/L
Toxaphene	0.500U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Endrin	0.214	ug/L	0.200	107.05	50.00-170.00
Heptachlor	0.200	ug/L	0.200	100.00	50.00-170.00
Heptachlor epoxide	0.199	ug/L	0.200	99.35	50.00-170.00

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Quality Control Batch: 10333102 **Analyst:** DLJ

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Hexachlorobenzene	0.224	ug/L	0.200	111.75	50.00-170.00
Hexachlorocyclopentadiene	0.220	ug/L	0.200	109.85	20.00-160.00
Lindane (g-BHC)	0.189	ug/L	0.200	94.60	50.00-170.00
Methoxychlor	0.200	ug/L	0.200	100.15	50.00-170.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Endrin	0.189	ug/L	0.200	94.50	50.00-170.00	0.0100U
Heptachlor	0.196	ug/L	0.200	97.80	50.00-170.00	0.0100U
Heptachlor epoxide	0.192	ug/L	0.200	95.95	50.00-170.00	0.0100U
Hexachlorobenzene	0.256	ug/L	0.200	127.95	50.00-170.00	0.100U
Hexachlorocyclopentadiene	0.221	ug/L	0.200	110.25	20.00-160.00	0.100U
Lindane (g-BHC)	0.180	ug/L	0.200	89.85	50.00-170.00	0.0100U
Methoxychlor	0.204	ug/L	0.200	101.90	50.00-170.00	0.0500U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Endrin	0.189	ug/L	0.200	94.65	50.00-170.00	0.0100U	0.16	30.00
Heptachlor	0.198	ug/L	0.200	99.05	50.00-170.00	0.0100U	1.27	30.00
Heptachlor epoxide	0.194	ug/L	0.200	96.75	50.00-170.00	0.0100U	0.83	30.00
Hexachlorobenzene	0.245	ug/L	0.200	122.60	50.00-170.00	0.100U	4.27	30.00
Hexachlorocyclopentadiene	0.228	ug/L	0.200	114.15	20.00-160.00	0.100U	3.48	30.00
Lindane (g-BHC)	0.177	ug/L	0.200	88.30	50.00-170.00	0.0100U	1.74	30.00
Methoxychlor	0.205	ug/L	0.200	102.45	50.00-170.00	0.0500U	0.54	30.00

Quality Control Batch: 10333104 **Analyst:** DLJ

Blank	**Result**	**Units**
1,2-Dibromoethane (EDB)	0.0100U	ug/L
1,2-dibromo-3-chloropropane	0.0200U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**

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Quality Control Batch: 10333104 **Analyst:** DLJ

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
1,2-Dibromoethane (EDB)	0.266	ug/L	0.250	106.36	50.00-170.00
1,2-dibromo-3-chloropropane	0.235	ug/L	0.250	94.16	50.00-170.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
1,2-Dibromoethane (EDB)	0.254	ug/L	0.250	101.64	50.00-170.00	0.0100U
1,2-dibromo-3-chloropropane	0.226	ug/L	0.250	90.56	50.00-170.00	0.0200U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
1,2-Dibromoethane (EDB)	0.253	ug/L	0.250	101.32	50.00-170.00	0.0100U	0.32	30.00
1,2-dibromo-3-chloropropane	0.225	ug/L	0.250	89.96	50.00-170.00	0.0200U	0.66	30.00

Quality Control Batch: 10333105 **Analyst:** EVB

Blank	**Result**	**Units**
Mercury	0.0000200U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Mercury	0.000910	mg/L	0.00100	90.95	80.00-120.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Mercury	0.00293	mg/L	0.00300	98.98	80.00-120.00	-0.0000404

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Mercury	0.00295	mg/L	0.00300	99.51	80.00-120.00	-0.0000404	0.54	20.00

Quality Control Batch: 10333422 **Analyst:** EVB

Blank	**Result**	**Units**
Iron,Dissolved	0.0100U	mg/L

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Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Iron,Dissolved	5.01	mg/L	5.00	100.13	85.00-115.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Iron,Dissolved	5.86	mg/L	5.00	112.56	70.00-130.00	0.234

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Iron,Dissolved	5.69	mg/L	5.00	109.17	70.00-130.00	0.234	2.93	20.00

Quality Control Batch: 10333425 **Analyst:** TRB

Blank	**Result**	**Units**
Total Sulfide	0.100U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Total Sulfide	21.2	mg/L	20.0	106.00	80.00-120.00

Quality Control Batch: 10333444 **Analyst:** YGS

Blank	**Result**	**Units**
Diquat	0.400U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Diquat	5.08	ug/L	5.00	101.52	50.00-170.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Diquat	5.84	ug/L	5.00	116.76	50.00-170.00	0.400U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Diquat	5.83	ug/L	5.00	116.68	50.00-170.00	0.400U	0.07	30.00

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Quality Control Batch: 10333553 **Analyst:** CLS

Blank	**Result**	**Units**
Endothall	9.00U	ug/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Endothall	80.7	ug/L	100	80.73	50.00-170.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Endothall	82.8	ug/L	100	82.77	50.00-170.00	9.00U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Endothall	74.8	ug/L	100	74.82	50.00-170.00	9.00U	10.09	30.00

Quality Control Batch: 10333562 **Analyst:** PCW

Blank	**Result**	**Units**
TOC	0.500U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
TOC	9.21	mg/L	10.0	92.14	80.00-120.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
TOC	9.87	mg/L	10.0	98.67	80.00-120.00	0.500U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
TOC	10.2	mg/L	10.0	101.64	80.00-120.00	0.500U	2.97	20.00

Quality Control Batch: 10333877 **Analyst:** CLS

Blank	**Result**	**Units**
Alachlor (Lasso)	0.200U	ug/L
Atrazine	0.100U	ug/L

FLOWERS CHEMICAL LABORATORIES INC.

P.O. Box 150597, Altamonte Springs, FL 32715-0597 Phone: 407-339-5984 E83018 (Main Lab)
571 NW Mercantile Pl, Suite 111, Port St. Lucie, FL 34986 Phone: 772-343-8006 E86562 (South Lab)
812 SW Harvey Green Dr, Madison, FL 32340 Phone: 850-973-6878 E82405 (North Lab)
3980 Overseas Hwy, Suite 103, Marathon, FL 33050 Phone: 305-743-8598 E35834 (Keys Lab)

Devo Engineering
5500 Alhambra Drive
Orlando,FL 32808

PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Quality Control Batch: 10333877 **Analyst:** CLS

Blank	**Result**	**Units**
Benzo(a)pyrene	0.0200U	ug/L
Bis(2-ethylhexyl)phthalate	0.600U	ug/L
Di(2-ethylhexyl) adipate	0.600U	ug/L
Simazine	0.0700U	ug/L

Quality Control Batch: 10334158 **Analyst:** PCW

Blank	**Result**	**Units**
Cyanide	0.00500U	mg/L

Laboratory Control Sample	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**
Cyanide	0.105	mg/L	0.100	105.00	80.00-120.00

Matrix Spike	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**
Cyanide	0.0679	mg/L	0.0800	84.88	80.00-120.00	0.00500U

Matrix Spike Duplicate	**Result**	**Units**	**Spike**	**%REC**	**%REC Lim**	**Sample**	**RPD**	**RPD Lim**
Cyanide	0.0668	mg/L	0.0800	83.53	80.00-120.00	0.00500U	1.60	20.00

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Date Sampled: Feb 1, 2017
Feb 23, 2017; Invoice: 322267

Narrative Report

Sample Handling
Sample handling and holding time criteria were met for all samples. Samples collected by submitter. No unusual events occurred during analysis. Results are reported on a wet weight basis.

Quality Control
Enclosed analyses met method or FCL criteria, unless otherwise denoted on the sample results. Applied data qualifiers are defined below.

Additional Comments
EPA525.2 LCS, MS and MSD QC samples were inadvertently not spiked with the target compounds, but along with the samples in the batch, they were spiked with surrogates. The two surrogate spikes for this project sample recovered 95.2 and 109%, verifying the efficiency of the extraction.

Attachments
Chain of Custody
Subcontractor Laboratory Report

Qualifier	Meaning
U	Compound was analyzed for but not detected.
J	Estimated value; one or more QC components associated with this data value exceed current QC limits.
Q	Sample held beyond the accepted holding time.
L	Off-scale high; reported concentration exceeds the highest standard.
V	Analyte was detected in both the sample and the associated method blank.
W	The dissolved oxygen blank was above 0.2 mg/L but less than the MDL.
Z	Too numerous to count colonies on plate.
A	Absent
P	Present
T	Value reported is less than the statistical method detection limit. Reported for informational purposes only.
M	Value reported is greater than the statistical method detection limit, but less than the reported MDL.
G	The greatest of the dilutions performed did not yield sufficient oxygen depletion for valid data.
S	The least of the dilutions performed did not yield sufficient oxygen residual for valid data.
O	Result is greater than (over) the specified value.
I	Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
B	Results based upon colony plate count outside ideal range.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.

Florida Department of Environmental Protection
Safe Drinking Water Program Laboratory Reporting Format

OTHER CONTAMINANTS

Report Number / Job ID: 322267DW1/Test Well

PWS ID (From Page 1): Ned Sunbridge

Contam ID	Contam Name	MCL	Units	Analysis Result	Qualifier*	Analytical Method	Lab MDL	Analysis Date	Analysis Time	DOH Lab Certification #
N/A	TOC	N/A	mg/L	4.86		SM5310C	1.0	02/02/17	-	E83018
N/A	Total Sulfide	N/A	mg/L	1.78		SM4500SF	0.1	02/08/17	-	E83018
N/A	Iron, Dissolved	N/A	mg/L	0.0224		EPA200.7	0.0100	02/02/17	-	E83018
N/A	Total Alkalinity as CaCO3	N/A	Mg/L	216		SM2320B	0.1	02/02/17		E83018
										E
										E
										E
										E
										E
										E
										E
										E
										E
										E
										E
										E

*Results must be reported with appropriate qualifiers in accordance with Florida Administrative Code Rule 62-160, Table 1. Results qualified with A, F, H, N, O, T, Z, ?, *, are unacceptable for compliance with 62-550. Results qualified with a J, Q, R, or Y must be accompanied by written justification and will be evaluated on a case by case basis. To avoid a monitoring violation, unacceptable results must be replaced with acceptable results from samples collected during the same monitoring period.

Florida Department of Environmental Protection
Safe Drinking Water Program Laboratory Reporting Format

LABORATORY CERTIFICATION INFORMATION (to be completed by lab – please type or print legibly)

Lab Name: **KNL Environmental Testing** Florida DOH Certification #: **E84025** Certification Expiration Date: **June Renewal**

ATTACH CURRENT DOH ANALYTE SHEET*

Address: **3202 N. Florida Ave. Tampa, FL 33603** Phone #: **813-229-2879**

Were any analyses subcontracted? ☐Yes ☒No If yes, please provide DOH certification number(s): _____

ATTACH DOH ANALYTE SHEET FOR EACH SUBCONTRACTED LAB*

ANALYSIS INFORMATION (to be completed by lab) Date Sample(s) Received: 02-08-17

PWS ID (From Pg 1): _____ Sample # (From Pg 1): 322267 DW1 Lab Assigned Report # or Job ID: 17.1373

Group(s) Analyzed & Results attached for compliance with Chapter 62-550, F.A.C. (Check all that apply):

Inorganics	Synthetic Organics	Volatile Organics	Disinfection Byproducts	Radionuclides	Secondaries
☐All Except Asbestos	☐All 30	☐All 21	☐Trihalomethanes	☑Single Sample	☐All 14
☐Partial	☐All Except Dioxin	☐Partial	☐Haloacetic Acids	☐Qtrly Composite**	☐Partial
☐Nitrate	☐Partial		☐Chlorite		
☐Nitrite	☐Dioxin Only		☐Bromate		
☐Asbestos					

LAB CERTIFICATION

I, **James W. Hayes** (Print Name), **Laboratory Director** (Print Title), do HEREBY CERTIFY that all attached analytical data are correct and unless noted meet all requirements of the National Environmental Laboratory Accreditation Conference (NELAC).

Signature: James Hayes Date: 2-10-17

* Failure to provide a valid and current Florida DOH lab certification number and a current Analyte Sheet for the attached analysis results will result in rejection of the report, possible enforcement against the public water system for failure to sample, and may result in notification of the DOH Bureau of Laboratory Services.
** Please provide radiological sample dates & locations for each quarter.

CONFIRMATION & NOTIFICATION IS REQUIRED WITHIN 24 HRS FOR NITRATE OR NITRITE MCL EXCEEDANCES
NON-DETECTS ARE TO BE REPORTED AS THE MDL WITH A "U" QUALIFIER. (Non-detects reported as "BDL" or with a "<" are not acceptable.)

COMPLIANCE DETERMINATION (to be completed by DEP or DOH -- attach notes as necessary)

Sample Collection & Analysis Satisfactory: ☐Yes ☐No _____ Replacement Sample or Report Requested (circle or highlight group(s) above)

Person Notified: _____ Date Notified: _____ DEP/DOH Reviewing Official: _____

KNL Environmental Testing
3202 N. Florida Ave.
Tampa, FL 33603

Ph: (813) 229-2879 Fax: (813) 229-0002

Florida Department of Environmental Protection
Safe Drinking Water Program Laboratory Reporting Format

RADIONUCLIDES
62-550.310(6)
Client ID: Flowers 322267DW1

KNL Report Number/Job ID: 17.1373
PWS ID(From Page 1):

Contam ID	Contam Name	MCL	Units	Analysis Result	Qualifier *	Analytical Method	Lab MDL	RDL	Analysis Error	Analysis Date	Analysis Time	DOH Lab Certification #
4002	Gross Alpha (incl Uranium)	15 ***	pCi/L	1.6	U	EPA 900.0	1.6	3	0.8	2-10-17	1621	E84025
4020	Radium-226	5	pCi/L	1.0	I	EPA 903.0	0.4	1	0.4	2-14-17	1229	E84025
4030	Radium-228		pCi/L	0.6	I	EPA Ra-05	0.6	1	0.5	2-14-17	1213	E84025

Reporting Format 62-550.730
Effective January 1995, Revised February 2010.

* Qualifier Codes: U = indicates that the compound was analyzed for but not detected.
I = the reported value is between the laboratory detection limit and the laboratory practical quantitation limit.

** If the result exceeds 5 pCi/L, a measurement for radium-226 is required. Uranium is reported separately under Contam ID 4006.

*** If the results exceed 5 pCi/L, a measurement for radium-226 is required. If the results exceed 15 pCi/L, a measurement for Combined Uranium must be reported separately. The DEP/DOH will subtract the U value from the Gross Alpha (ID 4002) to determine compliance with MCL for Gross Alpha (Excl.U) of 15 pCi/L. If the result for ID 4002 Gross Alpha (incl.Uranium) does not exceed 15 pCi/L, Combined Uranium need not be measured nor reported.

**** If using Uranium testing methods ASTM D5174 or EPA 200.8 only, then Analysis Error need not be reported.

Test results meet all requirements of the NELAC standards. Statement of estimated uncertainty available upon request. Test results refer only to sample(s) listed.
Contact person: Jim Hayes (813) 229-2879.

James W. Hayes

Approved by:

James W. Hayes
Laboratory Director

Check Box That Applies To Your Location

☑ **Flowers Chemical Laboratories, Inc.**
481 Newburyport Ave.
Altamonte Springs, FL 32701
Bus: 407-339-5984
Fax: 407-260-6110

☐ **Flowers Chemical Labs-South**
West Park Industrial Plaza
571 N.W. Mercantile Pl., Ste. 111
Port St. Lucie, FL 34986
Bus: 772-343-8006
Fax: 772-343-8089

☐ **Flowers Chemical Labs-North**
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Madison, FL 32340
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Fax: 850-973-6878

☐ **Flowers Chemical Labs-Keys**
3980 Overseas Highway, Ste. 103
Marathon, FL 33050
Bus: 305-743-8598
Fax: 305-743-8598

FLOWERS CHEMICAL LABORATORIES INCORPORATED

DOWNLOAD REPORTS, INVOICES AND CHAINS OF CUSTODY www.flowerslabs.com

Client: KNL Labs	Project Name	P.O. #
Address	Client Contact	FAX
	FCL Project Manager	E-MAIL 17.1366-76
Phone	Requested Due Date 10 Day Standard OR MM DD YY	Rush Charges May Apply
Sampled By (PRINT):	Pick-Up Fee $ / Vehicle Surcharge $ / Sampling Fee $	
Sampler Signature / Date Sampled		

GW - ground water DW - drinking water WW - wastewater
SW - surface water SO - soil/solid SL - sludge HW - waste

ITEM NO.	SAMPLE ID	DATE	TIME	MATRIX	(LAB USE ONLY) LAB NO.	PRESERVATIVES: NONE	H_2SO_4	HNO_3	HCl	$Na_2S_2O_3$	ANALYSES REQUEST: Gross Alpha	RA 226	RA 228	COMMENTS	Total # Containers
1	322118GW1	1/31	12:37	GW	1366			✓			/	✓	✓		2
2	322156WW1	1/31	09:20	WW	1367			✓			/	✓	✓		2
3	322261WW1	2/1	10:10	WW	1368			✓			*	✓	✓	9,200	2
4	322262GW1	2/1	09:40	GW	1369			✓			*	✓	✓	50,779	2
5	322298DW1	2/2	07:30	DW	1370			✓			✓	✓	✓		2
6	322299DW1	2/2	09:00	DW	1371			✓			✓	✓	✓		2
7	322300DW1	2/1	14:15	DW	1372			✓			✓	✓	✓	DW 2-20-17	2
8	322267DW1	2/1	16:00	DW	1373			✓			✓	✓	✓		2
9	322458DW1	2/3	10:10	DW	1374			✓			*	✓	✓	14,522	2
10	322480DW1	2/3	12:10	DW	1375			✓			/	✓	✓		2

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
							2/7/17	1500		2-8-17	1030

FINANCE CHARGES APPLIED TO PAST DUE INVOICES

• **WHITE** - Lab Copy - To Be Scanned • **YELLOW** - Client Copy

Rev 04-08

FLOWERS CHEMICAL LABORATORIES INCORPORATED

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3980 Overseas Highway
Ste. 103
Marathon, FL 33050
Bus: 305-743-8598
Fax: 305-743-8598

www.flowerslabs.com

Client: DEVO ENGINEERING
Address: ORLANDO, FL
ATTN: DAVE KINCAID R
Phone: 321-229-8211
Sampled By (PRINT): BOB OROS 407-620-1793
Sampler Signature: [signature] Date Sampled: 2-1-2017

Public Water System Name:
PWS ID#: P.O. #:
FCL Lab Coordinator: Kit #:

Public Water System Type: ☐ Limited Use Commercial / Public ☐ Community ☐ Non-Community ☐ Non-transient / Non-Community

COMMENTS: TEST WELL UNCHLORINATED

DRINKING WATER - Chain of Custody F.A.C. 62 - 550

ITEM NO.	SAMPLE DESCRIPTION	DATE	TIME	LAB NO.	NUMBER	PRESERVATIVES: NONE	NaOH	HNO_3	HCl	$Na_2S_2O_3$	Primary Inorg.	Secondaries	VOCs	SOCs	NO_2/NO_3	TTHM	THAA	Pb/Cu	GA / RA228	RA226	Asbestos				Field pH	Field Cl_2 Res
1	TEST WELL	2-1	1600	322267	DW1																				4.7	
2	NED SUNBRIDGE																								pH<2	
3																									pH>10	
4	SEE ATTACHED				19																					
5	KIT REQUEST																									
6	FORM																									
7																										
8																										
9																										
10																										

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
						[signature]	2-2	0905			
									[signature]	2/2/17	0905

• **WHITE** - Ship with Samples / To Be Returned with Results

• **YELLOW** - Field Copy / Retain For Your Records

PDW 02-04

NED Sunbridge Test Well Pumping Test - February 1, 2017

Static Water Level (ft-btoc) 33.10

Casing Stick Up (feet) 2.33

turn key open other hand 2431 / CODE floor to the right

call 321-303-1404

Time of Day	Elapsed Time (minutes)	Water Level (ft-btoc)	Draw-down (feet)	Pumping Rate (gpm)	Temp. C	Spec. Cond. (mS/cm)	TDS (mg/L)	Salinity	pH (std. Unit)	Chloride (mg/L)	Turbidity (NTU)	Comments
950	50	33.85	.75	115	22.43	459	298	0.22	7.34	26	2.40	
1000	60	33.85	.75	115	22.27	461	300	0.22	7.32	24	1.75	
1010	70	33.83	.73	115	22.56	457	298	0.22	7.31	24	1.28	
1020	80	33.84	.74	115	22.47	457	297	0.22	7.29	28	0.84	@1040 SWITCHED
1030	90	33.85	.75	115	22.45	456	296	0.22	7.29	24	2.18	TO DEVO'S TITRATOR
1040	100	33.85	.75	115	22.45	453	295	0.22	7.33	20	1.82	FOR CL TEST
1105	125	33.85	.75	115	22.29	450	292	0.22	7.33	20	1.48	
1130	150	33.86	.76	115	22.65	444	289	0.21	7.37	20	0.98	
1220	200	33.82	.72	115	22.82	442	287	0.21	7.36	25	0.36	
1310	250	33.80	.70	115	22.78	438	284	0.21	7.38	22	0.62	
1400	300	33.80	.70	115	22.91	437	284	0.21	7.42	24	1.57	
1500	360	33.79	.69	115	23.39	437	284	0.21	7.35	24	0.90	
1600	420	33.79	.69	115	23.41	433	282	0.21	7.44	28	0.00	
1700	480	33.79	.69	115	23.40	431	280	0.21	7.47	24	0.08	

Flowers Chemical Laboratories *KIT REQUEST FORM*

481 Newburyport Ave.
Altamonte Springs, FL 32701 Phone (407) 339-5984 Fax (407) 260-6110

FCL Project Manage June

	Total Containers	PARAMETERS	Containers per Sample	Matrix	Preservative: Asc Acid	HNO3	Zn(C2H3O2)/NaOH	Na2S2O3	H2SO4	NaOH	MonoCl Acid	HCL	NH4CL	Plastic: 125mL CLEAR	250mL AMBER	250mL CLEAR	500mL CLEAR	1L CLEAR	whirl Pak BAG	Coll Bottle	Glass Containers: 40mL vial	125mL AMBER	250mL AMBER	1L CLEAR	1L AMBER	4L AMBER	4oz Soil AMBER	8oz Soil CLEAR		300mL BOD Bottle
1	1	Pri/Sec +Alk	1	DW														X												
2	1	Pri/Sec, 1-125mL Fe-Diss	1	DW		x (not for Fe-Diss										X														
3	3	VOC	3	DW								x									X									
4	1	Cn	1	DW						X				X																
5	1	548.1,547	1	DW																					X					
6	2	525.2	2	DW								x													X					
7	3	504/505	3	DW				X													X									
8	1	549.2	1	DW				X							x															
9	1	531.1	1	DW							X										X									
10	1	515.4	1	DW				X															X							
11	1	Odor/Color	1	DW																					X					
12	2	GA / Rad 226 /228	1	DW		X												X												
13	1	Total Sulfide	1	DW			X																	X						
14	1	TOC	1	DW					X												X									

01/25/17

Devo -

ATTN: Dave Kincaid

Extra Coolers: [ ] (L) [ ] (M) [ ] (S

Trip Blanks: [ ] w/HCl [ ] w/o HCl

Custody Chain: [ ] Env. [1] DW

Temp Blank: [ ] Bailers: [ ]

[X] Customer Pick Up:

Date: Thurs 1/26/17 Time: am

SHIPPING METHOD

[ ] STD. UPS [ ] DHL Next Day
[ ] Fed-Ex Flowers Account
[ ] Fed-Ex Client Account #
[ ] Other:

Project: NED Test Well
Location: Lake Nona
Sampling Dates:

Special Notes:
Test Well = Unchlorinated

no headspace in vials

Cooler ID

SAMPLE KIT ID: Return w/COC

Thank You for Your Business

APPENDIX G
GEOCHEMICAL PATTERN ANALYSES

FLOWERS CHEMICAL LABORATORIES INC.

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3980 Overseas Hwy, Suite 103, Marathon, FL 33050 Phone: 305-743-8598 E35834 (Keys Lab)

Devo Engineering
5500 Alhambra Drive
Orlando,FL 32808

PO #: n/a
Client Project #: Lake Nona NED Test Well
Date Sampled: Feb 1, 2017
Feb 23, 2017: Invoice: 322267

Date Received: Feb 2, 2017 FCL Project Manager: June S. Flowers

Laboratory #	Sample Description	Analysis	Chemist	Location	SampleMatrix
322267DW1	Test Well-Ned Sunbridge				Drinking Water

	meq factor			Cations	
Ca 2+	0.0499002	**Calcium**	**77.22**	3.85329341	72%
Fe 2+	0.03581341	**Iron**	**0.234**	0.00838034	0%
Mg 2+	0.0822876	**Magnesium**	**8.063**	0.66348488	12%
K +	0.02624948	**Potassium**	**1.47**	0.03858673	1%
Na +	0.04349717	**Sodium**	**18.017**	0.78368856	15%
Mn	0.03640467	**Manganese**	**0**	0	
Ba	0.0145624	**Barium**	**0**	0	
Zn	0.03058572	**Zinc**	**0**	0	
Sr	0.02283	**Strontium**	**0**	0	
B	0.18500	**Boron**	**0**	0	
Ti	0.04177982	**Titanium**	**0**	0	
			0	0	
			Sum of Cation	5.34743392	

		Calculated TDS	**133.6**		
		Calculated Hardness	**226.0**		
				Anions	
Cl -	0.02820636	**Chloride**	**28.52**	0.80444532	16%
SO4 2-	0.02081989	**Sulfate**	**0.001**	2.082E-05	0%
NO2- (as N cor	0.02173677	**Nitrite(as N)**	**0**	0	
NO3- (as N cor	0.01612799	**Nitrate(as N)**	**0**	0	
F-	0.05263712	**Fluoride**	**0**	0	
OP	0.03158892	**Orthophosphate(as P)**	**0**	0	
Alk	**0.01998242**	**Total Alkalinity CaCO3**	**216**	4.31620174	84%
BiAlk	**0.01998242**	**Bicarbonate Alkalinity**	**0**	0	
CarbAlk	**0.01998242**	**Carbonate CaCO3**	**0.1**	0.00199824	0%
			0	0	
			0		
			Sum of Anion	5.12266622	

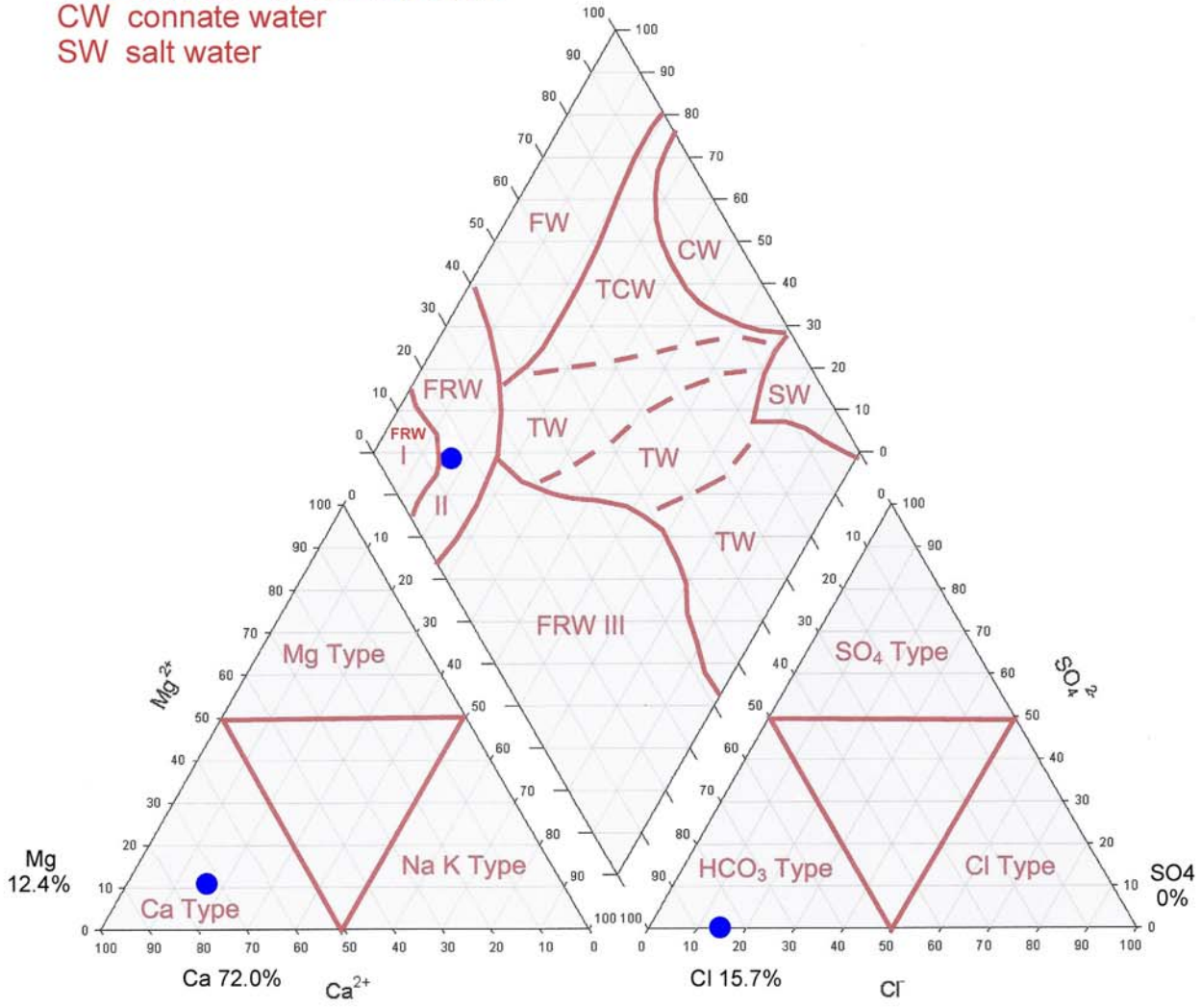
5.12	**Sum of Anion**	322267DW1	**ID #**
5.35	**Sum of Cation**	**PASS**	
0.225	**Diff**		
10.470	**Sum**		
2.15	**% bal**		

ANION-CATION BALANCE
NED SUNBRIDGE TEST WELL

WATER TYPES LEGEND

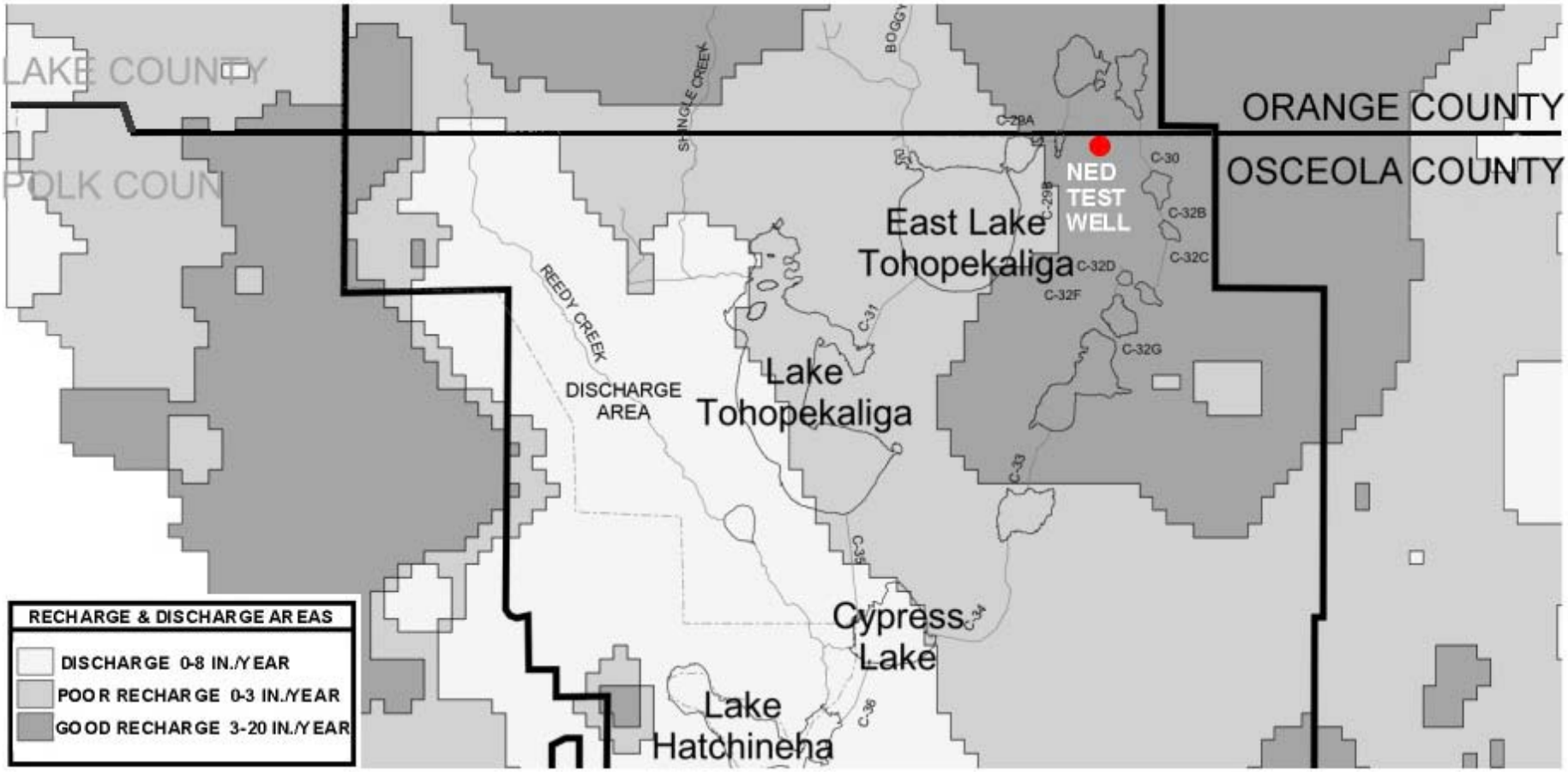
FW fresh water
FRW fresh recharge water
types I, II, & III
TW transitional water
TCW transitional connate water
CW connate water
SW salt water

GEOCHEMICAL PATTERN ANALYSIS
SUNBRIDGE NED TEST WELL



SUNBRIDGE NED TEST WELL SAMPLE
COLLECTED 2-1-2017 @ 1600 HR.

WATER TYPE:
calcium bicarbonate, type II fresh recharge water



REFERENCE: SFWMD, April 2000
Kissimmee Basin Water Supply Plan
Appendix H Ground Water Modeling Reports
I. Osceola Regional Model

● NED Test Well Location

UPPER FLORIDAN AQUIFER
RECHARGE & DISCHARGE AREAS
NORTHERN OSCEOLA COUNTY